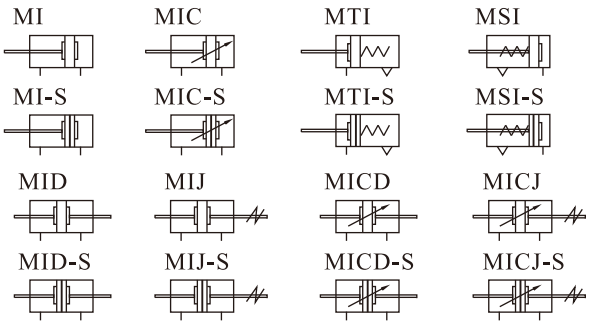
Stainless steel mini cylinder——MI Series

Product feature

1. In accordance with ISO6432 standard(Φ8~Φ25).
2. Front and back cover owns fixed bumper pad which can reduce the impact of direction-change of the cylinder.
3. There are several mode of back cover, which makes the installation of cylinder more convenient.
4. Front and back cover and stainless steel block adopt riveted rolling packed structure to form a reliable connection.
5. Piston rod and cylinder body with the material of stainless steel make the cylinder adapt general working environment with corrosivity.
6. There are cylinders and accessories with several specifications for installation for your choice.

Symbol



Specification

Bore size(mm)		8	10	12	16	20	25	32	40
Acting type		Double acting, Single acting_Push, Single acting_Pull							
		–			Double acting with cushion				
Fluid		Air(to be filtered by 40μm filter element)							
Operating pressure	Double acting	0.15~1.0MPa(22~145psi)(1.5~10.0bar)							
	Single acting	0.2~1.0MPa(28~145psi)(2.0~10.0bar)							
Proof pressure		1.5MPa(215psi)(15bar)							
Temperature ℃		-20~70							
Speed range mm/s		Double acting:30~800 Single acting:50~800							
Stroke tolerance		$0\sim150\ ^{+1.0}_{0}$ $>150\ ^{+1.5}_{0}$							
Cushion type		MIC Series: Variable cushion Other series: Bumper							
Port size [Note1]		M5×0.8				G1/8			G1/4

[Note1] The standard thread type is G thread, Please control us for other thread type.

Standard Stroke

Bore size (mm)		Standard stroke (mm)	Max.std stroke	Max. stroke
MI	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 80 100 125 150 160 175 200 250	250	500
MI MIC	16	10 15 20 25 30 40 50 60 75 80 100 125 150 160 175 200 250 300 350 400 450 500	500	600
	20 25 32 40		500	800
MID MIJ	8 10	10 15 20 25 30 40 50 60 75 80 100	100	–
	12	10 15 20 25 30 40 50 60 75 80 100 125 150 160 175 200	200	–
MID, MIJ MICD, MICJ	16 20 25	10 15 20 25 30 40 50 60 75 80 100 125 150 160 175 200 250 300	300	–
	32 40	10 15 20 25 30 40 50 60 75 80 100 125 150 160 175 200 250 300 350 400 450 500	500	–
MSI MTI	8 10 12	10 15 20 25 30 40 50	–	–
	16	10 15 20 25 30 40 50 60 75 80 100	–	–
	20 25 32 40	10 15 20 25 30 40 50 60 75 80 100 125 150	–	–

[Note] Consult us for non-standard stroke.

Stainless steel mini cylinder——MI Series

Ordering code

MI - 32 × 40 -S - CA - FA - □

MID - 32 × 50 -S - CA - FA - □

MIJ - 32 × 50 - 20 - S - CA - FA - □

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

①Model
MI: Mini cylinder(Double acting)
MIC: Mini cylinder (Double acting with cushion)
MSI: Mini cylinder(Single acting_push)
MTI: Mini cylinder(Single acting_pull)
MID: Mini cylinder(Double rod)
MICD: Mini cylinder (Double rod with cushion)
MIJ: Mini cylinder(Adjustable stroke)
MICJ: Mini cylinder(Adjustable stroke with cushion)

⑥Back cover		
Back cover	Series	Bore size
CA: Pivot type	MI MSI MTI	Φ8~Φ25
U: Perpendicular 90°		Φ8~Φ40
R: Axial air-in		Φ16~Φ40
CM: Round-end type		Φ16~Φ40
CA: Pivot type	MIC	Φ16~Φ25
U: Perpendicular 90°		Φ16~Φ40
CM: Round-end type		Φ16~Φ40
No this code	Others	

②Bore size	
Bore size	Series
8 10 12 16 20 25 32 40	MI
16 20 25 32 40	MIC
8 10 12 16 20 25 32 40	MSI
	MTI
	MID
16 20 25 32 40	MICD
8 10 12 16 20 25 32 40	MIJ
16 20 25 32 40	MICJ

③Stroke
Refer to stroke table for details

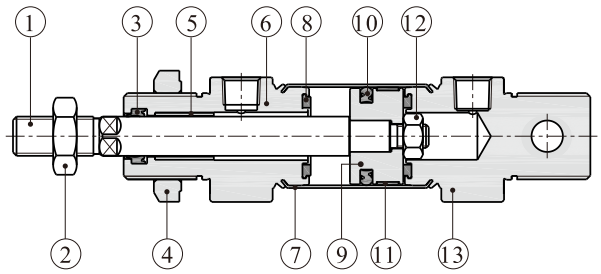
⑤ Magnet
Blank: Without magnet
S: With magnet

⑦Mounting type	
Mounting type	Series
Blank: No accessories	MI MIC MSI MTI
FA: FA type	
SDB: SDB type	
LB: LB type	
TC: TC type	
Blank: No accessories	MID MICD MIJ MICJ
FA: FA type	
LB: LB type	
TC: TC type	

⑧ Thread type
Blank： G thread
PT： PT thread

④ Adjustable stroke	
Series	Adjustable stroke
MIJ series MICJ series	10： 10mm
	20： 20mm
	30： 30mm
	40： 40mm
	50： 50mm
	75： 75mm
	100： 100mm
Others series	No this code

Inner structure and material of major parts

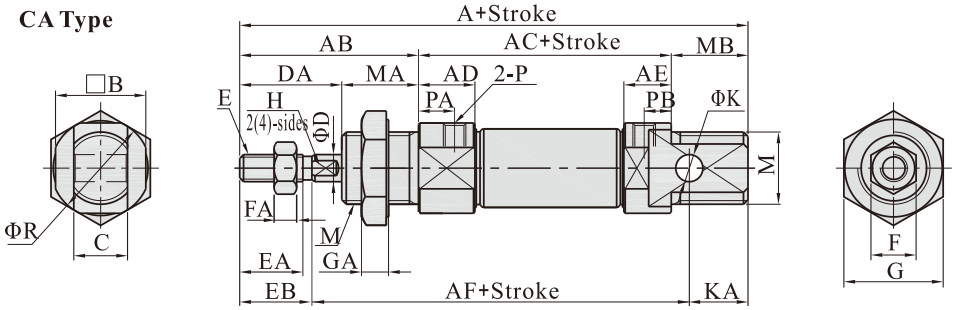


NO.	Item	Material
1	Rod	SUS304
2	Rod nut	Carbon steel
3	Front cover packing	NBR
4	Front cover nut	Carbon steel
5	Bushing	Wear resistant material
6	Front cover	Aluminum alloy
7	Barrel	SUS304(Φ8~Φ12)\SUS316L(Others)
8	Bumper	TPU
9	Piston	SUS304(Φ8~Φ12)\Aluminum alloy(Others)
10	Piston seal	NBR
11	Wear ring	Wear resistant material
12	Nut	Carbon steel
13	Back cover	Aluminum alloy

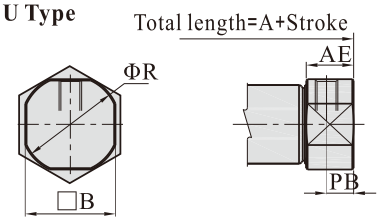
Dimensions

MI

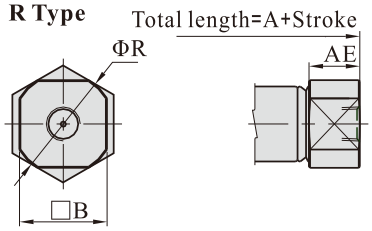
CA Type



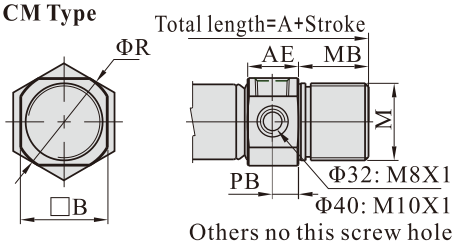
U Type



R Type



CM Type



Bore size\Item	A				AB	AC	AD	AE		AF	B	C	D	DA	E	EA	EB	F	FA
Back cover	CA	U	R	CM				CA	U/R/CM										
8	86	74	-	-	28	46	11.5	9.5	9.5	64	15	8	4	16	M4×0.7	10.5	12	7	3
10	86	74	-	-	28	46	11.5	9.5	9.5	64	15	8	4	16	M4×0.7	10.5	12	7	3
12	105	88	-	-	38	50	12.5	10.5	10.5	75	18	12	6	21	M6×1.0	14.5	16	10	5
16	111	94	94	111	38	56	12.5	10.5	10.5	82	20	12	6	21	M6×1.0	14.5	16	10	5
20	126	106	106	126	44	62	14.5	14.5	14.5	95.5	25	16	8	24	M8×1.25	18	19.5	12	6
25	137	114.5	115	137	50	65	16	16	16	104.5	30	16	10	28	M10×1.25	20	21.5	17	6
32	-	125	126	140	58	-	16.5	-	16.5	-	34.5	-	12	28	M10×1.25	18.5	20	17	6
40	-	158	158	174	69	-	22	-	22	-	42.5	-	16	34	M12×1.25	22.5	24	17	7

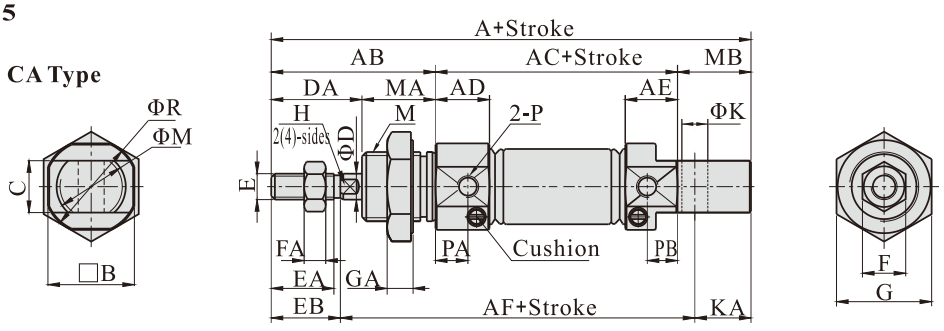
Bore size\Item	G	GA	H	K	KA	M	MA	MB	P	PA	PB		R
Back cover											CA	U/CM	
8	17	6	-	4	10	M12×1.25	12	12	M5×0.8	7	5	5	17
10	17	6	-	4	10	M12×1.25	12	12	M5×0.8	7	5	5	17
12	22	6	5(2-Sides)	6	14	M16×1.5	17	17	M5×0.8	8	6	6	20
16	22	6	5(2-Sides)	6	13	M16×1.5	17	17	M5×0.8	8	6	6	22
20	29	7	6(2-Sides)	8	11	M22×1.5	20	20	G1/8	7.5	7.5	7.5	29
25	29	7	8(4-Sides)	8	11	M22×1.5	22	22	G1/8	8	8	8	33.5
32	36	7	10(4-Sides)	-	-	M30×1.5	30	14	G1/8	9	-	8/9	37.5
40	46	8	14(4-Sides)	-	-	M38×1.5	35	16	G1/4	12	-	11.5/12	46.5

Remark: The dimensions of magnet type cylinder are the same as non-magnet type cylinder.

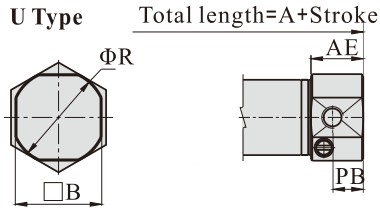
Stainless steel mini cylinder——MI Series

MIC Φ16~Φ25

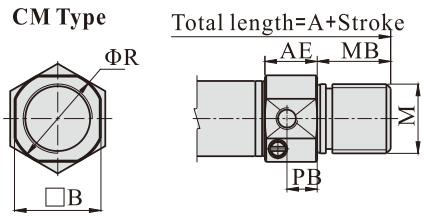
CA Type



U Type



CM Type



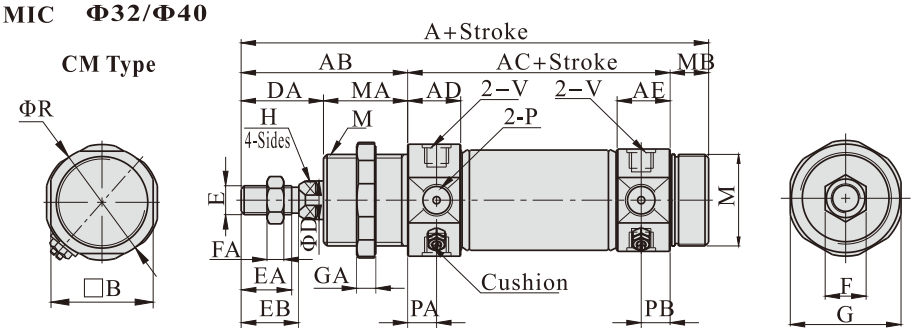
Bore size\Item	A		AB	AC	AD	AE		AF	B	C	D	DA	E	EA	EB	F	FA
Back cover	CA/CM	U				CA/CM	U										
16	111	94	38	56	12.5	12	12	82	20	12	6	21	M6×1.0	14.5	16	10	5
20	126	106	44	62	14.5	14.5	14.5	95.5	25	16	8	24	M8×1.25	18	19.5	12	6
25	137	113.5	50	65	16	16	14.5	104.5	30	16	10	28	M10×1.25	20	21.5	17	6

Bore size\Item	G	GA	H	K	KA	M	MA	MB	P	PA	PB	R
16	22	6	5(2-Sides)	6	13	M16×1.5	17	17	M5×0.8	7.5	7	22
20	29	7	6(2-Sides)	8	11	M22×1.5	20	20	G1/8	7.5	7.5	29
25	29	7	8(4-Sides)	8	11	M22×1.5	22	22	G1/8	8	8	33.5

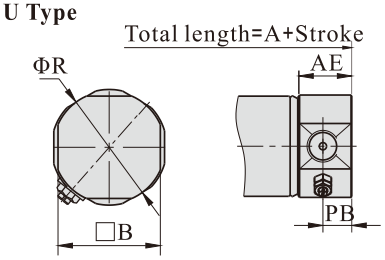
Remark: The dimensions of magnet type cylinder are the same as non-magnet type cylinder.

MIC Φ32/Φ40

CM Type



U Type



Bore size\Item	A		AB	AC	AD	AE		B	D	DA	E	EA	EB	F	FA	G	GA
Back cover	U	CM				U	CM										
32	124	140	58	68	16.5	14.5	16.5	34.5	12	28	M10×1.25	18.5	20	17	6	36	7
40	157.5	174	69	89	22	21.5	22	42.5	16	34	M12×1.25	22.5	24	17	7	46	8

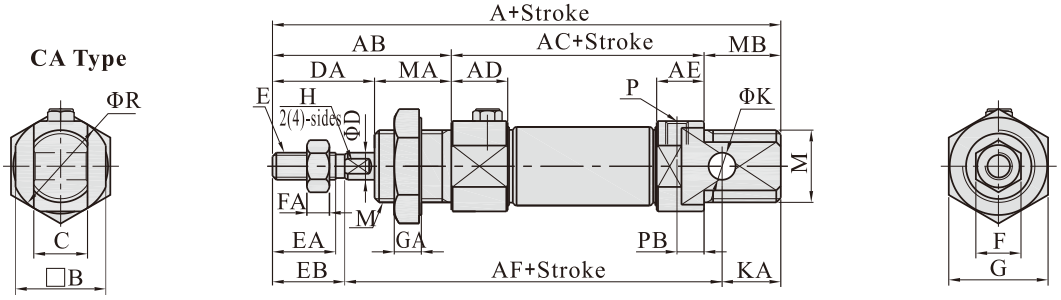
Bore size\Item	H	M	MA	MB	P	PA	PB		R	V
Back cover							U	CM		
32	10(4-Sides)	M30×1.5	30	14	G1/8	9	7.5	9	37.5	M8X1
40	14(4-Sides)	M38×1.5	35	16	G1/4	12	11.5	12	46.5	M10X1

Remark: The dimensions of magnet type cylinder are the same as non-magnet type cylinder.

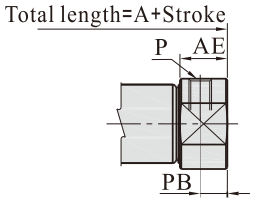
Stainless steel mini cylinder——MI Series

MSI

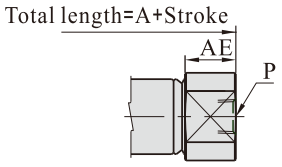
CA Type



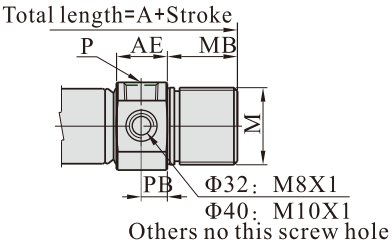
U Type



R Type



CM Type



Item	A												AB
Back cover	CA			U			R			CM			
Bore size\Stroke	0~50	51~100	101~150	0~50	51~100	101~150	0~50	51~100	101~150	0~50	51~100	101~150	
8	111	-	-	99	-	-	-	-	-	-	-	-	28
10	111	-	-	99	-	-	-	-	-	-	-	-	28
12	130	-	-	113	-	-	-	-	-	-	-	-	38
16	136	161	-	119	144	-	119	144	-	136	161	-	38
20	151	176	201	131	156	181	131	156	181	151	176	201	44
25	162	187	212	139.5	164.5	189.5	140	165	190	162	187	212	50
32	-	-	-	150	175	200	151	176	201	165	190	215	58
40	-	-	-	183	208	233	183	208	233	199	224	249	69

Item	AC			AD	AF			AE		B	C	D	DA	E
Back cover								CA	U/R/CM					
Bore size\Stroke	0~50	51~100	101~150		0~50	51~100	101~150	-	-					
8	71	-	-	11.5	89	-	-	9.5	9.5	15	8	4	16	M4×0.7
10	71	-	-	11.5	89	-	-	9.5	9.5	15	8	4	16	M4×0.7
12	75	-	-	12.5	100	-	-	10.5	10.5	18	12	6	21	M6×1.0
16	81	106	-	12.5	107	132	-	10.5	10.5	20	12	6	21	M6×1.0
20	87	112	137	14.5	120.5	145.5	170.5	14.5	14.5	25	16	8	24	M8×1.25
25	90	115	140	16	129.5	154.5	179.5	16	16	30	16	10	28	M10×1.25
32	-	-	-	16.5	-	-	-	-	16.5	34.5	-	12	28	M10×1.25
40	-	-	-	22	-	-	-	-	22	42.5	-	16	34	M12×1.25

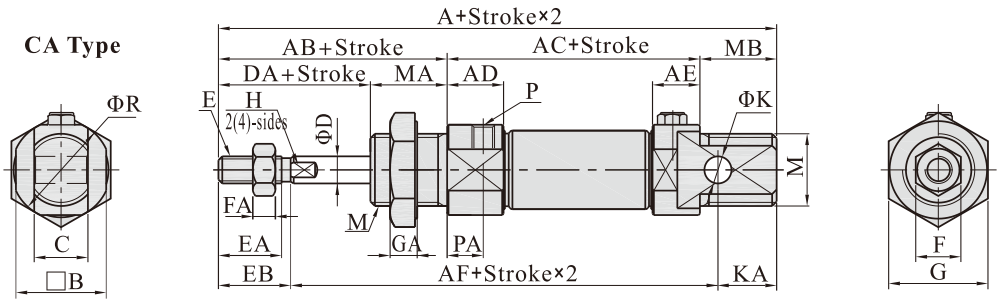
Bore size\Item	EA	EB	F	FA	G	GA	H	K	KA	M	MA	MB	P	PA	PB		R
Back cover															CA	U/CM	
8	10.5	12	7	3	17	6	-	4	10	M12×1.25	12	12	M5×0.8	7	5	5	17
10	10.5	12	7	3	17	6	-	4	10	M12×1.25	12	12	M5×0.8	7	5	5	17
12	14.5	16	10	5	22	6	5(2-Sides)	6	14	M16×1.5	17	17	M5×0.8	8	6	6	20
16	14.5	16	10	5	22	6	5(2-Sides)	6	13	M16×1.5	17	17	M5×0.8	8	6	6	22
20	18	19.5	12	6	29	7	6(2-Sides)	8	11	M22×1.5	20	20	G1/8	7.5	7.5	7.5	29
25	20	21.5	17	6	29	7	8(4-Sides)	8	11	M22×1.5	22	22	G1/8	8	8	8	33.5
32	18.5	20	17	6	36	7	10(4-Sides)	-	-	M30×1.5	30	14	G1/8	9	-	8/9	37.5
40	22.5	24	17	7	46	8	14(4-Sides)	-	-	M38×1.5	35	16	G1/4	12	-	11.5/12	46.5

Remark: The dimensions of magnet type cylinder are the same as non-magnet type cylinder.

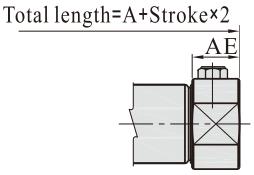
Stainless steel mini cylinder——MI Series

MTI

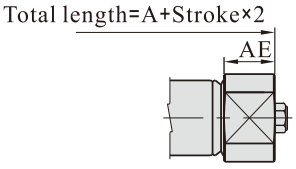
CA Type



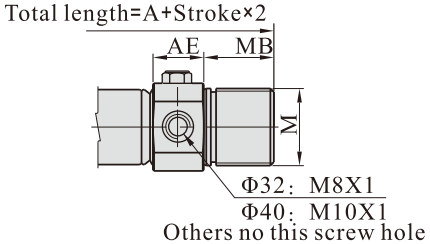
U Type



R Type



CM Type



Item	A												AB
Back cover	CA			U			R			CM			
Bore size\Stroke	0~50	51~100	101~150	0~50	51~100	101~150	0~50	51~100	101~150	0~50	51~100	101~150	
8	111	-	-	99	-	-	-	-	-	-	-	-	28
10	111	-	-	99	-	-	-	-	-	-	-	-	28
12	130	-	-	113	-	-	-	-	-	-	-	-	38
16	136	161	-	119	144	-	119	144	-	136	161	-	38
20	151	176	201	131	156	181	131	156	181	151	176	201	44
25	162	187	212	139.5	164.5	189.5	140	165	190	162	187	212	50
32	-	-	-	150	175	200	151	176	201	165	190	215	58
40	-	-	-	183	208	233	183	208	233	199	224	249	69

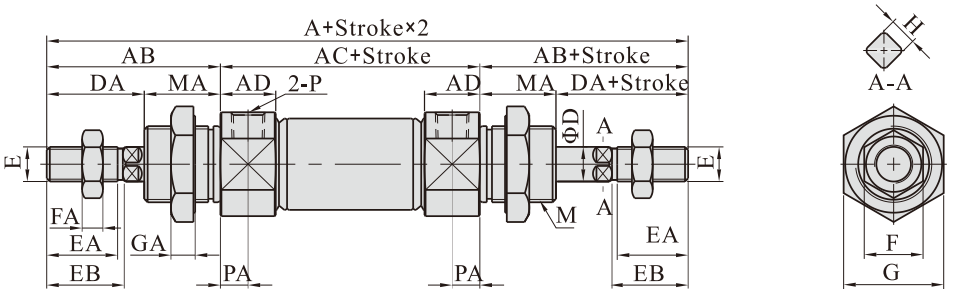
Item	AC			AD	AF			AE		B	C	D	DA	E
Back cover								CA	U/R/CM					
Bore size\Stroke	0~50	51~100	101~150		0~50	51~100	101~150	-	-					
8	71	-	-	11.5	89	-	-	9.5	9.5	15	8	4	16	M4×0.7
10	71	-	-	11.5	89	-	-	9.5	9.5	15	8	4	16	M4×0.7
12	75	-	-	12.5	100	-	-	10.5	10.5	18	12	6	21	M6×1.0
16	81	106	-	12.5	107	132	-	10.5	10.5	20	12	6	21	M6×1.0
20	87	112	137	14.5	120.5	145.5	170.5	14.5	14.5	25	16	8	24	M8×1.25
25	90	115	140	16	129.5	154.5	179.5	16	16	30	16	10	28	M10×1.25
32	-	-	-	16.5	-	-	-	-	16.5	34.5	-	12	28	M10×1.25
40	-	-	-	22	-	-	-	-	22	42.5	-	16	34	M12×1.25

Bore size\Item	EA	EB	F	FA	G	GA	H	K	KA	M	MA	MB	P	PA	PB		R
Back cover															CA	U/CM	
8	10.5	12	7	3	17	6	-	4	10	M12×1.25	12	12	M5×0.8	7	5	5	17
10	10.5	12	7	3	17	6	-	4	10	M12×1.25	12	12	M5×0.8	7	5	5	17
12	14.5	16	10	5	22	6	5(2-Sides)	6	14	M16×1.5	17	17	M5×0.8	8	6	6	20
16	14.5	16	10	5	22	6	5(2-Sides)	6	13	M16×1.5	17	17	M5×0.8	8	6	6	22
20	18	19.5	12	6	29	7	6(2-Sides)	8	11	M22×1.5	20	20	G1/8	7.5	7.5	7.5	29
25	20	21.5	17	6	29	7	8(4-Sides)	8	11	M22×1.5	22	22	G1/8	8	8	8	33.5
32	18.5	20	17	6	36	7	10(4-Sides)	-	-	M30×1.5	30	14	G1/8	9	-	8/9	37.5
40	22.5	24	17	7	46	8	14(4-Sides)	-	-	M38×1.5	35	16	G1/4	12	-	11.5/12	46.5

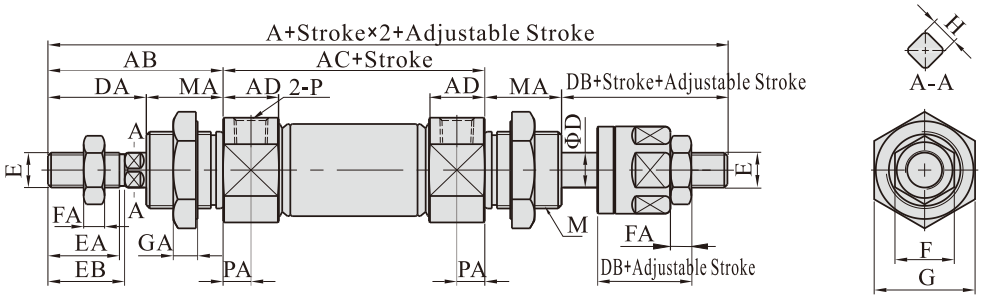
Remark: The dimensions of magnet type cylinder are the same as non-magnet type cylinder.

Stainless steel mini cylinder——MI Series

MID



MIJ

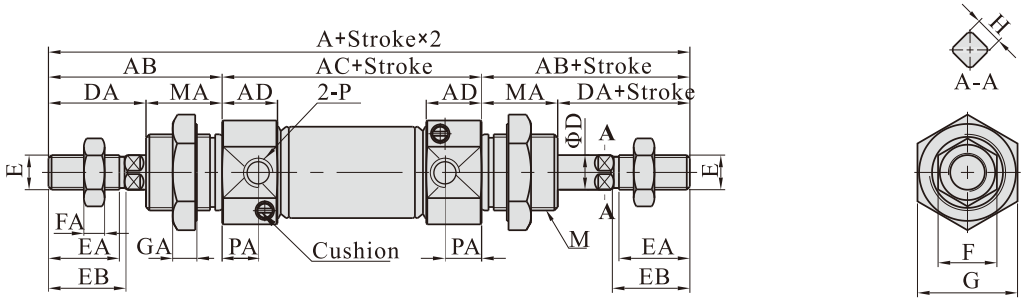


Bore size\Item	A(MID)	A(MIJ)	AB	AC	AD	D	DA	DB	E	EA	EB	F	FA	G	GA
8	104	103	28	48	11.5	4	16	15	M4×0.7	10.5	12	7	3	17	6
10	104	103	28	48	11.5	4	16	15	M4×0.7	10.5	12	7	3	17	6
12	128	128	38	52	12.5	6	21	21	M6×1.0	14.5	16	10	5	22	6
16	134	134	38	58	12.5	6	21	21	M6×1.0	14.5	16	10	5	22	6
20	150	151	44	62	14.5	8	24	25	M8×1.25	18	19.5	12	6	29	7
25	165	164	50	65	16	10	28	27	M10×1.25	20	21.5	17	6	29	7
32	184	183	58	68	16.5	12	28	27	M10×1.25	18.5	20	17	6	36	7
40	227	222	69	89	22	16	34	29	M12×1.25	22.5	24	17	7	46	8

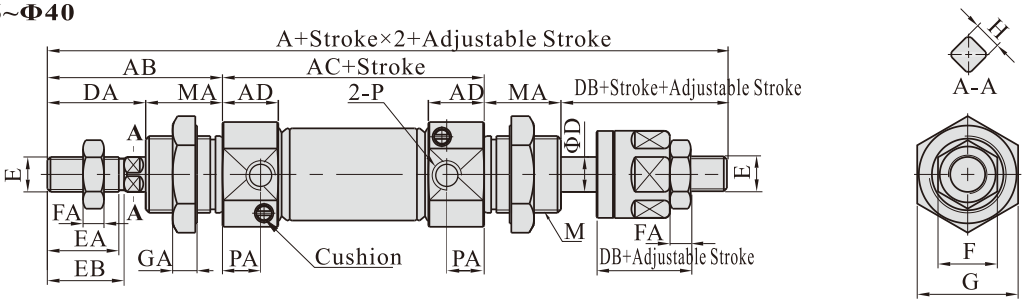
Bore size\Item	H	M	MA	P	PA
8	-	M12×1.25	12	M5×0.8	7
10	-	M12×1.25	12	M5×0.8	7
12	5(2−Sides)	M16×1.5	17	M5×0.8	8
16	5(2−Sides)	M16×1.5	17	M5×0.8	8
20	6(2−Sides)	M22×1.5	20	G1/8	7.5
25	8(4−Sides)	M22×1.5	22	G1/8	8
32	10(4−Sides)	M30×1.5	30	G1/8	9
40	14(4−Sides)	M38×1.5	35	G1/4	12

Remark: The dimensions of magnet type cylinder are the same as non-magnet type cylinder.

MICDΦ16~Φ40



MICJΦ16~Φ40



Bore size\Item	A(MICD)	A(MICJ)	AB	AC	AD	D	DA	DB	E	EA	EB	F	FA	G	GA
16	132.5	132.5	38	56.5	12.5	6	21	21	M6×1.0	14.5	16	10	5	22	6
20	150	151	44	62	14.5	8	24	25	M8×1.25	18	19.5	12	6	29	7
25	165	164	50	65	16	10	28	27	M10×1.25	20	21.5	17	6	29	7
32	184	183	58	68	16.5	12	28	27	M10×1.25	18.5	20	17	6	36	7
40	227	222	69	89	22	16	34	29	M12×1.25	22.5	24	17	7	46	8

Bore size\Item	H	M	MA	P	PA
16	5(2−Sides)	M16×1.5	17	M5×0.8	7.5
20	6(2−Sides)	M22×1.5	20	G1/8	7.5
25	8(4−Sides)	M22×1.5	22	G1/8	8
32	10(4−Sides)	M30×1.5	30	G1/8	9
40	14(4−Sides)	M38×1.5	35	G1/4	12

Remark: The dimensions of magnet type cylinder are the same as non-magnet type cylinder.

List for ordering code of accessories

Accessories / Bore size	Mounting accessories				Knuckle				Sensor switch	
	LB	FA	SDB	TC	I	Y	F	U	CS1-G	DS1-G
8	F-MI10LB	F-MI8FA	F-MI8SDB	F-MI10TC	F-M4X070I	F-M4X070Y	F-M4X070F	F-M4X070U	CS1-G	DS1-G
10										
12	F-MI12LB	F-MI12FA	F-MI12SDB	F-MI12TC	F-M6X100I	F-M6X100Y	F-M6X100F	F-M6X100U		
16										
20	F-MI20LB	F-MI20FA	F-MI20SDB	F-MI20TC	F-M8X125I	F-M8X125Y	F-M8X125F	F-M8X125U		
25					F-M10X125I	F-M10X125Y	F-M10X125F	F-M10X125U		
32	F-MI32LB	-	F-MI32SDB	F-MI32TC						
40	F-MI40LB	-	F-MI40SDB	F-MI40TC	F-M12X125I	F-M12X125Y	F-M12X125F	F-M12X125U		

Accessory selection

Accessories / Cylinder model		Mounting accessories				Knuckle				Sensor switch	
		LB	FA	SDB	TC	I	Y	U	F	CS1-G	DS1-G
MI MIC	Standard	●	●	●	●	●	●	●	●	×	×
	With magnet	●	●	●	●	●	●	●	●	●	●
MSI MTI	Standard	●	●	●	●	●	●	●	●	×	×
	With magnet	●	●	●	●	●	●	●	●	●	●
MID MICD	Standard	●	●	×	●	●	●	●	●	×	×
	With magnet	●	●	×	●	●	●	●	●	●	●
MIJ MICJ	Standard	●	●	×	●	●	●	●	●	×	×
	With magnet	●	●	×	●	●	●	●	●	●	●

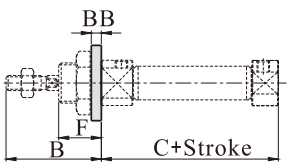
Accessory selection

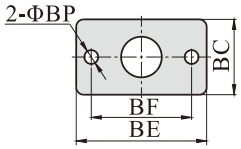
Accessories / Bore size	Mounting accessories				Knuckle			
	LB	FA	SDB	TC	I	Y	F	U
8~40	△	△	△	▲	□	□	□	□
▲——SUS304□ □ ——SPCC□ □—Carbon steel								

Dimensions

FA type

Φ8~Φ25

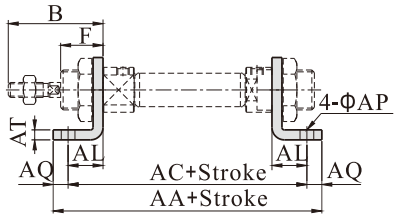


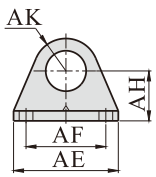


Bore size\Item	B	C	BB	BC	BE	BF	BP	F
8	28	46	2	22	40	30	4.5	12
10	28	46	2	22	40	30	4.5	12
12	38	50	3	26	52	40	5.5	17
16	38	56	3	26	52	40	5.5	17
20	44	62	3.5	38	64	50	7	20
25	50	65	3.5	38	64	50	7	22

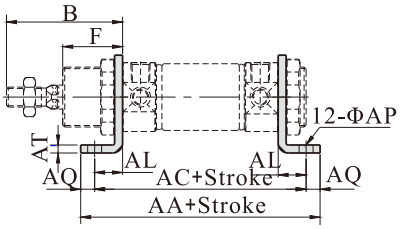
LB type

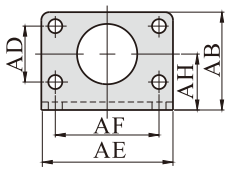
Φ8~Φ25





Φ32~Φ40

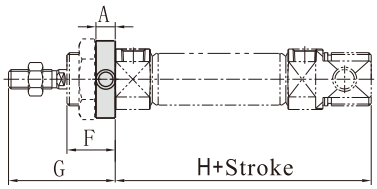


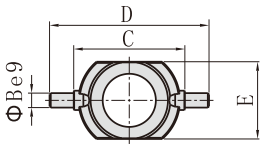


Bore size\Item	AA	AB	AC	AD	AE	AF	AH	AK	AL	AP	AQ	AT	B	F
8	78	-	68	-	35	25	16	10	11	4.5	5	2	28	12
10	78	-	68	-	35	25	16	10	11	4.5	5	2	28	12
12	90	-	78	-	42	32	20	13	14	5.5	6	2.5	38	17
16	96	-	84	-	42	32	20	13	14	5.5	6	2.5	38	17
20	112	-	96	-	54	40	25	20	17	7	8	3	44	20
25	115	-	99	-	54	40	25	20	17	7	8	3	50	22
32	110	49	96	28	66	52	28	-	14	7	7	3.5	58	30
40	149	58	129	30	80	60	33	-	20	9	10	3.5	69	35

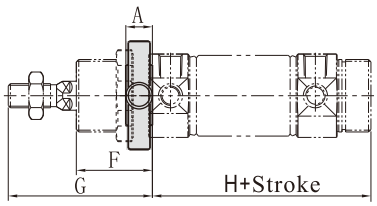
TC type

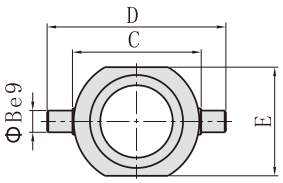
Φ8~Φ25





Φ32~Φ40

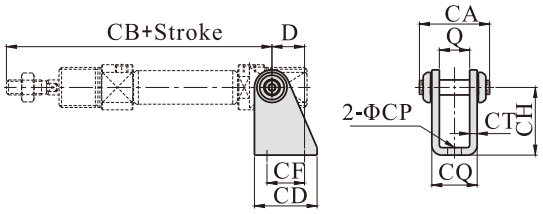




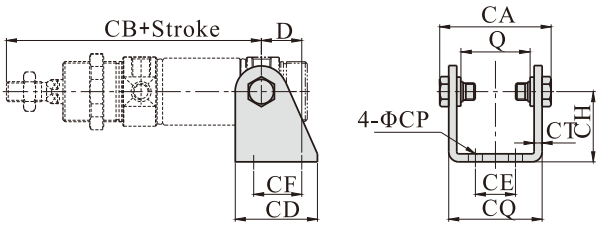
Bore size\Item	A	B	C	D	E	F	G	H
8	6	4	26	38	20	12	28	58
10	6	4	26	38	20	12	28	58
12	8	6	38	58	25	17	38	67
16	8	6	38	58	25	17	38	73
20	8	6	46	66	32	20	44	82
25	8	6	46	66	32	22	50	87
32	11	9	54	74	45	31.5	59.5	80.5
40	12	10	64	84	55	36.5	70.5	103.5

SDB type

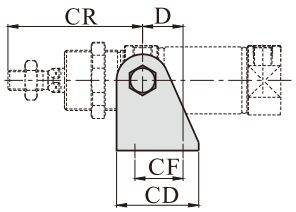
Φ8~Φ25



Φ32~Φ40



Φ32~Φ40



Bore size\Item	D	Q	CA	CB	CD	CE	CF	CH	CP	CQ	CT	CR
8	11	8.1	16.4	76	20	-	12.5	24	4.5	12.1	2	-
10	11	8.1	16.4	76	20	-	12.5	24	4.5	12.1	2	-
12	13	12.1	26	91	25	-	15	27	5.5	16.1	2	-
16	13	12.1	26	98	25	-	15	27	5.5	16.1	2	-
20	16	16.1	35	115	32	-	20	30	7	21.1	2.5	-
25	16	16.1	35	126	32	-	20	30	7	21.1	2.5	-
32	20	34.6	53.6	117	41	20	24	35	7	44.6	3	67
40	27	42.6	65.6	146	52	28	30	40	9	54.6	3	81

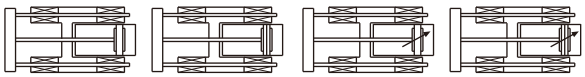
[Note] SDB is attached with relevant PIN.

With guide frame cylinder——TMI/TMIC Series

Product feature

1. A new type of cylinder combined with guide frame and MI series mini cylinder.
2. Brass bearing: It is suitable for the action that has radial load resistance. with greater torsion stiffness.
   Linear bearing: It is suitable for push-up action, or where high precision and high load capacity are required, especially for occasions requiring low friction.
3. The special design of the guide frame body provides a multi-directional mounting.

Symbol



TMI TMI-S TMIC TMIC-S

Specification

Bore size(mm)	12	16	20	25
Acting type	Double acting			
Fluid	Air(to be filtered by 40μm filter element)			
Operating pressure	0.15~1.0MPa(22~145psi)(1.5~10.0bar)			
Proof pressure	1.5MPa(215psi)(15bar)			
Temperature ℃	-20~70			
Speed range mm/s	30~500			
Stroke tolerance	$0\sim150^{+1.0}_{0}$ $>150^{+1.5}_{0}$			
Cushion type	Bumper	Variable cushion		
Port size	M5×0.8		1/8"	

Standard Stroke

Bore size (mm)	Standard stroke (mm)	Max.std stroke
12	25 50 75 100 125 150 200	200
16	25 50 75 100 125 150 200	200
20	25 50 75 100 125 150 200 250	250
25	25 50 75 100 125 150 200 250	250

[Note] Consult us for non–standard stroke.

Criteria for selection: Cylinder thrust

Unit□ Newton(N)

Bore size	Rod size	Acting type		Pressure area(mm^2)	Operating pressure(MPa)						
					0.1	0.2	0.3	0.4	0.5	0.6	0.7
12	6	Double acting	Push side	113.0	11.3	22.6	33.9	45.2	56.5	67.8	79.1
			Pull side	84.8	8.5	17.0	25.4	33.9	42.4	50.9	59.4
16	6	Double acting	Push side	201.0	20.1	40.2	60.3	80.4	100.5	120.6	140.7
			Pull side	172.7	17.3	34.5	51.8	69.1	86.4	103.6	120.9
20	8	Double acting	Push side	314.0	31.4	62.8	94.2	125.6	157.0	188.4	219.8
			Pull side	263.8	26.4	52.8	79.1	105.5	131.9	158.3	184.7
25	10	Double acting	Push side	490.6	49.1	98.1	147.2	196.2	245.3	294.4	343.4
			Pull side	412.1	41.2	82.4	123.6	164.8	206.1	247.3	288.5

With guide frame cylinder——TMI/TMIC Series

Ordering code

TMIC M 20 X 50 S □

1 2 3 4 5 6

③Bore size	Model
12	TMI
16 20 25	TMIC

①Model

TMI: With guide frame cylinder
TMIC: With guide frame cylinder(with cushion)

②Bearing type

M: Brass bearing
L: Linear bearing

④Stroke

Refer to stroke table for details

⑤Magnet

Blank: Without magnet
S: With magnet

⑥Thread type

Blank: PT thread(or metric thread)
G: G thread

Ordering code(for guide frame)

F – TMIC M 20 X 50

1 2 3 4 5

①Accessory

F: Accessory

④Bore size	Model
12	TMI
16 20 25	TMIC

②Model

TMI: With guide frame cylinder
TMIC: With guide frame cylinder(with cushion)

③Bearing type

M: Brass bearing
L: Linear bearing

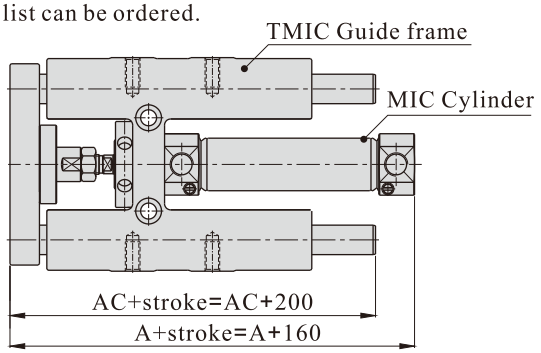
⑤Stroke

Refer to stroke table for details

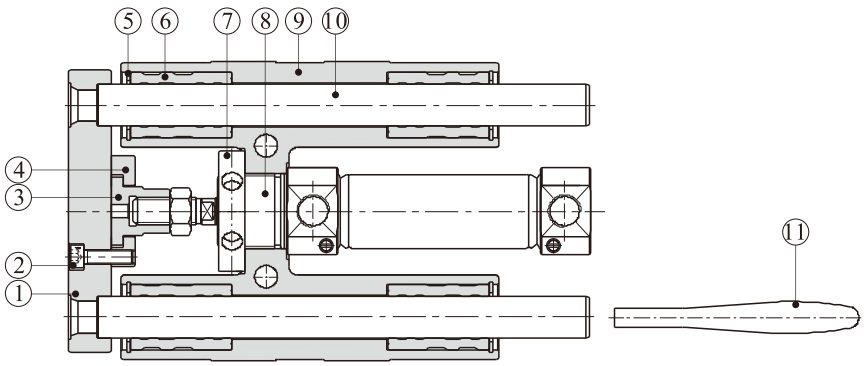
Ordering instructions:

1. When ordering guide frame separately, only standard strokes from the stroke list can be ordered.
(Other stroke can only be ordered by non-standard)

2. To order non-standard stroke cylinders with guide frame,
the combination is as follows:
Non-standard stroke cylinder + guide frame of the upper standard stroke.
Example: MIC20X160 (non-standard stroke cylinder)
+F-TMICM20X200(Standard stroke guide frame).
The dimension is as follows:



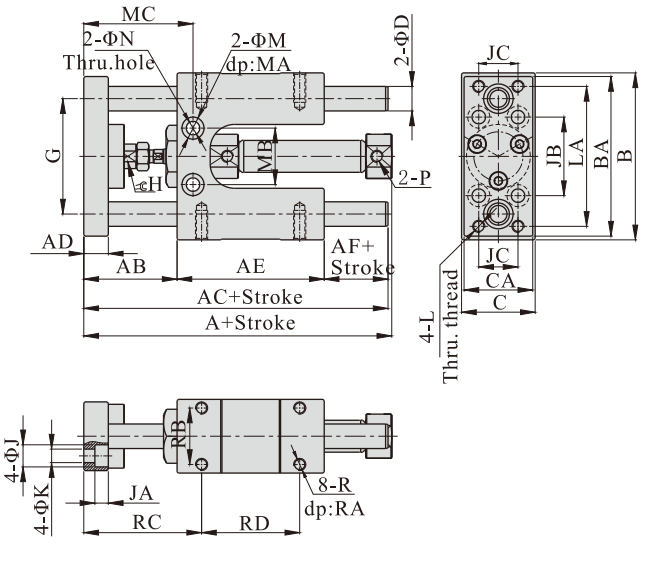
Inner structure



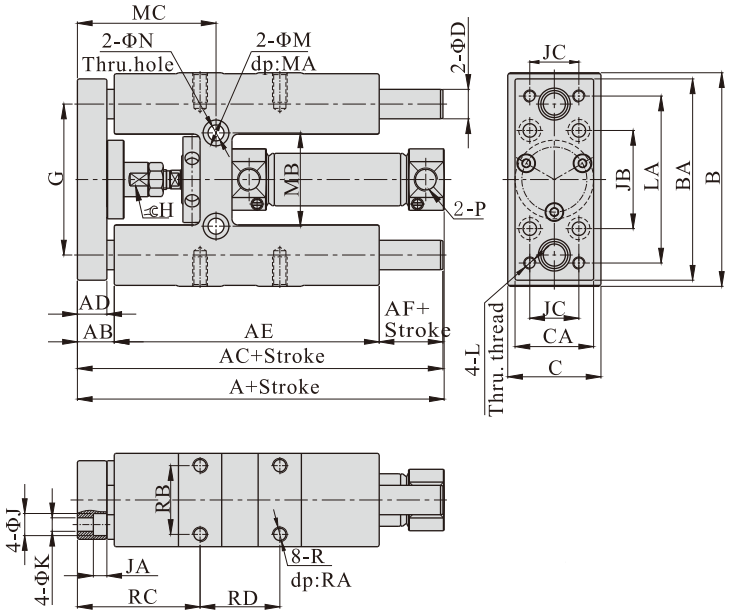
NO.	Item	Material
1	Fixed plate	Aluminum alloy
2	Bolt	Carbon steel
3	Floating nut	Carbon steel
4	Floating baffle	Carbon steel
5	C clip	Spring steel
6	Linear bearing	-
	Brass bearing	Brass
7	Nut	Carbon steel
8	MI、MIC Cylinder	Unit
9	Guide frame	Aluminum alloy
10	Guider(Linear)	Alloy steel
	Guider(Brass)	Carbon steel
11	Wrench	Carbon steel

Dimensions

TMI12/TMIC16



TMIC20/TMIC25

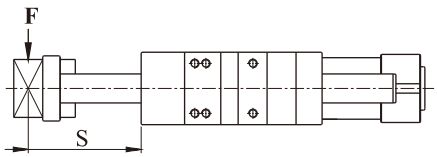


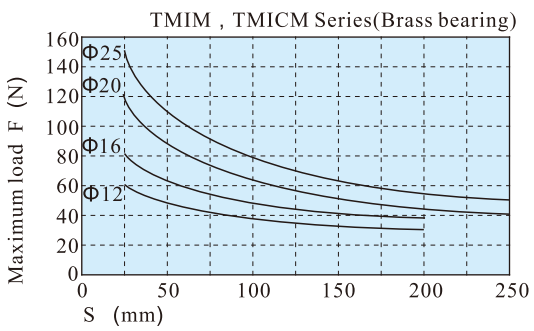
Bore size\Item	A	AB	AC	AD	AE	AF	B	BA	C	CA	D	G	H	J	JA	JB	JC	K
12	100.5	38	99	10	60	1	68	65	30	28	10(8)	47	9	9	5.5	32	16	5.5
16	106.5	38	99	10	60	1	68	65	30	28	10(8)	47	9	9	5.5	32	16	5.5
20	124	15	124	12	108	1	87	82	38	32	12(10)	61.5	13	9	5.5	40	20	5.5
25	125.5	15	124	12	108	1	87	82	38	32	16(12)	61.5	13	9	5.5	40	20	5.5

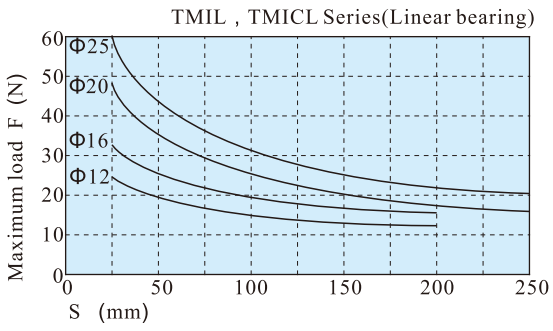
Bore size\Item	L	LA	M	MA	MB	MC	N	P	R	RA	RB	RC	RD
12	M5×0.8	57	9	4	23	44.5	5.5	M5×0.8	M5×0.8	12	23	48	40
16	M5×0.8	57	9	4	23	44.5	5.5	M5×0.8	M5×0.8	12	23	48	40
20	M5×0.8	68	10.5	6.5	38	56.5	6.5	1/8"	M6×1.0	12	28	50	32.5
25	M5×0.8	68	10.5	6.5	38	56.5	6.5	1/8"	M6×1.0	12	28	50	32.5

[Note]The values in "()" in the above table are TMIL, TMICL series sizes.

Maximum load relationship curve







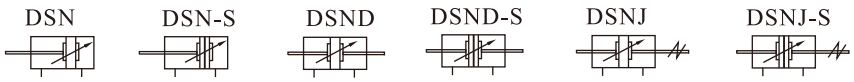
Stainless Steel Mini Cylinder(ISO6432 Standard)

DSN Series

Product feature

1. Improving for adapting wide range applications, using precise polishing of piston rod, more sense of products quality and longer life of front seal.
2. Optima design and improve the production efficiency.
3. Combined with enterprise color planning and new structure design, stainless steel series cylinder integrated as the semicircular groove cramping.
4. Change processing technology of cylinder cushion structure to ensure buffering function in stabilization.
5. Improved the range of buffering fine-tune, enable customers to more easily adjust the buffer throttling speed.

Symbol



Specification

Bore size(mm)	16	20	25	32	40
Acting type	Double acting				
Fluid	Air(to be filtered by 40μm filter element)				
Mountings	Basic, LB type, FA type, FB type, SDB type				
Operating pressure	0.1~1.0MPa(15~145psi)(1.0~10.0bar)				
Proof pressure	1.5MPa(215psi)(15bar)				
Temperature ℃	-20~80				
Speed range mm/s	50~800				
Stroke tolerance	$0\sim150\ ^{+1.0}_{0}$ $>150\ ^{+1.5}_{0}$				
Cushion type	Adjustable air cushion				
Port size	M5X0.8	G1/8"			

Standard Stroke

Bore size (mm)	Standard stroke (mm)	Max.std stroke
16	10 15 20 25 30 40 50 60 75 80 100 125 150 160 175 200 250 300 350 400 450 500	500
20	10 15 20 25 30 40 50 60 75 80 100 125 150 160 175 200 250 300 350 400 450 500	500
25	10 15 20 25 30 40 50 60 75 80 100 125 150 160 175 200 250 300 350 400 450 500	500
32	10 15 20 25 30 40 50 60 75 80 100 125 150 160 175 200 250 300 350 400 450 500	500
40	10 15 20 25 30 40 50 60 75 80 100 125 150 160 175 200 250 300 350 400 450 500	500

[Note] Consult us for non–standard stroke.

Stainless Steel Mini Cylinder(ISO6432 Standard)

DSN Series

Ordering code

DSNJ U 32×50 – 10 S □ □ – BTB01R

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

①Model

DSN: Double acting

DSND: Double rod

DSNJ: Double rod with Adjustable stroke

②Back cover

Blank: Standard with eye mounting

CM: Standard with round back cover

U: Standard with flat back cover

③Bore size

16 20 25 32 40

④Stroke

Refer to stroke table for details

⑤Adjustable stroke	Model
No this code	DSN/DSND
10 20 30 40 50 75 100	DSNJ

⑥Magnet

Blank: Without magnet
S: With magnet

⑦Piston rod material

Blank: Carbon steel
E: Stainless steel

⑨Sensor type

BTB01R[Note]

⑧Mounting type[Note1]

Blank: Basic mountings

FA: Front mounting flange

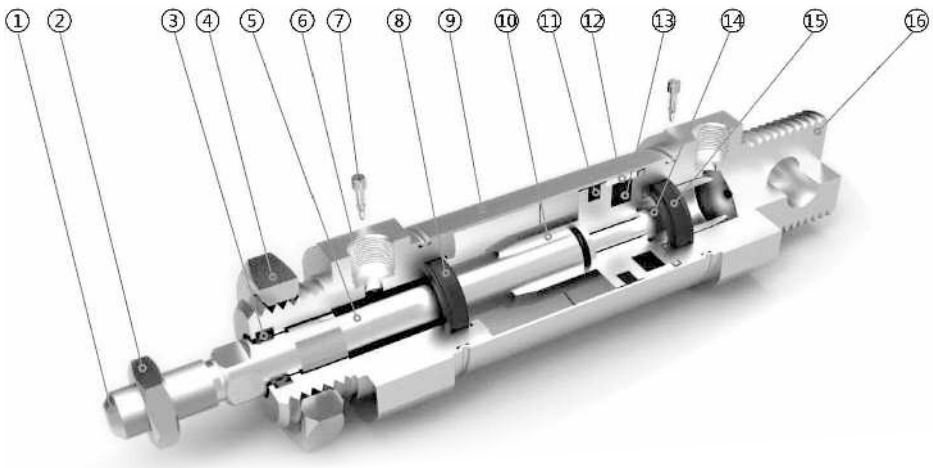
FB: Back mounting flange

LB: Front and back mounting

SDB: Back hinge

[Note] Standard wire length is 2meter, please specify for other length.

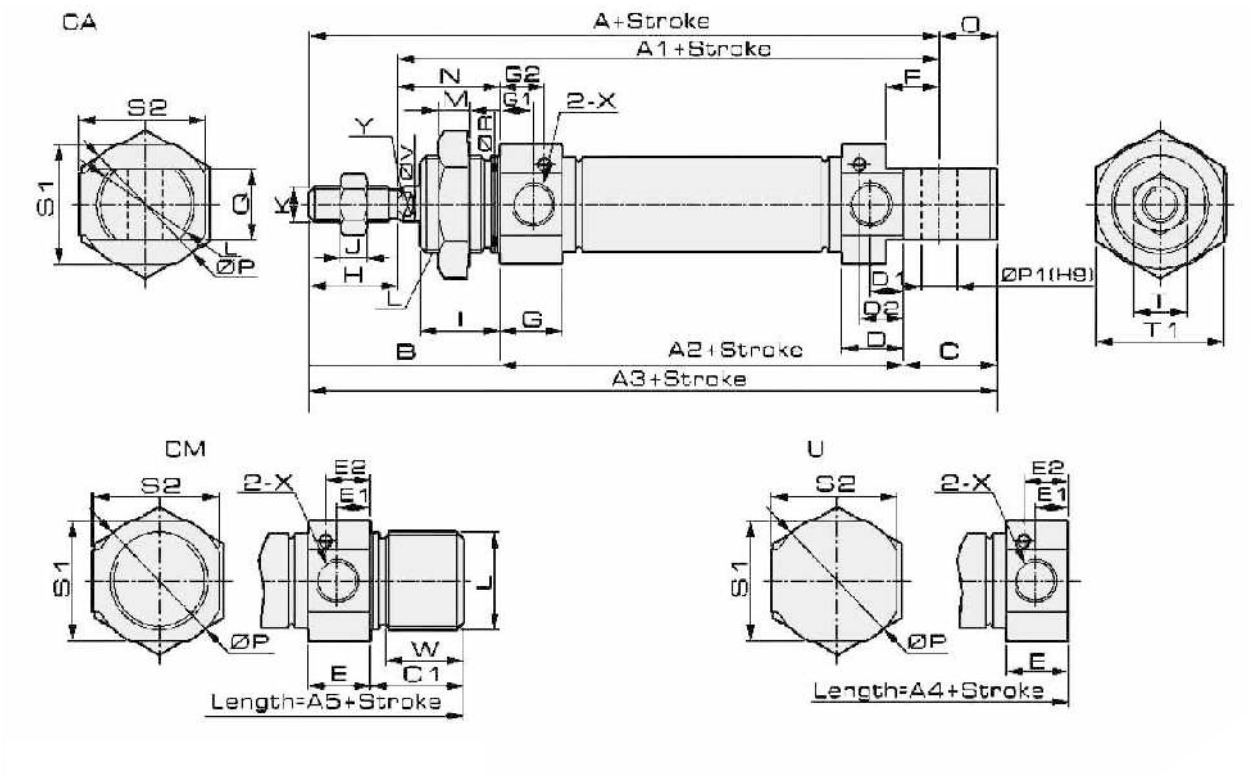
Inner structure



NO.	Item
1	Piston rod
2	Hexagon nut
3	Shaft seal
4	Hexagon nut
5	DU bearing
6	Front cover
7	Anti-collision gasket
8	Cushion
9	Bareel
10	Piston
11	Piston seal
12	Anti-friction seal
13	Magnet
14	Socket head cap screw
15	Cushion
16	Back cover

Dimensions

DNS



Bore size\Item	A	A1	A2	A3	A4	A5	B	C	C1	D	D1	D2	E	E1	E2	F	G	G1	G2	H	I
16	98	82	55	111	92	111	37	19	19	10.5	6	7	10.5	6	7	9	10.5	6	7	16	16
20	115	95	64	128	107	128	43	21	21	14	7.5	10	14	7.5	10	9	14	7.5	10	20	18
25	126	104	66	137	116	137	50	21	21	15	8	10.5	15	8	10.5	12	15	8	10.5	22	22
32	135	113	72	147	120	132	48	27	12	17	8.5	12	17	8.5	12	15	17	8.5	12	22	18
40	138	115	72	150	123	136	51	27	14	19	8	11.5	16	8	11.5	15	16	8	11.5	23	20

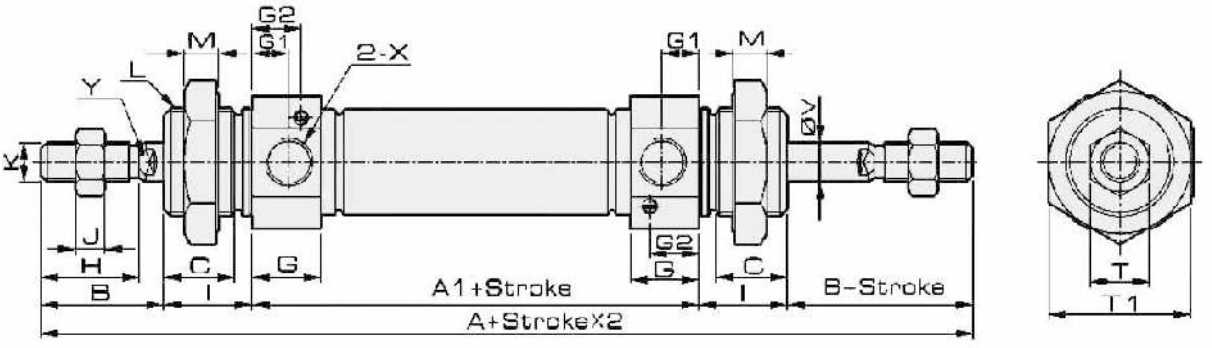
Bore size\Item	J	K	L	M	N	O	P	P1	Q	R	S1	S2	T	T1	X	V	W	Y
16	5	M6X1.5	M16X1.5	6	21	13	21	6	12	16	19	19	10	24	M5X0.8	6	15.5	5
20	6	M8X1.25	M22X1.5	7	23	13	30	8	16	22	27	28.5	12	29	G1/8	8	17.5	6
25	6	M10X1.25	M22X1.5	7	28	11	30	8	16	22	27	28.5	17	29	G1/8	10	17.5	8
32	6	M10X1.25	M27X2	9	26	12	38	10	20	27	35	36.5	17	36	G1/8	12	8	10
40	8	M14X1.5	M32X2	9	28	12	45	10	20	33	42	43.5	22	45	G1/4	16	10	14

Note: Cylinder with or without magnet is the same size.

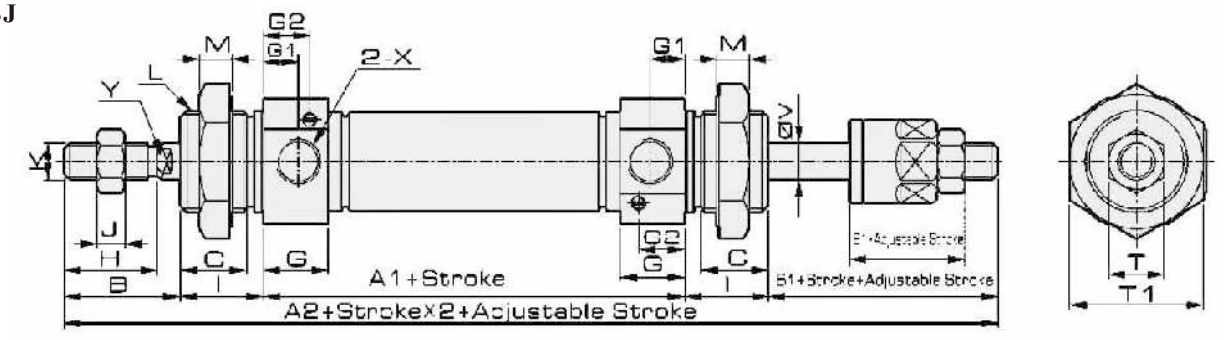
Stainless Steel Mini Cylinder(ISO6432 Standard)

DSN Series

DNSD

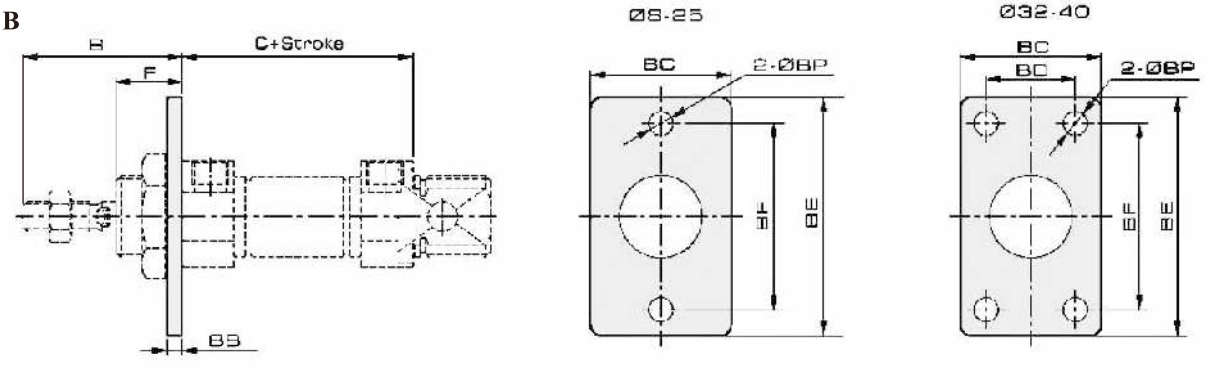


DNSJ



Bore size\Item	A	A1	A2	B	B1	C	D	G	G1	G2	H	I	J	K	L	M	T	T1	V	X
16	129	55	129	21	21	13	5	10.5	6	7	16	16	5	M6X1	M16X1.5	6	10	24	6	M5X0.8
20	150	64	150	27	25	14.5	6	14	7.5	10	20	18	6	M8X1.25	M22X1.5	7	12	29	8	G1/8
25	166	66	165	28	27	18.5	8	15	8	10.5	22	22	6	M10X1.25	M22X1.5	7	17	29	10	G1/8
32	168	72	165	30	27	14	10	17	8.5	12	22	18	6	M10X1.25	M27X2	9	17	36	12	G1/8
40	174	72	172	31	29	16	14	16	8	11.5	23	20	8	M14X1.5	M32X2	9	22	45	16	G1/4

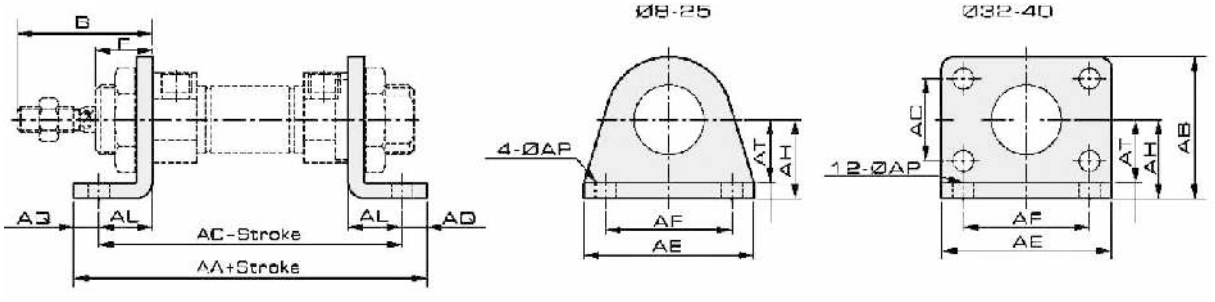
FA/FB



Bore size\Item / Stroke	B	C (DSN)	C(DSNS/DSNT) 0~50	51~100	101~150	BB	BC	BD	BE	BF	BP	F
8	28	46	71	-	-	3	22	-	40	30	4.5	12
10	28	46	71	-	-	3	22	-	40	30	4.5	12
12	38	50	75	-	-	4	30	-	52	40	5.5	17
16	37	55	80	105	-	4	30	-	52	40	5.5	16
20	43	64	89	114	139	5	40	-	66	50	6.6	16
25	50	66	91	116	141	5	40	-	66	50	6.6	22
32	48	72	97	122	147	5	45	20	80	60	7	18
40	51	72	97	122	147	5	50	30	100	80	9	20

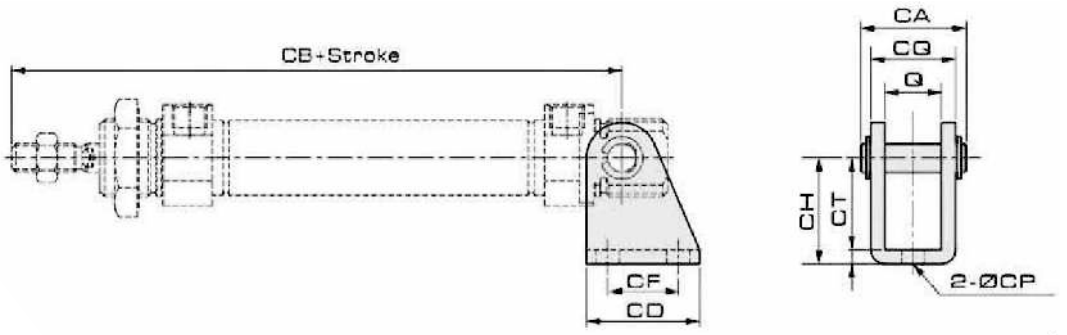
DSN Series

LB



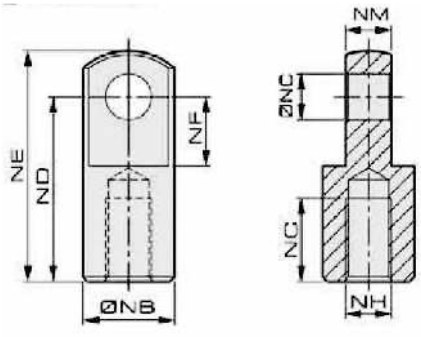
Bore size\Item Stroke	B	AA (DSN)	AA(DSNS/DSNT) 0~50	51~100	101~150	AB	AC (DSN)	AC(DSNS/DSNT) 0~50	51~100	101~150	AD	AE	AF	AH	AL	AP	AQ	AT	F
8	28	78	103	-	-	-	68	93	-	-	-	35	25	16	11	4.5	5	3	12
10	28	78	103	-	-	-	68	93	-	-	-	35	25	16	11	4.5	5	3	12
12	38	90	115	-	-	-	78	103	-	-	-	42	32	20	14	5.5	6	4	17
16	37	95	120	145	-	-	83	108	133	-	-	42	32	20	14	5.5	6	4	16
20	43	114	139	164	189	-	98	123	148	173	-	54	40	25	17	6.6	8	5	16
25	50	116	141	166	191	-	100	125	150	175	-	54	40	25	17	6.6	8	5	22
32	48	118	143	168	193	49	104	129	154	179	28	66	52	28	16	7	7	5	18
40	51	132	157	182	207	58	112	137	162	187	30	80	60	33	20	9	10	5	20

SDB



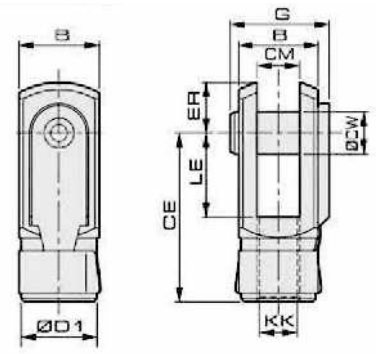
Bore size\Item Stroke	D	Q	CA	CB (DSN)	CB(DSNS/DSNT) 0~50	51~100	101~150	CD	CF	CH	CT	CP	CQ
8	11.3	8.1	17.3	76	101	-	-	20	12.5	24	2.2	4.5	13.1
10	11.3	8.1	17.3	76	101	-	-	20	12.5	24	2.5	4.5	13.1
12	13	12.1	23.3	91	116	-	-	25	15	27	3	5.5	18.1
16	13	12.1	23.3	98	123	148	-	25	15	27	3	5.5	18.1
20	16	16.1	30	115	140	165	190	32	20	30	4	6.5	24.1
25	16	16.1	30	126	151	176	201	32	20	30	4	6.5	24.1
32	19.5	20.1	34.6	135	160	185	210	41	24	35	4	9	28.1
40	26	20.1	34.6	138	163	188	213	52	30	40	5	9	30.1

I Knuckle



Type\Item	NB	NC	ND	NE	NF	NG	NH	NM	Bore	8	10	12	16	20	25	32	40
II-M04070	10	4	16	21	7	6	M4X0.7	4	Adapted fitting form	●	●						
II-M06100	12	5	21	28	8.5	8	M6X1	6				●	●				
II-M08125	16	8	30	40	11	15	M8X1.25	8						●			
II-M10125	20	10	40	50	15	18	M10X1.25	10							●	●	
II-M12125	24	12	48	62	24	18	M12X1.25	12									
II-M14150	28	14	56	72	28	21	M14X1.5	14									●

CK Knuckle



Type\Item	B	CE	CM	CR	CW	D1	ER	G	LE	KK	Bore	8	10	12	16	20	25	32	40
CK-M04070	8	16	4	21	4	8	5	11	8	M4X0.7	Adapted fitting form	●	●						
CK-M06100	12	24	6	31	6	10	7	16	12	M6X1				●	●				
CK-M08125	16	10	8	42	8	14	10	20	16.5	M8X1.25						●			
CK-M10125	18	40	10	52	10	18	12	25	20	M10X1.25							●	●	
CK-M12125	24	48	12	62	12	20	14	29	24	M12X1.25									
CK-M14150	24	48	12	62	12	20	14	29	28	M14X1.5									●

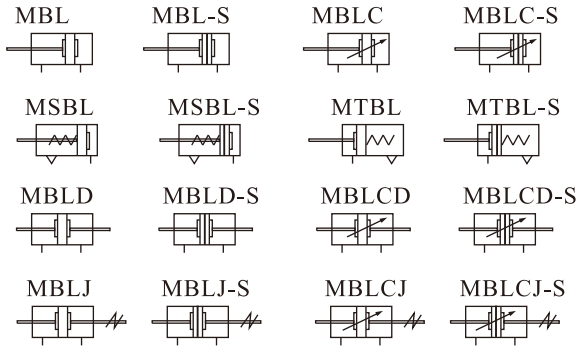
Mini cylinder(Aluminum barrel)

MBL Series

Product feature

1. Manufactured by our enterprise.
2. Riveted structure is adopted to connect front and bak cover and cylinder tube to make it credibility.
3. Piston adopts heterogeneous two-way seal structure. It has compact size and has the function of grease reservation.
4. There are several modes of back cover, which makes the installation of cylinder more convenient.
5. There are cylinders and mounting accessories with several specifications for your choice.

Symbol



Specification

Bore size(mm)		20	25	32	40	50	63
Acting type	MSBL/MTBL	Single acting				–	
	MBL/MBLD/MBLJ	Double acting					
	MBLC/MBLCD/MBLCJ	Double acting with cushion					
Fluid		Air(to be filtered by 40μm filter element)					
Operating pressure	Double acting	0.15~1.0MPa(22~145psi)(1.5~10.0bar)					
	Single acting	0.2~1.0MPa(28~145psi)(2.0~10.0bar)				–	
Proof pressure		1.5MPa(215psi)(15bar)					
Temperature ℃		-20~70					
Speed range mm/s		Double acting:30~800 Single acting:50~800					
Stroke tolerance		$0\sim150^{+1.0}_{0}$ $>150^{+1.5}_{0}$					
Cushion type		MBLC, MBLCD, MBLCJ: Adjustable cushion; Others: Bumper					
Port size [Note1]		1/8"			1/4"		

[Note1] PT thread, G thread thread and NPT thread are available.

Standard Stroke

Bore size (mm)		Standard stroke (mm)	Max.std stroke	Max. stroke
MBL MBLC	20/25	10 15 20 25 30 40 50 60 75 80 100 125 150 160 175 200 250 300 350 400 450 500	500	800
	32/40	10 15 20 25 30 40 50 60 75 80 100 125 150 160 175 200 250 300 350 400 450 500	500	800
	50/63	10 15 20 25 30 40 50 60 75 80 100 125 150 160 175 200 250 300 350 400 450 500	500	800
MBLD MBLJ MBLCD MBLCJ	20/25	10 15 20 25 30 40 50 60 75 80 100 125 150 160 175 200 250 300	300	-
	32/40	10 15 20 25 30 40 50 60 75 80 100 125 150 160 175 200 250 300 350 400 450 500	500	-
	50/63	10 15 20 25 30 40 50 60 75 80 100 125 150 160 175 200 250 300 350 400 450 500	500	-
MSBL	20/25	10 15 20 25 30 40 50 60 75 80 100 125 150	-	-
	32/40	10 15 20 25 30 40 50 60 75 80 100 125 150	-	-
MTBL	20/25	10 15 20 25 30 40 50 60 75 80 100	-	-
	32/40	10 15 20 25 30 40 50 60 75 80 100	-	-

[Note] Consult us for non-standard stroke.

Mini cylinder(Aluminum barrel)

MBL Series

Ordering code

MBL 20×50 S CA □ □

MBLD 20×50 S □ □

MBLJ 20×50–20 S □ □

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

①Model
MBL: Mini cylinder(Double acting)
MBLC: Mini cylinder(Double acting with cushion)
MSBL: Mini cylinder(Single acting_push)
MTBL: Mini cylinder(Single acting_pull)
MBLD: Mini cylinder(Double rod)
MBLCD: Mini cylinder(Double rod with cushion)
MBLJ: Mini cylinder(Adjustable stroke)
MBLCJ: Mini cylinder(Adjustable stroke with cushion)

⑥Back cover	
Back cover	Series
CA: Pivot type	MBL MBLC MSBL MTBL
U: Perpendicular 90°	
No this code	Others

②Bore size	
Bore size	Series
20 25 32 40 50 63	MBL
	MBLC
20 25 32 40	MSBL
	MTBL
20 25 32 40 50 63	MBLD
	MBLCD
	MBLJ
	MBLCJ

③Stroke
Refer to stroke table for details

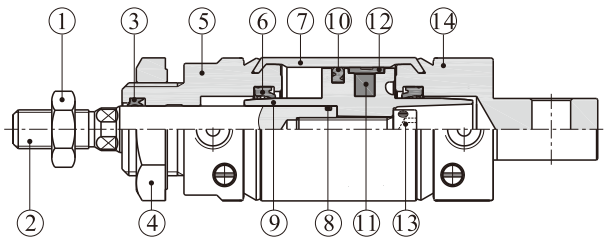
⑤ Magnet
Blank: Without magnet
S: With magnet

⑦Mounting type	
Mounting type	Series
Blank: No accessories	MBL MBLC MSBL MTBL
FA: FA type	
SDB: SDB type	
LB: LB type	
Blank: No accessories	MBLD MBLCD MBLJ MBLCJ
FA: FA type	
LB: LB type	

⑧ Thread type
Blank: G thread
PT: PT thread
T: NPT thread

④ Adjustable stroke	
Series	Adjustable stroke
MBLJ series MBLCJ series	10: 10mm
	20: 20mm
	30: 30mm
	40: 40mm
	50: 50mm
	75: 75mm
	100: 100mm
Others series	No this code

Inner structure and material of major parts



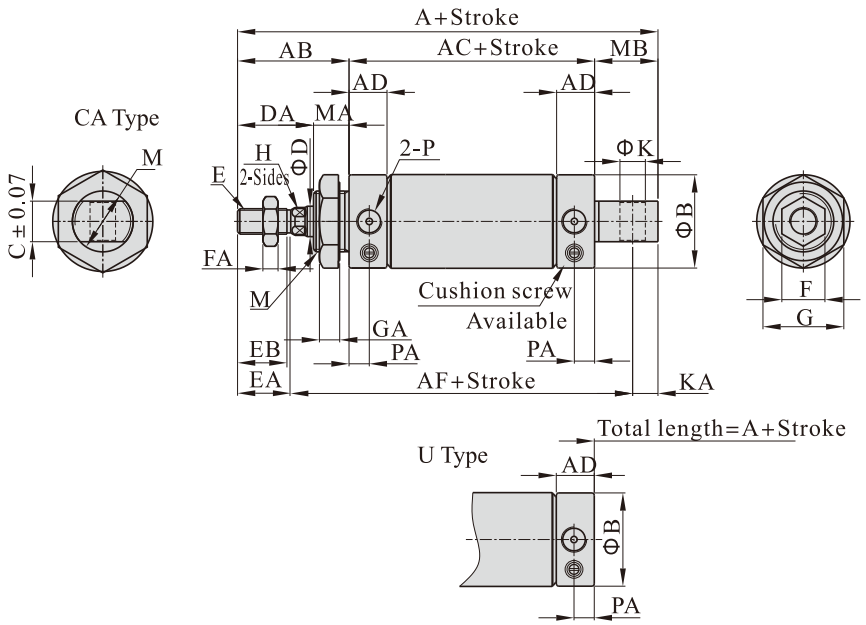
NO.	Item	Material
1	Rod nut	Carbon steel
2	Piston rod	Carbon steel with 20 μ m chrome plated
3	Front cover packing	NBR
4	Front cover nut	Carbon steel
5	Front cover	Aluminum alloy
6	Bumper	TPU
7	Barrel	Aluminum alloy
8	O- ring	NBR
9	Piston	Aluminum alloy
10	Piston seal	NBR
11	Magnet	Plastic
12	Wear ring	Wear resistant material
13	Bolt	Carbon steel
14	Back cover	Aluminum alloy

Mini cylinder(Aluminum barrel)

MBL Series

Dimensions

MBL/MBLC



Bore size\Item	A		AB	AC	AD	AF	B	C	D	DA	M	MA	MB
Back cover	CA	U											
20	131	110	40	70	15.5	102	27	16	8	26	M22×1.5	14	21
25	135	114	44	70	15.5	105	30	16	10	30	M22×1.5	14	21
32	141	114	44	70	15.5	108	37	16	12	28	M24×2.0	16	27
40	165	138	46	92	22	130.5	45	20	16	30	M30×2.0	16	27
50	173	146	54	92	22	138	55	20	16	32	M36×2.0	22	27
63	173	146	54	92	22	138	68	20	16	32	M36×2.0	22	27

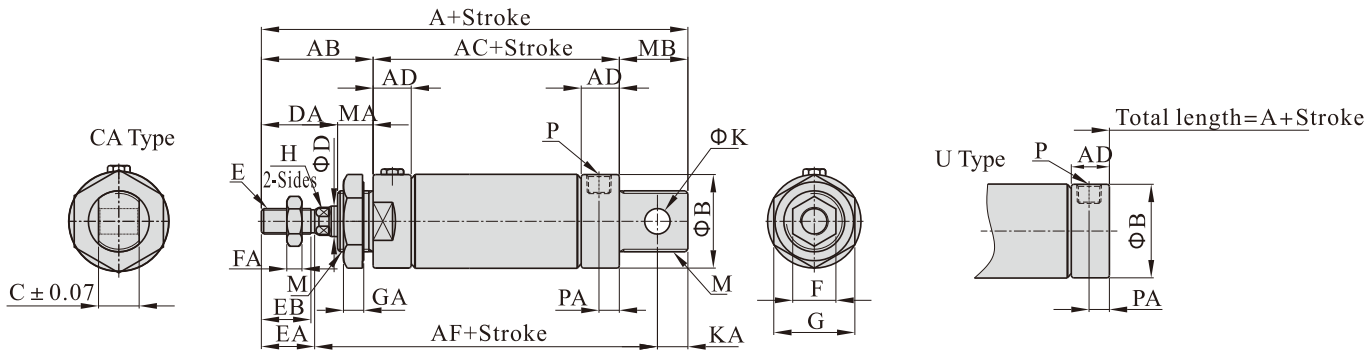
Bore size\Item	E	EA	EB	F	FA	G	GA	H	P	K	KA	PA
20	M8×1.25	20	18.5	12	6	29	7	6	1/8"	8	9	7.5
25	M10×1.25	21	19.5	17	6	29	7	8	1/8"	8	9	7.5
32	M10×1.25	21	19.5	17	6	32	8	10	1/8"	10	12	7.5
40	M12×1.25	22.5	21	17	7	41	8	14	1/4"	12	12	11
50	M14×1.5	24	22.5	19	8	46	11	14	1/4"	12	11	11
63	M14×1.5	24	22.5	19	8	46	11	14	1/4"	12	11	11

Remark: The dimensions of magnet type cylinder are the same as non-magnet type cylinder.

Mini cylinder(Aluminum barrel)

MBL Series

MSBL

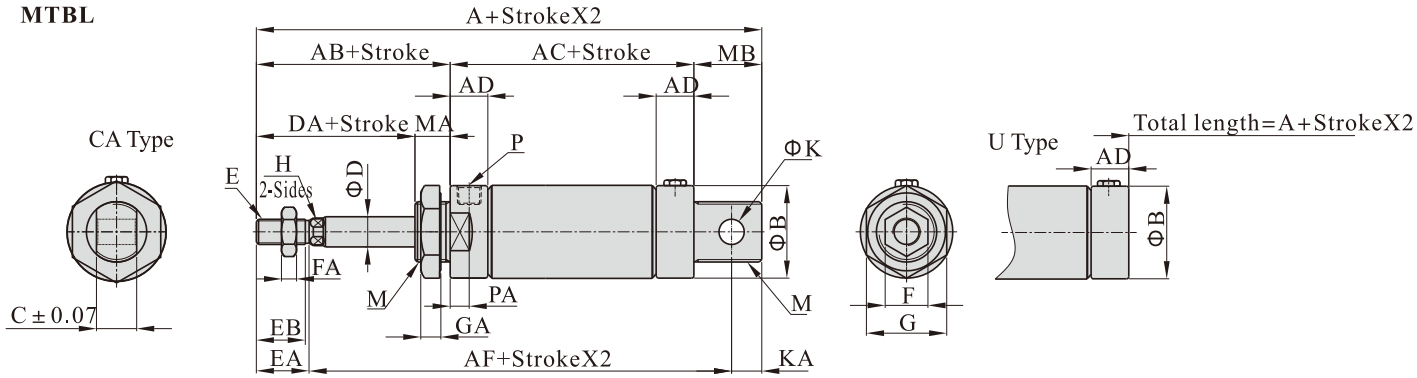


Item	A						AB	AC			AD	AF			B	C
Back cover	CA			U												
Bore size\Stroke	≤50	51~100	≥101	≤50	51~100	≥101		≤50	51~100	≥101		≤50	51~100	≥101		
20	156	181	206	135	160	185	40	95	120	145	15.5	127	152	177	27	16
25	160	185	210	139	164	189	44	95	120	145	15.5	130	155	180	30	16
32	166	191	216	139	164	189	44	95	120	145	15.5	133	158	183	37	16
40	190	215	240	163	188	213	46	117	142	167	22	155.5	180.5	205.5	45	20

Bore size\Item	D	DA	E	EA	EB	F	FA	G	GA	H	K	KA	M	MA	MB	P	PA
20	8	26	M8×1.25	20	18.5	12	6	29	7	6	8	9	M22×1.5	14	21	1/8"	7.5
25	10	30	M10×1.25	21	19.5	17	6	29	7	8	8	9	M22×1.5	14	21	1/8"	7.5
32	12	28	M10×1.25	21	19.5	17	6	32	8	10	10	12	M24×2.0	16	27	1/8"	7.5
40	16	30	M12×1.25	22.5	21	17	7	41	8	14	12	12	M30×2.0	16	27	1/4"	11

Remark: The dimensions of magnet type cylinder are the same as non-magnet type cylinder.

MTBL



Item	A				AB	AC		AD	AF		B	C	D	DA
Back cover	CA		U											
Bore size\Stroke	≤50	51~100	≤50	51~100		≤50	51~100		≤50	51~100				
20	156	181	135	160	40	95	120	15.5	127	152	27	16	8	26
25	160	185	139	164	44	95	120	15.5	130	155	30	16	10	30
32	166	191	139	164	44	95	120	15.5	133	158	37	16	12	28
40	190	215	163	188	46	117	142	22	155.5	180.5	45	20	16	30

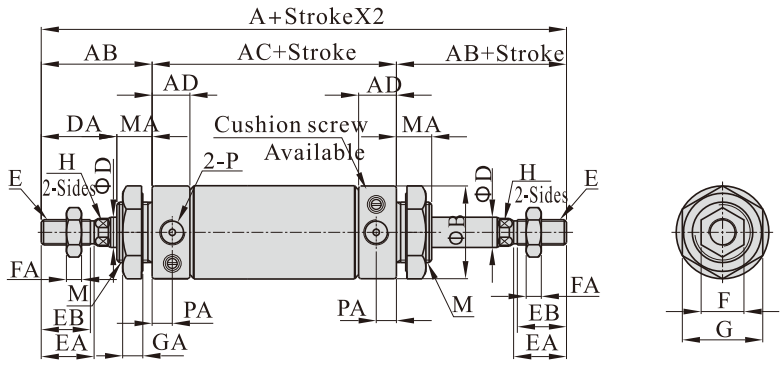
Bore size\Item	E	EA	EB	F	FA	G	GA	H	K	KA	M	MA	MB	P	PA
20	M8×1.25	20	18.5	12	6	29	7	6	8	9	M22×1.5	14	21	1/8"	7.5
25	M10×1.25	21	19.5	17	6	29	7	8	8	9	M22×1.5	14	21	1/8"	7.5
32	M10×1.25	21	19.5	17	6	32	8	10	10	12	M24×2.0	16	27	1/8"	7.5
40	M12×1.25	22.5	21	17	7	41	8	14	12	12	M30×2.0	16	27	1/4"	11

Remark: The dimensions of magnet type cylinder are the same as non-magnet type cylinder.

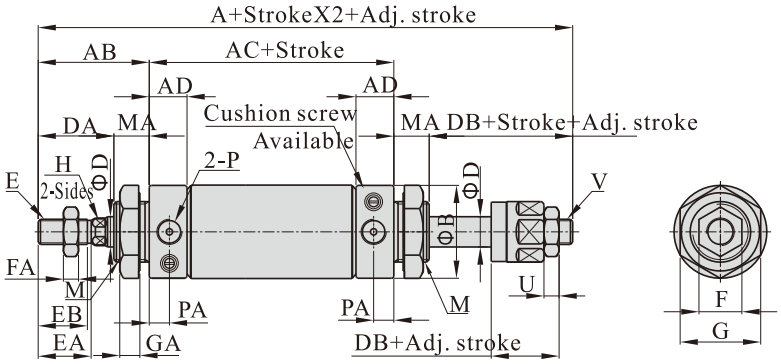
Mini cylinder(Aluminum barrel)

MBL Series

MBLD/MBLCD



MBLJ/MBLCJ



Bore size\Item / Model	A MBLD	A MBLCD	A MBLJ	A MBLCJ	AB	AC	AD	B	D	DA	DB	E
20	150		149		40	70	15.5	27	8	26	25	M8×1.25
25	158		155		44	70	15.5	30	10	30	27	M10×1.25
32	158		157		44	70	15.5	37	12	28	27	M10×1.25
40	184		182		46	92	22	45	16	30	28	M12×1.25
50	200		196		54	92	22	55	16	32	28	M14×1.5
63	200		196		54	92	22	68	16	32	28	M14×1.5

Bore size\Item	EA	EB	F	FA	G	GA	H	M	MA	P	PA	U	V
20	20	18.5	12	6	29	7	6	M22×1.5	14	1/8"	7.5	6	M8×1.25
25	21	19.5	17	6	29	7	8	M22×1.5	14	1/8"	7.5	6	M10×1.25
32	21	19.5	17	6	32	8	10	M24×2.0	16	1/8"	7.5	6	M10×1.25
40	22.5	21	17	7	41	8	14	M30×2.0	16	1/4"	11	7	M12×1.25
50	24	22.5	19	8	46	11	14	M36×2.0	22	1/4"	11	7	M12×1.25
63	24	22.5	19	8	46	11	14	M36×2.0	22	1/4"	11	7	M12×1.25

Remark: The dimensions of magnet type cylinder are the same as non-magnet type cylinder.

List for ordering code of accessories

Accessories / Bore size	Mounting accessories			Knuckle				Sensor switch	
	LB	FA	SDB	I	Y	F	U	CMSG	DMSG
20	F-MA20LB	F-MA20FA	F-MA20SDB	F-MA20I	F-MA20Y	F-M8X125F	F-M8X125U	CMSG	DMSG
25				F-MA25I	F-MA25Y	F-M10X125F	F-M10X125U		
32	F-MA32LB	F-MA32FA	F-MA32SDB						
40	F-MA40LB	F-MA40FA	F-MA40SDB	F-MA40I	F-MA40Y	F-M12X125F	F-M12X125U		
50	F-MA50LB	F-MA50FA		F-MAC50I	F-MAC50Y	F-M14X150F	F-M14X150U		
63	F-MA63LB								

Accessory selection

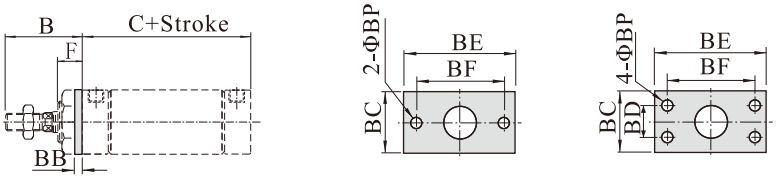
Cylinder model / Accessories		Mounting accessories			Knuckle				Sensor switch	
		LB	FA	SDB	I	Y	U	F	CMSG	DMSG
MBL MBLC	Standard	●	●	●	●	●	●	●	×	×
	With magnet	●	●	●	●	●	●	●	●	●
MSBL MTBL	Standard	●	●	●	●	●	●	●	×	×
	With magnet	●	●	●	●	●	●	●	●	●
MBLD MBLCD	Standard	●	●	×	●	●	●	●	×	×
	With magnet	●	●	×	●	●	●	●	●	●
MBLJ MBLCJ	Standard	●	●	×	●	●	●	●	×	×
	With magnet	●	●	×	●	●	●	●	●	●

Accessory selection

Accessories / Bore size	Mounting accessories			Knuckle			
	LB	FA	SDB	I	Y	F	U
20~63	○	○	○	□	□	□	□
○——Lower carbon steel□ □——Carbon steel□							

Dimensions

FA type

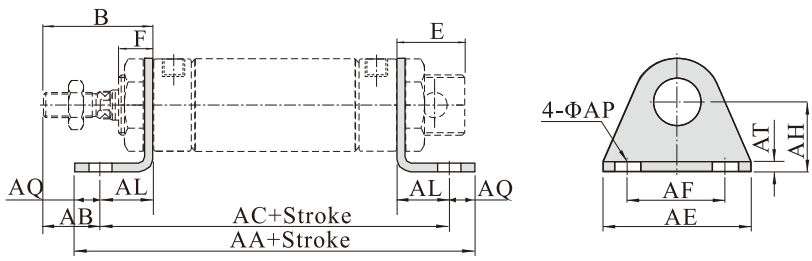


Bore size\Item / Stroke	B	C (MBL)	C(MSBL) 0~50	C(MSBL) 51~100	C(MSBL) 101~150	BB	BC	BD	BE	BF	BP	F
20	40	70	95	120	145	3.5	38	-	64	50	7	14
25	44	70	95	120	145	3.5	38	-	64	50	7	14
32	44	70	95	120	145	4	47	33	72	58	6.5	16
40	46	92	117	142	167	4	50	36	84	70	6.5	16
50	54	92	-	-	-	4.5	65	47	104	86	9	22
63	54	92	-	-	-	4.5	65	47	104	86	9	22

Mini cylinder(Aluminum barrel)

MBL Series

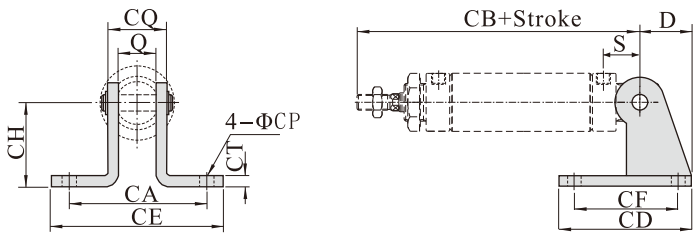
LB type



Bore size\Item / Stroke	AA (MBL)	AA(MSBL) 0~50	AA(MSBL) 51~100	AA(MSBL) 101~150	AC (MBL)	AC(MSBL) 0~50	AC(MSBL) 51~100	AC(MSBL) 101~150
20	116	141	166	191	100	125	150	175
25	116	141	166	191	100	125	150	175
32	136	161	186	211	120	145	170	195
40	158	183	208	233	142	167	192	217
50	172	-	-	-	148	-	-	-
63	180	-	-	-	154	-	-	-

Bore size\Item	B	E	F	AB	AE	AF	AL	AQ	AP	AT	AH
20	40	21	14	25	54	40	15	8	6.5	3	25
25	44	21	14	29	54	40	15	8	6.5	3	25
32	44	27	16	19	59	45	25	8	7	3.5	32
40	46	27	16	21	64	50	25	8	7	3.5	36
50	54	27	22	26	86	66	28	12	11	4.5	40
63	54	27	22	23	106	82	31	13	11	4.5	45

SDB type



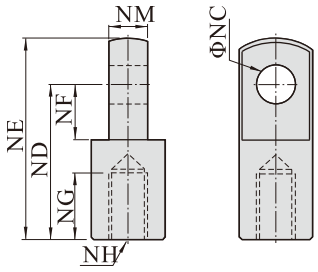
Bore size\Item / Stroke	D	S	Q	CA	CB (MBL)	CB(MSBL) 0~50	CB(MSBL) 51~100	CB(MSBL) 101~150	CD	CE	CF	CH	CT	CP	CQ
20	21	12	16	51	122	147	172	197	48	67	32	32	2.5	7	22
25	21	12	16	51	126	151	176	201	48	67	32	32	2.5	7	22
32	27	15	16	51	129	154	179	204	52	67	36	36	3	7	24
40	27	15	20	55	153	178	203	228	56	71	40	40	3	7	28

[Note] SDB is attached with relevant PIN.

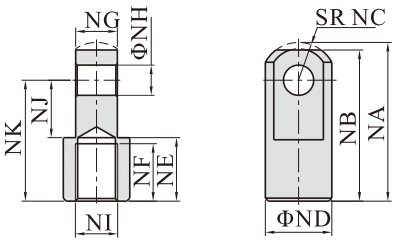
Mini cylinder(Aluminum barrel)

MBL Series

I Knuckle



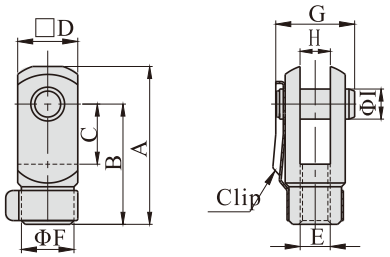
Type\Item	NC	ND	NE	NF	NH	NG	NM
F-MA20I	8	30	40	11	M8×1.25	15	8
F-MA25I	10	40	50	15	M10×1.25	20	10
F-MA40I	10	45	57	16	M12×1.25	23	14



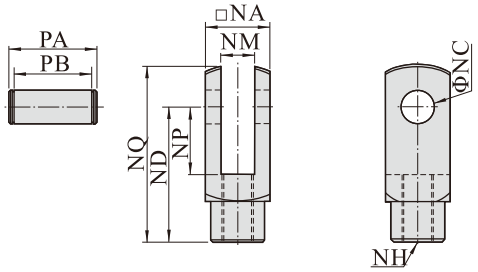
Type\Item	NA	NB	NC	ND	NE	NF
F-MAC50I	52.5	50	12.5	22	21	19

Type\Item	NG	NH	NJ	NK	NI
F-MAC50I	13.8	10	19	40	M14×1.5

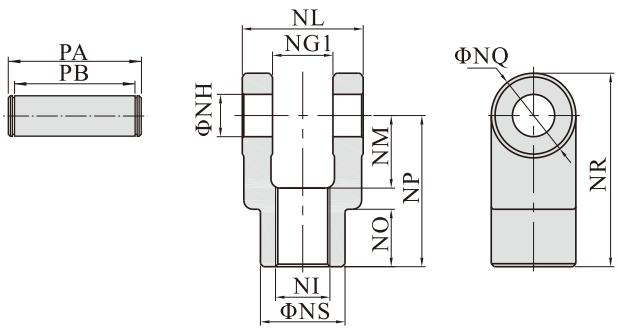
Y Knuckle



Type\Item	A	B	C	D	E	F	G	H	I
F-MA20Y	42	32	16	16	M8×1.25	14	21	8	8
F-MA25Y	52	40	20	19	M10×1.25	18	25	10	10



Type\Item	NA	NC	ND	NP	NQ	NM	NH	PA	PB
F-MA40Y	25.4	10	45	20	57	14	M12×1.25	32	26.2



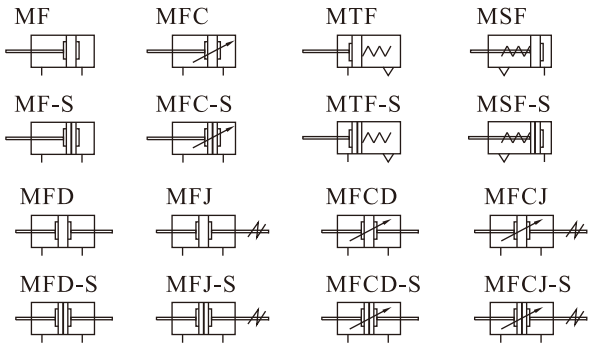
Type\Item	NG1	NH	NI	NL	NM	NO	NP	NQ	NR	NS	PA	PB
F-MAC50Y	14.2	10	M14×1.5	27.8	19	17	40	22	51	22	34.6	28.8

Mini cylinder——MF Series

Product feature

1. JIS standard is implemented.
2. Piston adopts heterogeneous two way seal structure.
   It has compact size and has the function of oil reservation.
3. Front cover owns fixed anti-impact pad which can reduce the impact of direction-change of the cylinder.
4. There are several modes of back cover, which makes the installation of cylinder more convenient.
5. Front and back cover and stainless steel block adopt riveted rolling packed structure to form a reliable connection.
6. The cylinder body has stainless steel pipes with high precision to produce high strength and corrosion resistance.
7. With the same bore size and stroke, cylinders of MF series are shorter than ISO6432 standard cylinders.
8. There are cylinders and mounting accessories with several specifications for your choice.

Symbol



Specification

Bore size(mm)		20	25	32	40
Acting type		Double acting, Double acting with cushion, Single acting			
Fluid		Air(to be filtered by 40μm filter element)			
Operating pressure	Double acting	0.15~1.0MPa(22~145psi)(1.5~10.0bar)			
	Single acting	0.2~1.0MPa(28~145psi)(2.0~10.0bar)			
Proof pressure		1.5MPa(215psi)(15bar)			
Temperature ℃		-20~70			
Speed range mm/s		Double acting:30~800 Single acting:50~800			
Stroke tolerance		0~150 >150			
Cushion type		MFC/MFCD/MFCJ Series: Variable cushion; Other series: Bumper			
Port size [Note1]		1/8"			1/4"

[Note1] PT thread, G thread thread and NPT thread are available.

Standard Stroke

Bore size(mm)		Standard stroke (mm)	Max.std stroke	Max. stroke
MF MFC	20	10 15 20 25 30 40 50 60 75 80 100 125 150 160 175 200 250 300 350 400 450 500	500	800
	25	10 15 20 25 30 40 50 60 75 80 100 125 150 160 175 200 250 300 350 400 450 500	500	800
	32	10 15 20 25 30 40 50 60 75 80 100 125 150 160 175 200 250 300 350 400 450 500	500	800
	40	10 15 20 25 30 40 50 60 75 80 100 125 150 160 175 200 250 300 350 400 450 500	500	800
MFD MFCD MFJ MFCJ	20	10 15 20 25 30 40 50 60 75 80 100 125 150 160 175 200 250 300	300	-
	25	10 15 20 25 30 40 50 60 75 80 100 125 150 160 175 200 250 300	300	-
	32	10 15 20 25 30 40 50 60 75 80 100 125 150 160 175 200 250 300 350 400 450 500	500	-
	40	10 15 20 25 30 40 50 60 75 80 100 125 150 160 175 200 250 300 350 400 450 500	500	-
MSF MTF	20	10 15 20 25 30 40 50 60 75 80 100 125 150	-	-
	25	10 15 20 25 30 40 50 60 75 80 100 125 150	-	-
	32	10 15 20 25 30 40 50 60 75 80 100 125 150	-	-
	40	10 15 20 25 30 40 50 60 75 80 100 125 150	-	-

[Note] Consult us for non-standard stroke.

Mini cylinder——MF Series

Ordering code

MF - 32 × 50 -S - CM- □ - □

MFD- 32 × 50 -S □ - □

MFJ- 32 × 50 -20 -S □ - □

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

⑥Back cover	
Back cover	Series
CA: Pivot type	MF MFC MSF MTF
U: Flat-end type	
CM: Round-end type	
No this code	Others

⑦Mounting type	
Mounting type	Series
Blank: No accessories	MF MFC MSF MTF
FA: FA type	
SDB: SDB type	
LB: LB type	
TC: TC type	
Blank: No accessories	MFD MFCD MFJ MFCJ
FA: FA type	
LB: LB type	
TC: TC type	

⑧ Thread type
Blank： G thread
PT： PT thread
NPT： NPT thread

①Model
MF: Mini cylinder(Double acting)
MFC: Mini cylinder(Double acting with cushion)
MSF: Mini cylinder(Single acting_push)
MTF: Mini cylinder(Single acting_pull)
MFD: Mini cylinder(Double rod)
MFCD: Mini cylinder(Double rod with cushion)
MFJ: Mini cylinder(Adjustable stroke)
MFCJ: Mini cylinder(Adjustable stroke with cushion)

②Bore size
20 25 32 40

③Stroke
Refer to stroke table for details

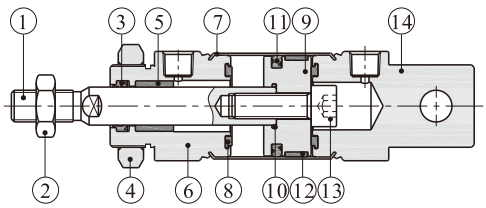
④ Adjustable stroke	
Series	Adjustable stroke
MFJ series MFCJ series	10： 10mm
	20： 20mm
	30： 30mm
	40： 40mm
	50： 50mm
	75： 75mm
	100： 100mm
Others series	No this code

⑤ Magnet
Blank: Without magnet
S: With magnet

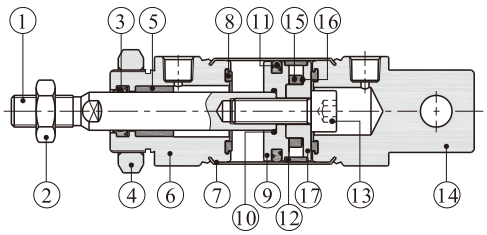
[Note1] Please refer to page 74~76 for accessory parts.

Inner structure and material of major parts

Double acting without magnet type



Double acting with magnet

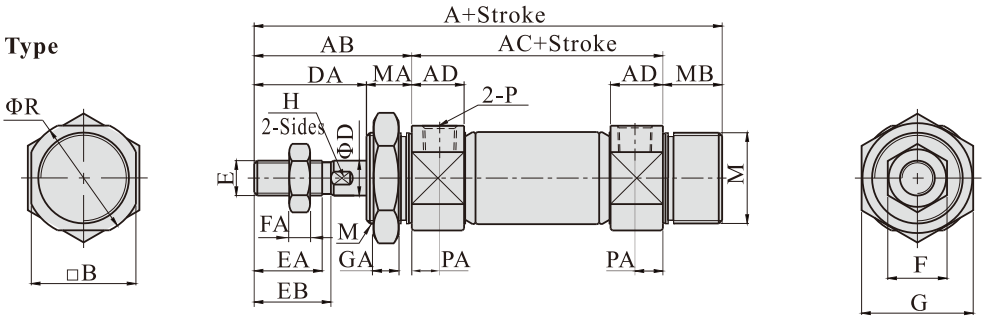


NO.	Item	Material
1	Piston rod	Carbon steel with 20μm chrome plated
2	Rod nut	Carbon steel
3	Front cover packing	NBR
4	Front cover nut	Carbon steel
5	Bushing	Wear resistant material
6	Front cover	Aluminum alloy
7	Barrel	SUS304
8	Bumper	TPU
9	Piston	Aluminum alloy
10	O-ring	NBR
11	Piston seal	NBR
12	Wear ring	Wear resistant material
13	Screw	Carbon steel
14	Back cover	Aluminum alloy
15	Magnet	Sintered metal (Neodymium-iron-boron)
16	Magnet washer	NBR
17	Magnet holder	Aluminum alloy

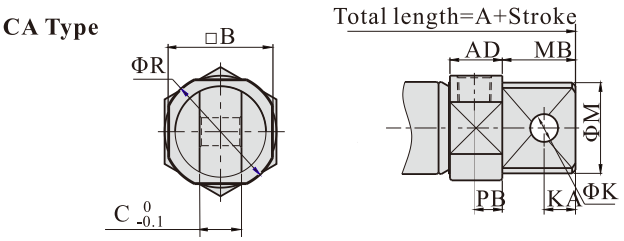
Dimensions

MF\MFC

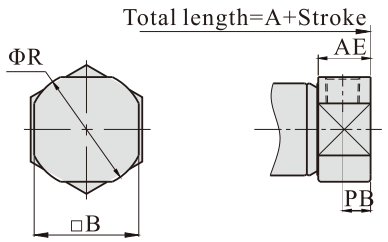
CM Type



CA Type



U Type



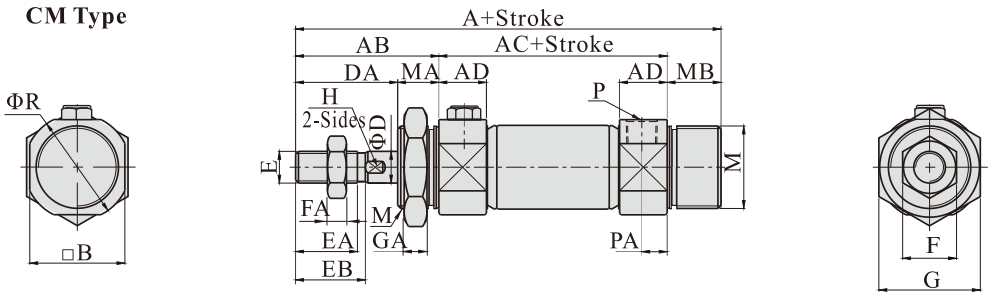
Bore size\Item	A			AB	AC	AD	AE	B	C	M		MA	MB	
Back cover	CM	CA	U							CM	CA		CA	CM
20	116	124	103	41	62	14.5	14.5	25	12	M20×1.5	20	14	21	13
25	120	128	108	45	62	14.5	15.5	30	12	M26×1.5	26	14	21	13
32	122	136	110	45	64	14.5	15.5	34.5	20	M26×1.5	26	14	27	13
40	154	165	138.5	50	88	21.5	22	42.5	20	M32×2.0	32	16	27	16

Bore size\Item	D	DA	E	EA	EB	F	FA	G	GA	H	K	KA	P	PA	PB	R
20	8	27	M8×1.25	16.5	18	12	6	26	8	6	8	9	1/8"	7.5	7.5	29
25	10	31	M10×1.25	20.5	22	17	6	32	8	8	8	9	1/8"	7.5	8	33.5
32	12	31	M10×1.25	20.5	22	17	6	32	8	10	10	12	1/8"	7.5	8	37.5
40	16	34	M14×1.5	22.5	24	19	8	41	10	14	10	12	1/4"	11	11.5	46.5

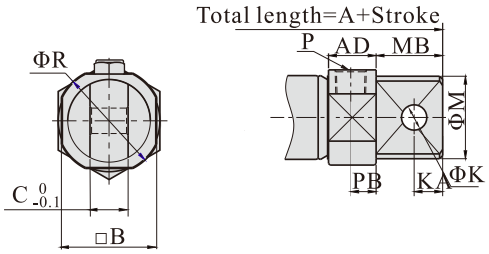
Remark:
1. The dimensions of magnet type cylinder are the same as non-magnet type cylinder.
2. The dimensions of MFC series are the same as MF series.

MSF

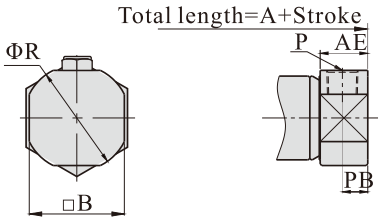
CM Type



CA Type



U Type



Bore size\Item	A									AC		
Back cover	CM			CA			U			-		
Stroke	1~50	51~100	101~150	1~50	51~100	101~150	1~50	51~100	101~150	1~50	51~100	101~150
20	141	166	191	149	174	199	128	153	178	87	112	137
25	145	170	195	153	178	203	133	158	183	87	112	137
32	147	172	197	161	186	211	135	160	185	89	114	139
40	179	204	229	190	215	240	163.5	188.5	213.5	113	138	163

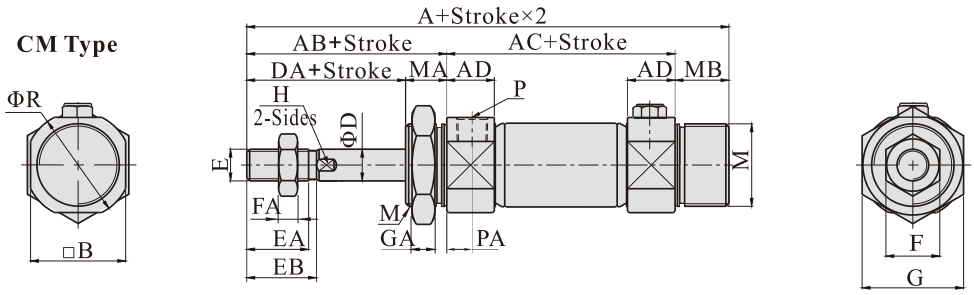
Bore size\Item	AB	AD	AE	B	C	D	DA	E	EA	EB	F	FA	G	GA	H	K	KA
20	41	14.5	14.5	25	12	8	27	M8×1.25	16.5	18	12	6	26	8	6	8	9
25	45	14.5	15.5	30	12	10	31	M10×1.25	20.5	22	17	6	32	8	8	8	9
32	45	14.5	15.5	34.5	20	12	31	M10×1.25	20.5	22	17	6	32	8	10	10	12
40	50	21.5	22	42.5	20	16	34	M14×1.5	22.5	24	19	8	41	10	14	10	12

Bore size\Item	M		MA	MB		P	PA	PB	R
Back cover	CM	CA		CA	CM				
20	M20×1.5	20	14	21	13	1/8"	7.5	7.5	29
25	M26×1.5	26	14	21	13	1/8"	7.5	8	33.5
32	M26×1.5	26	14	27	13	1/8"	7.5	8	37.5
40	M32×2.0	32	16	27	16	1/4"	11	11.5	46.5

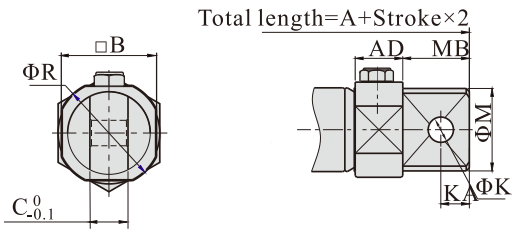
Remark:The dimensions of magnet type cylinder are the same as non-magnet type cylinder.

MTF

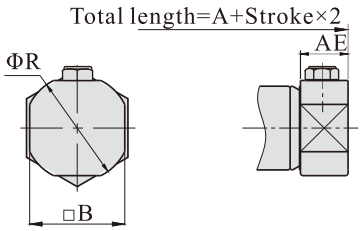
CM Type



CA Type



U Type



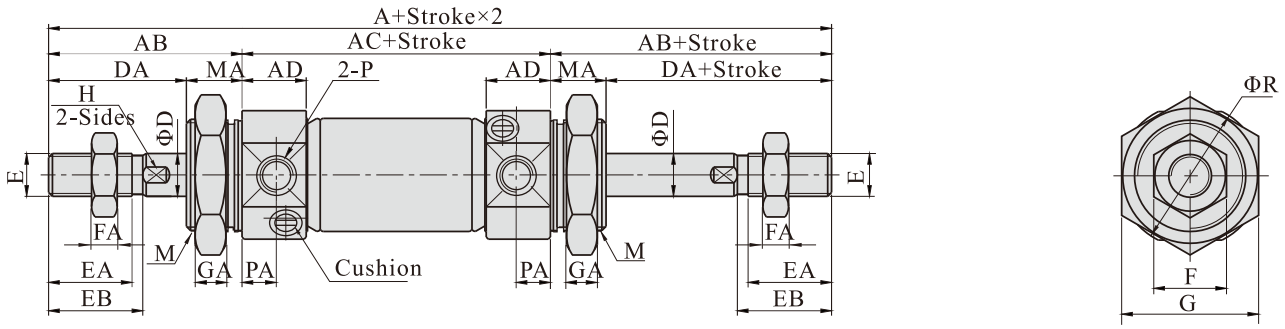
Bore size\Item	A									AC		
Back cover	CM			CA			U			-		
Stroke	1~50	51~100	101~150	1~50	51~100	101~150	1~50	51~100	101~150	1~50	51~100	101~150
20	141	166	191	149	174	199	128	153	178	87	112	137
25	145	170	195	153	178	203	133	158	183	87	112	137
32	147	172	197	161	186	211	135	160	185	89	114	139
40	179	204	229	190	215	240	163.5	188.5	213.5	113	138	163

Bore size\Item	M		MA	MB		AB	AD	AE	B	C	D	DA	E	EA
Back cover	CM	CA	-	CA	CM									
20	M20×1.5	20	14	21	13	41	14.5	14.5	25	12	8	27	M8×1.25	16.5
25	M26×1.5	26	14	21	13	45	14.5	15.5	30	12	10	31	M10×1.25	20.5
32	M26×1.5	26	14	27	13	45	14.5	15.5	34.5	20	12	31	M10×1.25	20.5
40	M32×2.0	32	16	27	16	50	21.5	22	42.5	20	16	34	M14×1.5	22.5

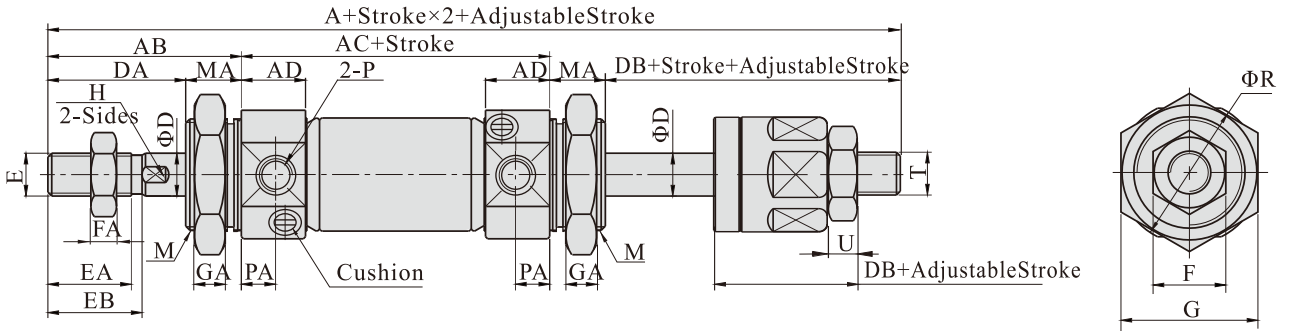
Bore size\Item	EB	F	FA	G	GA	H	K	KA	P	PA	R
20	18	12	6	26	8	6	8	9	1/8"	7.5	29
25	22	17	6	32	8	8	8	9	1/8"	7.5	33.5
32	22	17	6	32	8	10	10	12	1/8"	7.5	37.5
40	24	19	8	41	10	14	10	12	1/4"	11	46.5

Remark: The dimensions of magnet type cylinder are the same as non-magnet type cylinder.

MFD/MFCD



MFJ/MFCJ



Bore size\Item	A		AB	AC	AD	D	DA	DB	E	EA	EB
Back cover	MFD\MFCD	MFJ\MFCJ									
20	144	141	41	62	14.5	8	27	24	M8×1.25	16.5	18
25	152	148	45	62	14.5	10	31	27	M10×1.25	20.5	22
32	154	150	45	64	14.5	12	31	27	M10×1.25	20.5	22
40	188	182	50	88	21.5	16	34	28	M14×1.5	22.5	24

Bore size\Item	F	FA	G	GA	H	M	MA	P	PA	R	T	U
Back cover												
20	12	6	26	8	6	M20×1.5	14	1/8"	7.5	29	M8×1.25	5
25	17	6	32	8	8	M26×1.5	14	1/8"	7.5	33.5	M10×1.25	6
32	17	6	32	8	10	M26×1.5	14	1/8"	7.5	37.5	M10×1.25	6
40	19	8	41	10	14	M32×2.0	16	1/4"	11	46.5	M12×1.25	7

Remark: The dimensions of magnet type cylinder are the same as non-magnet type cylinder.

List for ordering code of accessories

Accessories / Bore size	Mounting accessories				Knuckle				Sensor switch		
	LB	FA	TC	SDB	I	Y	F	U	CMSG	DMSG	EMSG
20	F-MF20LB	F-MF20FA	F-MF20TC	F-MF20SDB	F-MF20I	F-MF20Y	F-M8X125F	F-M8X125U	CMSG	DMSG	EMSG
25	F-MF32LB	F-MF32FA	F-MF32TC		F-MF25I	F-MF25Y	F-M10X125F	F-M10X125U			
32				F-MF32SDB							
40	F-MF40LB	F-MF40FA	F-MF40TC		F-MF40I	F-MF40Y	F-M14X150F	F-M14X150U			

Accessory selection

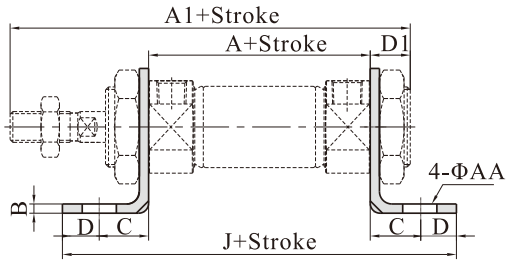
Cylinder model / Accessories		Mounting accessories				Knuckle				Sensor switch		
		LB	FA	SDB	TC	I	Y	U [1]	F	CMSG	DMSG	EMSG
MF MFC	Standard	●	●	●	●	●	●	●	●	×	×	×
	With magnet	●	●	●	●	●	●	●	●	●	●	●
MSF MTF	Standard	●	●	●	●	●	●	●	●	×	×	×
	With magnet	●	●	●	●	●	●	●	●	●	●	●
MFD MFCD	Standard	●	●	×	●	●	●	●	●	×	×	×
	With magnet	●	●	×	●	●	●	●	●	●	●	●
MFJ MFCJ	Standard	●	●	×	●	●	●	●	●	×	×	×
	With magnet	●	●	×	●	●	●	●	●	●	●	●

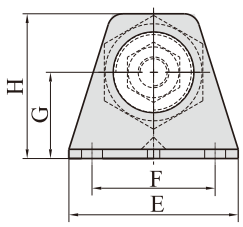
Accessory selection

Bore size/Accessories	Mounting accessories				Knuckle			
	LB	FA	SDB	TC	I	Y	F	U
20~40	△	△	△	■	□	□	□	□
■——Cast steel; □——SPCC; □——Carbon steel								

Dimensions

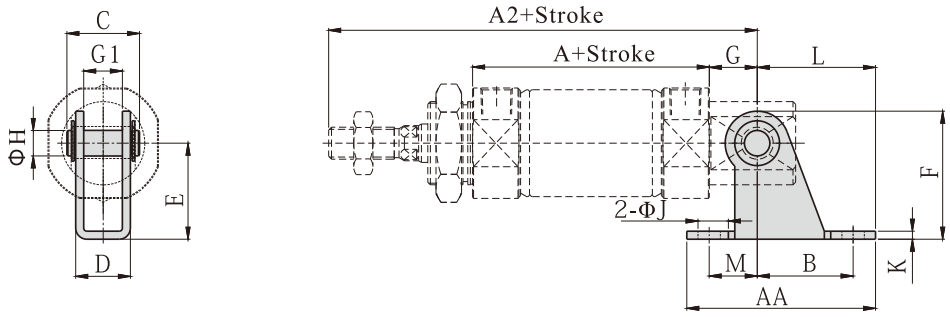
LB type





Bore size\Item	A	A1	AA	B	C	D	D1	E	F	G	H	J
20	62	116	7	3	20	8	13	55	40	25	40	118
25	62	120	7	3.5	20	8	13	55	40	28	47	118
32	64	122	7	3.5	20	8	13	55	40	28	47	120
40	88	154	7	3.5	23	10	16	75	55	30	54	154

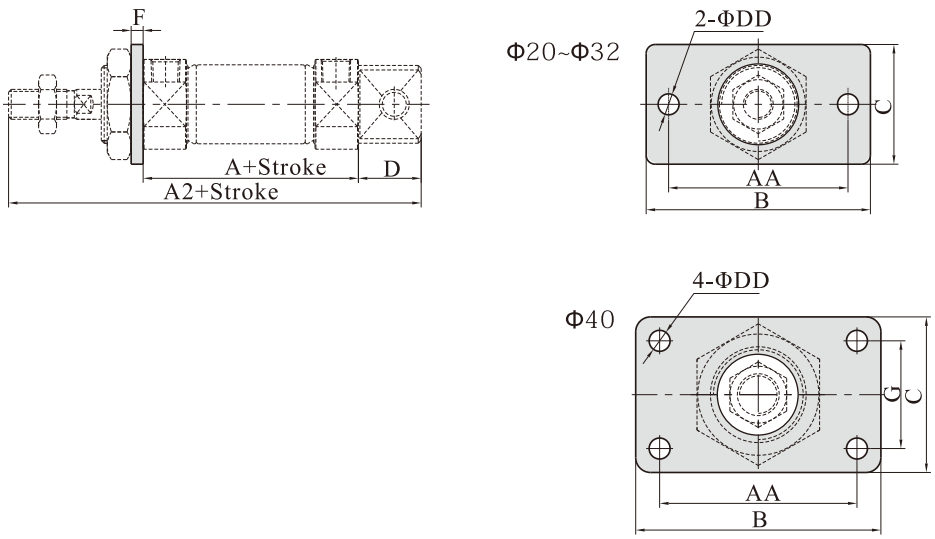
SDB type



Bore size\Item	A	A2	AA	B	C	D	E	F	G	G1	H	K	J	L	M
20	62	115	59	30	22.7	17.1	30	40	12	12.1	8	2.5	7	37	15
25	62	119	59	30	22.7	17.1	30	40	12	12.1	8	2.5	7	37	15
32	64	124	75	40	32.7	26.1	40	53	15	20.1	10	3	9	50	15
40	88	153	75	40	32.7	26.1	40	53	15	20.1	10	3	9	50	15

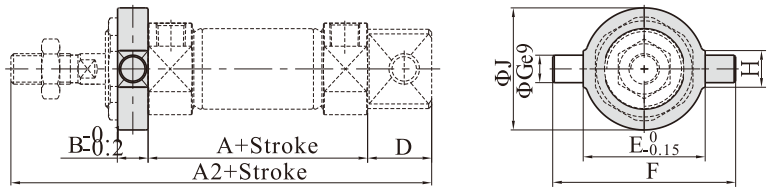
[Note] SDB is attached with relevant PIN.

FA type



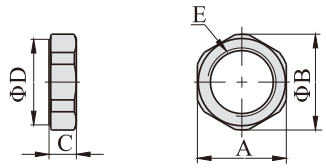
Bore size\Item	A	A2	AA	B	C	D	DD	F	G
20	62	124	60	75	34	21	7	3.5	-
25	62	128	60	75	40	21	7	4	-
32	64	136	60	75	40	27	7	4	-
40	88	165	66	82	52	27	7	4	36

TC type



Bore size\Item	A	A2	B	D	E	F	G	H	J
20	62	124	10	21	32	52	8	12	32
25	62	128	10	21	40	60	9	12	40
32	64	136	10	27	40	60	9	12	40
40	88	165	11	27	53	77	10	14	53

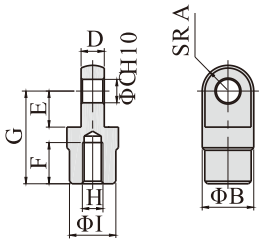
Special nut for TC



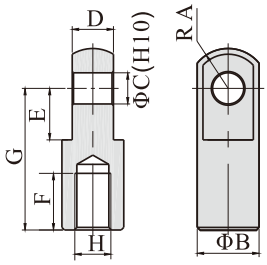
Bore size\Item	A	B	C	D	E
20	26	28	8	25	M20×1.5
25	32	34	8	31	M26×1.5
32	32	34	8	31	M26×1.5
40	41	45	10	40	M32×2.0

I Knuckle

F-MF20I, F-MF25I



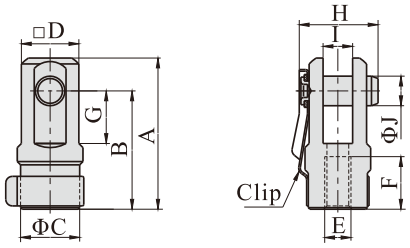
F-MF40I



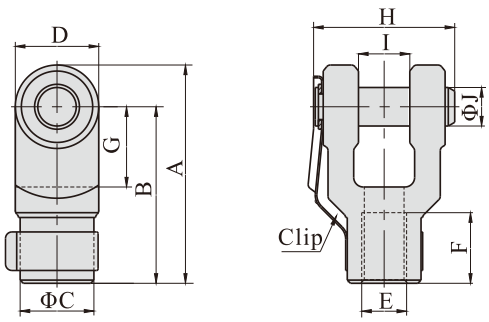
Type\Item	A	B	C	D	E	F	G	H	I
F-MF20I	9.5	20	9	9	14	16	36	M8×1.25	18
F-MF25I	9.5	20	9	9	14	18	38	M10×1.25	18
F-MF40I	15	24	12	16	20	22	55	M14×1.5	-

Y Knuckle

F-MF20Y
F-MF25Y



F-MF40Y

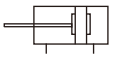


Type\Item	A	B	C	D	E	F	G	H	I	J
F-MF20Y	46	36	18	17.5	M8×1.25	16	16	24	9	9
F-MF25Y	48	38	18	17.5	M10×1.25	18	16	24	9	9
F-MF40Y	68	55	23	26	M14×1.5	22	25	44	16	12

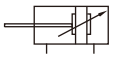
Mini cylinder——CG1 Series

Symbol

Rubber bumper



Air cushion



Product feature

1. Female rod end available as standard.
2. Easy fine adjustment of auto switch position.
3. No trunnion mounting female thread added to basic type variation.
4. Part numbers with rod end bracket and/or pivot bracket available.
5. Various mounting bracket options.
6. The cylinder body has stainless steel pipes with high precision to produce high strength and corrosion resistance.

Specification

Bore size(mm)			20	25	32	40	50	63	80	100
Action			Double acting, Single rod							
Lubricant			Not required (Non-lube)							
Fluid			Air(to be filtered by 40μm filter element)							
Proof pressure			1.5MPa							
Maximum operating pressure			1.0 MPa							
Minimum operating pressure			0.05 MPa							
Ambient and fluid temperature			Without auto switch: –10°C to 70°C (No freezing)							
			With auto switch : –10°C to 60°C (No freezing)							
Piston speed			50 to 1000 mm/s						50 to 1000 mm/s	
Stroke length tolerance			0~100 $^{+1.0}_{0}$ >100 $^{+1.5}_{0}$							
Cushion			Rubber bumper, Air cushion							
Mounting**			Basic, Basic (without trunnion mounting female thread),Axial foot, Rod flange, Head flange, Rod trunnion, Head trunnion, Clevis							
Allowable kinetic energy (J)	Rubber bumper	Male rod end	0.28	0.41	0.66	1.20	2.00	3.40	5.90	9.90
		Female rod end	0.11	0.18	0.29	0.52	0.91	1.54	2.71	4.54
	Air cushion	Male rod end	R: 0.35/H: 0.42	R: 0.56/H: 0.65	0.91	1.80	3.40	4.90	11.80	16.70
		Female rod end	0.11	0.18	0.29	0.52	0.91	1.54	2.71	4.54

* R: Rod side, H: Head side

** Cylinder sizes 80 and 100 do not have basic (without trunnion mounting female thread), rod trunnion and head trunnion types. Foot, flange and clevis types of cylinder sizes from 20 to 63 do not have trunnion mounting female thread.
Operate the cylinder within the allowable kinetic energy.

Standard Stroke

Bore size(mm)	Standard stroke Note1)	Manufacturable stroke
20	25, 50, 75, 100, 125, 150, 200	1 to 1500
25	25, 50, 75, 100, 125,150, 200, 250, 300	1 to 1500
32	25, 50, 75, 100, 125,150, 200, 250, 300	1 to 1500
40	25, 50, 75, 100, 125,150, 200, 250, 300	1 to 1500
50,63	25, 50, 75, 100, 125,150, 200, 250, 300	1 to 1500
80	25, 50, 75, 100, 125,150, 200, 250, 300	1 to 1500
100	25, 50, 75, 100, 125,150, 200, 250, 300	1 to 1500

Note 1) Intermediate strokes not listed above are produced upon receipt of order. Manufacture of intermediate strokes at 1 mm intervals is possible. (Spacers are not used.)

Ordering code

CG1 B N 20 □-100 □ □Z-□ □

CDG1 B N 20 □-100 □ □Z-□ □ - □ □

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

① With auto switch

(Built-in magnet)

② Mounting

B	Basic
Z*	Basic (without trunnion mounting female thread)
L	Axial foot
F	Rod flange
G	Head flange
U*	Rod trunnion
T*	Head trunnion
D	Clevis

* Not available for 80 and 100.
* Mounting bracket is shipped together with the product, but not assembled.
* The cylinder for F, G, L, D mounting types is Z: Basic (without trunnion mounting female thread).

⑤ Port thread type

Rubber bumper			Air cushion		
Nil	Rc	20 to 100	Nil	M5 x 0.8	20, 25
TN	NPT	20 to 100		Rc	32 to 100
TF	M5 x 0.8	20, 25	TN	NPT*	32 to 100
	G	32 to 100	TF	G	32 to 100

⑥ Cylinder stroke (mm)

Refer to "Standard Strokes"

⑦ Rod end thread

Nil	Male rod end
F	Female rod end

③ Type

N	Rubber bumper
A	Air cushion

④ Bore size

20	20mm
25	25mm
32	32mm
40	40mm
50	50mm
63	63mm
80	80mm
100	100mm

⑧ Suffix for cylinder (Rod boot)

Nil	Without rod boot
J	Nylon tarpaulin
K	Heat resistant tarpaulin

⑨ Pivot bracket

Nil	None
N	Pivot bracket is shipped together with the product, but not assembled

* Only for D, U, T mounting types

⑪ Auto switch

Nil	Without auto switch

⑩ Rod end bracket

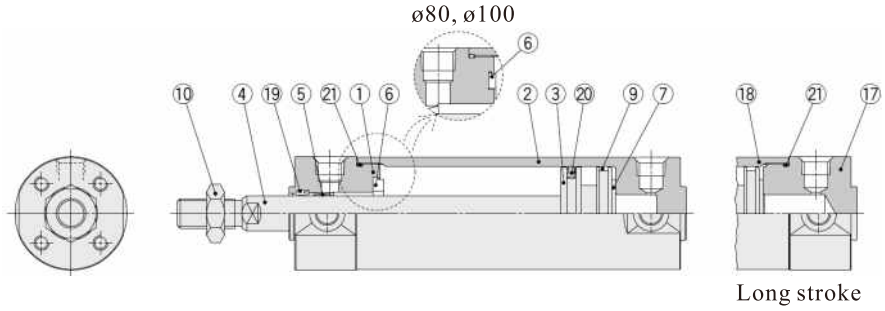
Nil	None
V	Single knuckle joint
W	Double knuckle joint

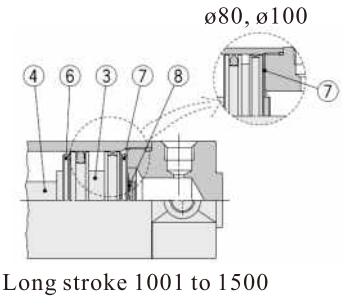
⑫ Number of auto switches

Nil	2 pcs.
S	1 pc.
n	"n" pcs.

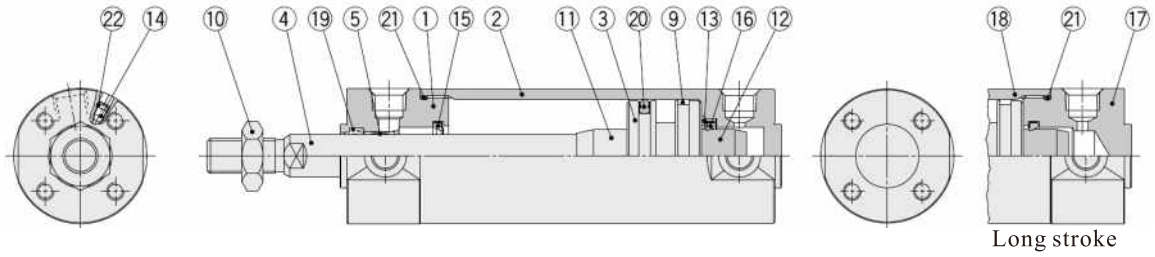
Inner structure and material of major parts

With rubber bumper





With air cushion



NO.	Description		Material	Note
1	Rod cover		Aluminum alloy	Anodized
2	Tube cover		Aluminum alloy	Hard anodized
3	Piston		Aluminum alloy	
4	Piston rod		Stainless steel	For 20 or 25 with built-in magnet
			Carbon steel*	Hard chrome plating*
5	Bushing		Bearing alloy	
6	Bumper		Resin	32 or larger is common
7	Bumper		Resin	32 or larger is common
8	Retaining ring		Stainless steel	Except 80 and 100
9	Wear ring		Resin	
10	Rod end nut		Carbon steel	Zinc chromated
11	Cushion ring A		Aluminum alloy	
12	Cushion ring B		Aluminum alloy	
13	Seal retainer		Rolled steel	Zinc chromated
14	Cushion valve	40 or maller	Carbon steel	Electroless nickel plating
		50 or larger	Steel wire	Zinc chromated

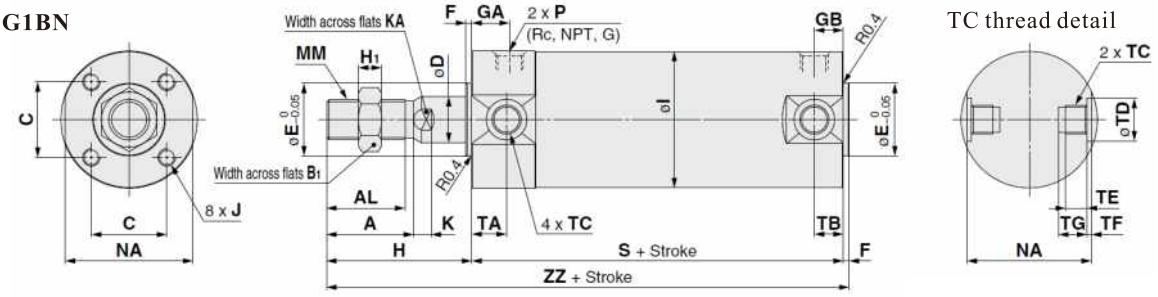
NO.	Description	Material	Note
15	Cushion seal A	Urethane	32 or larger is common
16	Cushion seal B	Urethane	32 or larger is common
17	Head cover	Aluminum alloy	Anodized
18	Cylinder tube	Aluminum alloy	Hard anodized
19	Rod seal	NBR	
20	Piston seal	NBR	
21	Tube gasket	NBR	
22	Valve seal	NBR	

Note) For cylinders with auto switches, the magnet is installed in the piston.

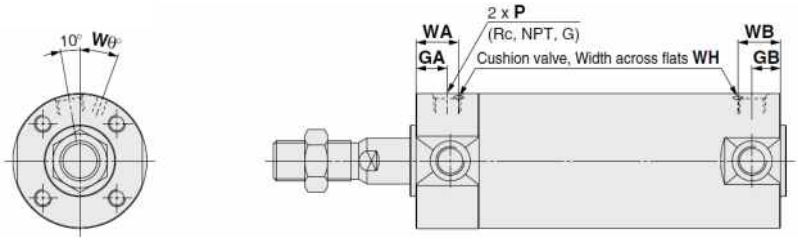
* The material for 20, 25 cylinders with auto switches is made of stainless steel.

Dimensions

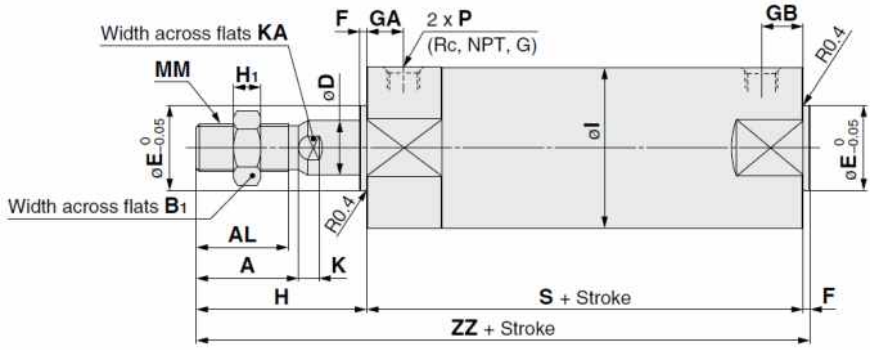
Basic: CG1BN



With air cushion



Basic (Without trunnion mounting female thread): CG1ZN



Bore size	Stroke		Rc, NPT port			G port			A	AL	B1	C	D	E	F	H	H1	I	J	K	KA	MM
	Standard	Long stroke	GA	GB	P	GA	GB	P														
20	Up to 200	201~1500	12	10(12)	1/8	12	10(12)	M5X0.8	18	15.5	13	14	8	12	2	35	5	26	M4 x 0.7 depth 7	5	6	M8X1.25
25	Up to 300	301~1500	12	10(12)	1/8	12.5	10(12.5)	M5X0.8	22	19.5	17	16.5	10	14	2	40	6	31	M5 x 0.8 depth 7.5	5.5	8	M10X1.25
32	Up to 300	301~1500	12	10(12)	1/8	10.5	10(10.5)	1/8	22	19.5	17	20	12	18	2	40	6	38	M5 x 0.8 depth 8	5.5	10	M10X1.25
40	Up to 300	301~1500	13	10(13)	1/8	13	10(10)	1/8	30	27	19	26	16	25	2	50	8	47	M6 x 1 depth 12	6	14	M14X1.5
50	Up to 300	301~1500	14	12(14)	1/4	14	12(14)	1/4	35	32	27	32	20	30	2	58	11	58	M8 x 1.25 depth 16	7	18	M18X1.5
63	Up to 300	301~1500	14	12(14)	1/4	14	12(14)	1/4	35	32	27	38	20	32	2	58	11	72	M10 x 1.5 depth 16	7	18	M18X1.5
80	Up to 300	301~1500	20	16(20)	3/8	17.5	16(17.5)	3/8	40	37	32	50	25	40	3	71	13	89	M10 x 1.5 depth 22	10	22	M22X1.5
100	Up to 300	301~1500	20	16(20)	1/2	17.5	16(17.5)	1/2	40	37	41	60	30	50	3	71	16	110	M12 x 1.75 depth 22	10	26	M26X1.5

Bore size	NA	S	TA	TB	ZZ
20	24	69 (77)	11	11	106 (114)
25	29	69 (77)	11	11	111 (119)
32	35.5	71 (79)	11	10 (11)	113 (121)
40	44	78 (87)	12	10 (12)	130 (139)
50	55	90 (102)	13	12 (13)	150 (162)
63	69	90 (102)	13	12 (13)	150 (162)
80	86	108 (122)	-	-	182 (196)
100	106	108 (122)	-	-	182 (196)

Note) ( ): Denotes the dimensions for long stroke.

With Air Cushion

Bore size	Rc, NPT port			WA	WB	W θ	WH
	GA	GB	P				
20	12	10(12)	M5 x 0.8	16	15 (16)	25°	1.5
25	12.5	10(12.5)	M5 x 0.8	16	14.5 (16)	25°	1.5
32	12	10(12)	1/8	16	14(16)	25°	1.5
40	13	10(13)	1/8	17	15 (17)	20°	1.5
50	14	12(14)	1/4	18	16 (18)	20°	3
63	14	12(14)	1/4	18	17 (18)	20°	3
80	20	16(20)	3/8	24	20 (24)	20°	4
100	20	16(20)	1/2	24	20 (24)	20°	4

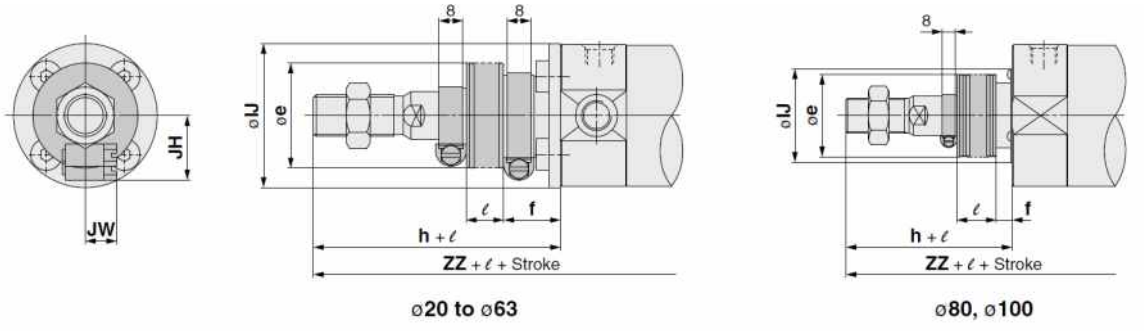
TC Thread

Bore size	TC	TD	TE	TF	TG
20	M5 x 0.8	$8^{+0.08}_{0}$	4	0.5	5.5
25	M6 x 0.75	$10^{+0.08}_{0}$	5	1	6.5
32	M8 x 1.0	$12^{+0.08}_{0}$	5.5	1	7.5
40	M10 x 1.25	$14^{+0.08}_{0}$	6	1.25	8.5
50	M12 x 1.25	$16^{+0.08}_{0}$	7.5	2	10
63	M14 x 1.5	$18^{+0.08}_{0}$	11.5	3	14.5
80	-	-	-	-	-
100	-	-	-	-	-

* Cylinder sizes 80 and 100 do not have trunnion mounting female thread on the width across flats NA.

Basic: CG1BN

With rod boot

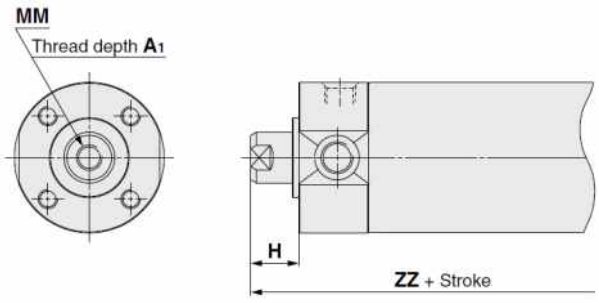


With Rod Boot

Bore size	e	f	h	IJ	JH	JW	ℓ	ZZ
20	30	18	55	27	15.5	10.5	1/4 stroke	126 (134)
25	30	19	62	32	16.5	10.5		133 (141)
32	35	19	62	38	18.5	10.5		135 (143)
40	35	19	70	48	21.5	10.5		150 (159)
50	40	19	78	59	24	10.5		170 (182)
63	40	20	78	72	24	10.5		170 (182)
80	52	10	80	59	-	-		191 (205)
100	62	7	80	71	-	-		191 (205)

* The minimum stroke with rod boot is 20 mm.

Female rod end

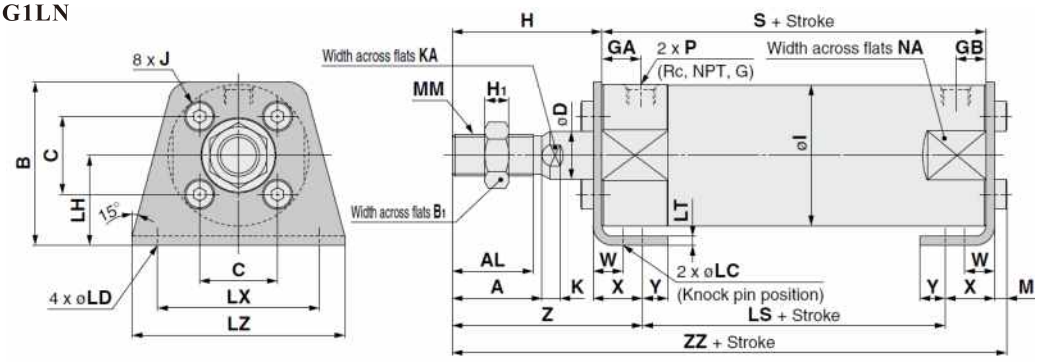


Female Rod End

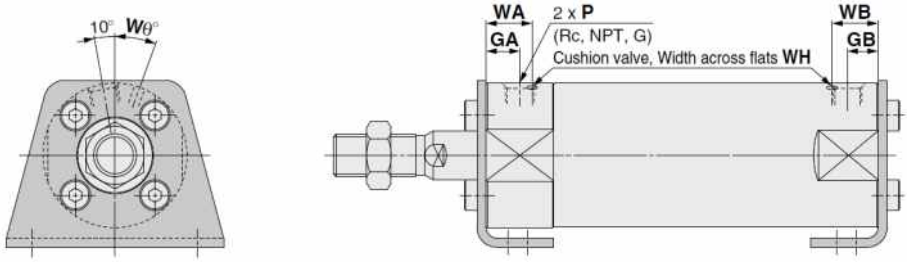
Bore size	A1	H	MM	ZZ
20	8	13	M4X0.7	84 (92)
25	8	14	M5X0.8	85 (93)
32	12	14	M6X1	87 (95)
40	13	15	M8X1.25	95 (104)
50	18	16	M10X1.5	108 (120)
63	18	16	M14X1.5	108 (120)
80	21	19	M14X1.5	130 (144)
100	25	22	M16X1.5	133 (147)

* When female thread is used, use a washer etc. to prevent the contact part at the rod end from being deformed depending on the material of the workpiece.

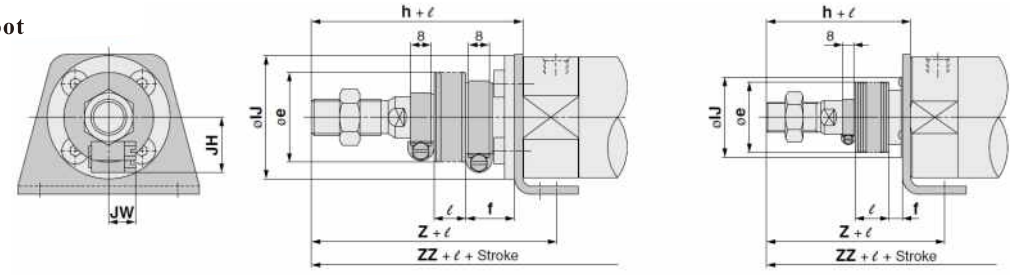
Axial Foot: CG1LN



With air cushion



With rod boot



ø80, ø100

Bore size	Stroke		Rc, NPT port			G port			A	AL	B	B1	C	D	H	H1	I	J	K	KA	LC	LD	LH	LS	LT	LX	LZ	M	MM
	Standard	Long stroke	GA	GB	P	GA	GB	P																					
20	Up to 200	201~1500	12	*10(12)*	1/8	12	10(12)	M5X0.8	18	15.5	34	13	14	8	35	5	26	M4 x 0.7	5	6	4	6	20	45(53)	3	32	44	3	M8X1.25
25	Up to 300	301~1500	12	*10(12)*	1/8	12.5	10(12.5)	M5X0.8	22	19.5	38.5	17	16.5	10	40	6	31	M5 x 0.8	5.5	8	4	6	22	45(53)	3	36	49	3.5	M10X1.25
32	Up to 300	301~1500	12	*10(12)*	1/8	10.5	10(10.5)	1/8	22	19.5	45	17	20	12	40	6	38	M5 x 0.8	5.5	10	4	7	25	45(53)	3	44	58	3.5	M10X1.25
40	Up to 300	301~1500	13	*10(13)*	1/8	13	10(10)	1/8	30	27	54.5	19	26	16	50	8	47	M6 x 1	6	14	4	7	30	51(60)	3	54	71	4	M14X1.5
50	Up to 300	301~1500	14	*12(14)*	1/4	14	12(14)	1/4	35	32	70.5	27	32	20	58	11	58	M8 x 1.25	7	18	5	10	40	55(67)	4.5	66	86	5	M18X1.5
63	Up to 300	301~1500	14	*12(14)*	1/4	14	12(14)	1/4	35	32	82.5	27	38	20	58	11	72	M10 x 1.5	7	18	5	12	45	55(67)	4.5	82	106	5	M18X1.5
80	Up to 300	301~1500	20	*16(20)*	3/8	17.5	16(17.5)	3/8	40	37	101	32	50	25	71	13	89	M10 x 1.5	10	22	6	11	55	60(74)	4.5	100	125	5	M22X1.5
100	Up to 300	301~1500	20	*16(20)*	1/2	17.5	16(17.5)	1/2	40	37	121	41	60	30	71	16	110	M12 x 1.75	10	26	6	14	65	60(74)	6	120	150	7	M26X1.5

Bore size	NA	S	W	X	Y	Z	ZZ
20	24	69 (77)	10	15	7	47	110 (118)
25	29	69 (77)	10	15	7	52	115.5 (123.5)
32	35.5	71 (79)	10	16	8	53	117.5 (125.5)
40	44	78 (87)	10	16.5	8.5	63.5	135 (144)
50	55	90 (102)	17.5	22	11	75.5	157.5(169.5)
63	69	90 (102)	17.5	22	13	75.5	157.5 (169.5)
80	86	108 (122)	20	28.5	14	95	188.5 (202.5)
100	106	108 (122)	20	30	16	95	192 (206)

With Air Cushion

Bore size	Rc, NPT port			WA	WB	W θ	WH
	GA	GB	P				
20	12	10(12)	M5 x 0.8	16	15 (16)	25°	1.5
25	12.5	10(12.5)	M5 x 0.8	16	14.5 (16)	25°	1.5
32	12	10(12)	1/8	16	14(16)	25°	1.5
40	13	10(13)	1/8	17	15 (17)	20°	1.5
50	14	12(14)	1/4	18	16 (18)	20°	3
63	14	12(14)	1/4	18	17 (18)	20°	3
80	20	16(20)	3/8	24	20 (24)	20°	4
100	20	16(20)	1/2	24	20 (24)	20°	4

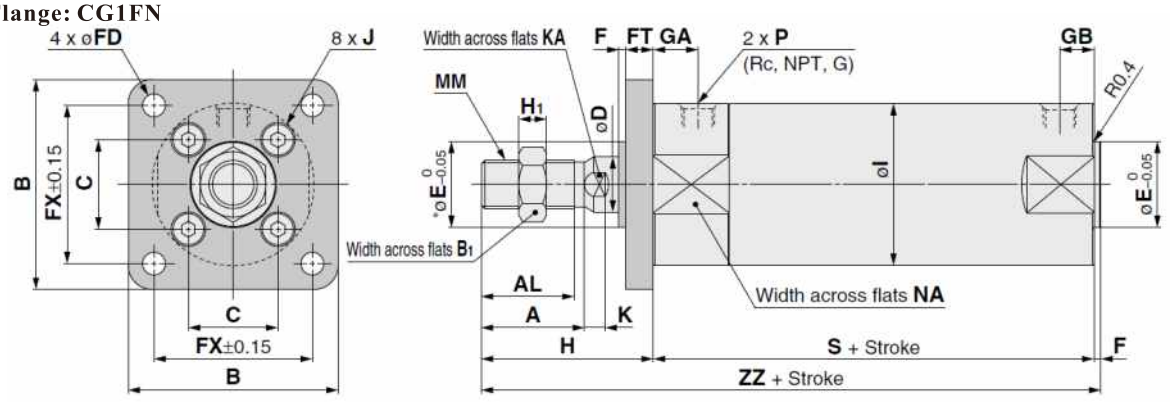
With Rod Boot

Bore size	e	f	h	IJ	JH	JW	ℓ	ZZ
20	30	18	55	27	15.5	10.5	1/4 stroke	130 (138)
25	30	19	62	32	16.5	10.5		137.5 (145.5)
32	35	19	62	38	18.5	10.5		139.5 (147.5)
40	35	19	70	48	21.5	10.5		155 (164)
50	40	19	78	59	24	10.5		177.5 (189.5)
63	40	20	78	72	24	10.5		177.5 (189.5)
80	52	10	80	59	-	-		197.5 (211.5)
100	62	7	80	71	-	-		201 (215)

* For female rod end, since the wrench flap (K and KA portions) will be inside of the bracket when the piston rod is retracted at the stroke end, extend the piston rod to tighten the nut using a tool, and mount a workpiece on the rod end.
* Refer to the basic type for the female rod end.
Note) ( ): Denotes the dimensions for long stroke.

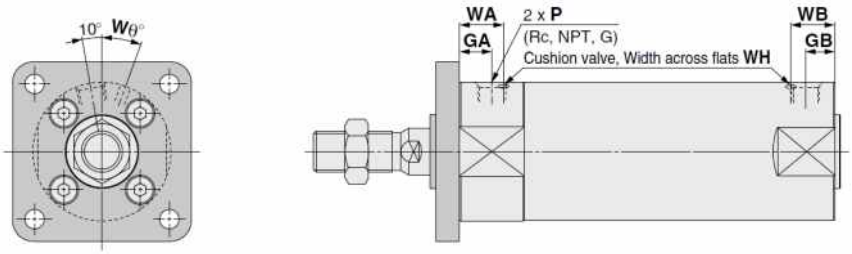
* The minimum stroke with rod boot is 20 mm.

Rod Flange: CG1FN

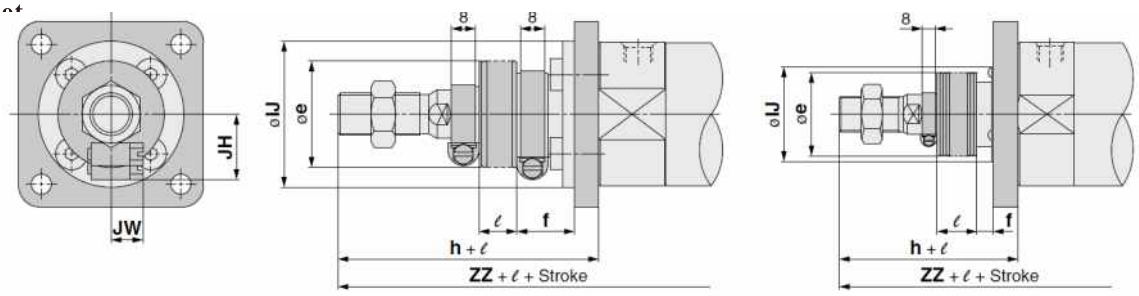


* End boss is machined on the flange for E.

With air cushion



With rod boot



ø80, ø100

Bore size	Stroke		Rc, NPT port			G port			A	AL	B	B1	C	D	E	F	FD	FT	FX	H	H1	I	J	K
	Standard	Long stroke	GA	GB	P	GA	GB	P																
20	Up to 200	201~1500	12	10(12)	1/8	12	10(12)	M5X0.8	18	15.5	40	13	14	8	12	2	5.5	6	28	35	5	26	M4 x 0.7	5
25	Up to 300	301~1500	12	10(12)	1/8	12.5	10(12.5)	M5X0.8	22	19.5	44	17	16.5	10	14	2	5.5	7	32	40	6	31	M5 x 0.8	5.5
32	Up to 300	301~1500	12	10(12)	1/8	10.5	10(10.5)	1/8	22	19.5	53	17	20	12	18	2	6.6	7	38	40	6	38	M5 x 0.8	5.5
40	Up to 300	301~1500	13	10(13)	1/8	13	10(10)	1/8	30	27	61	19	26	16	25	2	6.6	8	46	50	8	47	M6 x 1	6
50	Up to 300	301~1500	14	12(14)	1/4	14	12(14)	1/4	35	32	76	27	32	20	30	2	9	9	58	58	11	58	M8 x 1.25	7
63	Up to 300	301~1500	14	12(14)	1/4	14	12(14)	1/4	35	32	92	27	38	20	32	2	11	9	70	58	11	72	M10 x 1.5	7
80	Up to 300	301~1500	20	16(20)	3/8	17.5	16(17.5)	3/8	40	37	104	32	50	25	40	3	11	11	82	71	13	89	M10 x 1.5	10
100	Up to 300	301~1500	20	16(20)	1/2	17.5	16(17.5)	1/2	40	37	128	41	60	30	50	3	14	14	100	71	16	110	M12 x 1.75	10

Bore size	KA	MM	NA	S	ZZ
20	6	M8X1.25	24	69 (77)	106 (114)
25	8	M10X1.25	29	69 (77)	111 (119)
32	10	M10X1.25	35.5	71 (79)	113 (121)
40	14	M14X1.5	44	78 (87)	130 (139)
50	18	M18X1.5	55	90 (102)	150(162)
63	18	M18X1.5	69	90 (102)	150 (162)
80	22	M22X1.5	86	108 (122)	182 (196)
100	26	M26X1.5	106	108 (122)	182 (196)

With Air Cushion

Bore size	Rc, NPT port			WA	WB	W θ	WH
	GA	GB	P				
20	12	10(12)	M5 x 0.8	16	15 (16)	25°	1.5
25	12.5	10(12.5)	M5 x 0.8	16	14.5 (16)	25°	1.5
32	12	10(12)	1/8	16	14(16)	25°	1.5
40	13	10(13)	1/8	17	15 (17)	20°	1.5
50	14	12(14)	1/4	18	16 (18)	20°	3
63	14	12(14)	1/4	18	17 (18)	20°	3
80	20	16(20)	3/8	24	20 (24)	20°	4
100	20	16(20)	1/2	24	20 (24)	20°	4

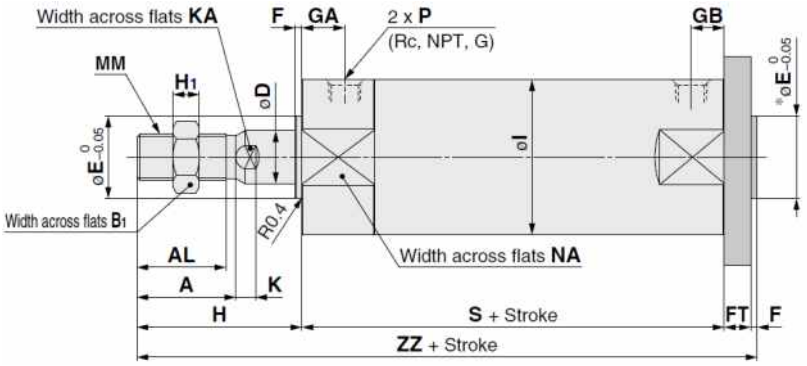
With Rod Boot

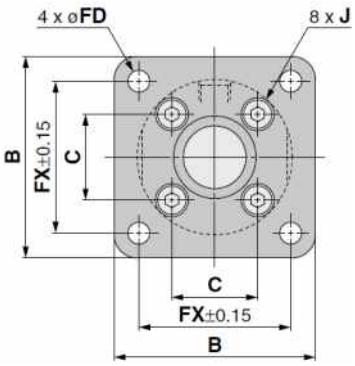
Bore size	e	f	h	IJ	JH	JW	ℓ	ZZ
20	30	18	55	27	15.5	10.5	1/4 stroke	126 (134)
25	30	19	62	32	16.5	10.5		133 (141)
32	35	19	62	38	18.5	10.5		135 (143)
40	35	19	70	48	21.5	10.5		150 (159)
50	40	19	78	59	24	10.5		170 (182)
63	40	20	78	72	24	10.5		170 (182)
80	52	10	80	59	-	-		191 (205)
100	62	7	80	71	-	-		191 (205)

* For female rod end, since the wrench flap (K and KA portions) will be inside of the bracket when the piston rod is retracted at the stroke end, extend the piston rod to tighten the nut using a tool, and mount a workpiece on the rod end.
* Refer to the basic type for the female rod end.
Note) ( ): Denotes the dimensions for long stroke.

* The minimum stroke with rod boot is 20 mm.

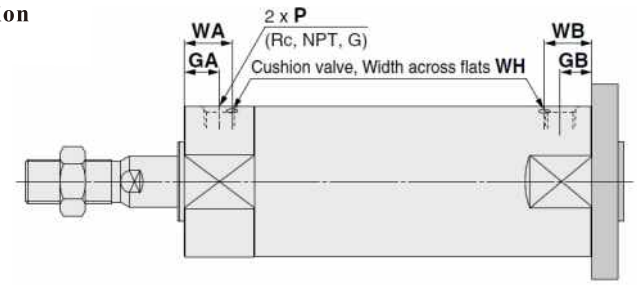
Head Flange: CG1GN

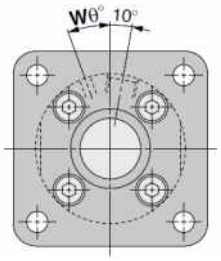




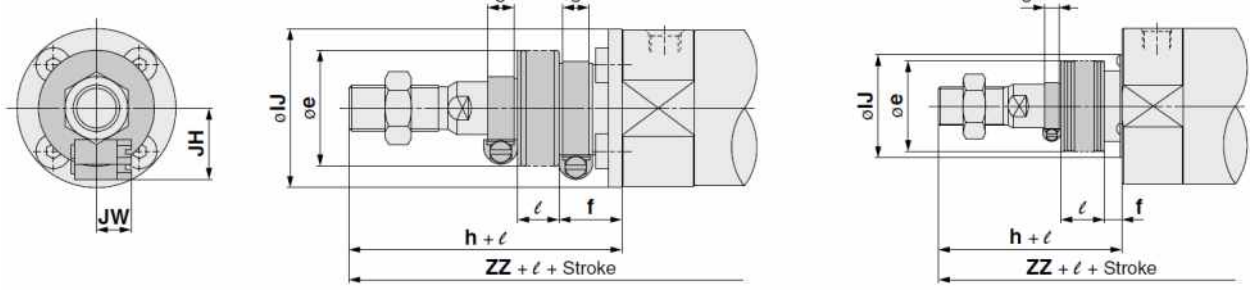
* End boss is machined on the flange for E.

With air cushion





With rod boot



ø80, ø100

Bore size	Stroke		Rc, NPT port			G port			A	AL	B	B1	C	D	E	F	FD	FT	FX	H	H1	I	J	K
	Standard	Long stroke	GA	GB	P	GA	GB	P																
20	Up to 200	201~1500	12	10(12)	1/8	12	10(12)	M5X0.8	18	15.5	40	13	14	8	12	2	5.5	6	28	35	5	26	M4 x 0.7	5
25	Up to 300	301~1500	12	10(12)	1/8	12.5	10(12.5)	M5X0.8	22	19.5	44	17	16.5	10	14	2	5.5	7	32	40	6	31	M5 x 0.8	5.5
32	Up to 300	301~1500	12	10(12)	1/8	10.5	10(10.5)	1/8	22	19.5	53	17	20	12	18	2	6.6	7	38	40	6	38	M5 x 0.8	5.5
40	Up to 300	301~1500	13	10(13)	1/8	13	10(10)	1/8	30	27	61	19	26	16	25	2	6.6	8	46	50	8	47	M6 x 1	6
50	Up to 300	301~1500	14	12(14)	1/4	14	12(14)	1/4	35	32	76	27	32	20	30	2	9	9	58	58	11	58	M8 x 1.25	7
63	Up to 300	301~1500	14	12(14)	1/4	14	12(14)	1/4	35	32	92	27	38	20	32	2	11	9	70	58	11	72	M10 x 1,5	7
80	Up to 300	301~1500	20	16(20)	3/8	17.5	16(17.5)	3/8	40	37	104	32	50	25	40	3	11	11	82	71	13	89	M10 x 1.5	10
100	Up to 300	301~1500	20	16(20)	1/2	17.5	16(17.5)	1/2	40	37	128	41	60	30	50	3	14	14	100	71	16	110	M12 x 1.75	10

Bore size	KA	MM	NA	S	ZZ
20	6	M8X1.25	24	69 (77)	112 (120)
25	8	M10X1.25	29	69 (77)	118 (126)
32	10	M10X1.25	35.5	71 (79)	120 (128)
40	14	M14X1.5	44	78 (87)	138 (147)
50	18	M18X1.5	55	90 (102)	159(171)
63	18	M18X1.5	69	90 (102)	159 (171)
80	22	M22X1.5	86	108 (122)	193 (207)
100	26	M26X1.5	106	108 (122)	196 (210)

With Air Cushion

Bore size	Rc, NPT port			WA	WB	W θ	WH
	GA	GB	P				
20	12	10(12)	M5 x 0.8	16	15 (16)	25°	1.5
25	12.5	10(12.5)	M5 x 0.8	16	14.5 (16)	25°	1.5
32	12	10(12)	1/8	16	14(16)	25°	1.5
40	13	10(13)	1/8	17	15 (17)	20°	1.5
50	14	12(14)	1/4	18	16 (18)	20°	3
63	14	12(14)	1/4	18	17 (18)	20°	3
80	20	16(20)	3/8	24	20 (24)	20°	4
100	20	16(20)	1/2	24	20 (24)	20°	4

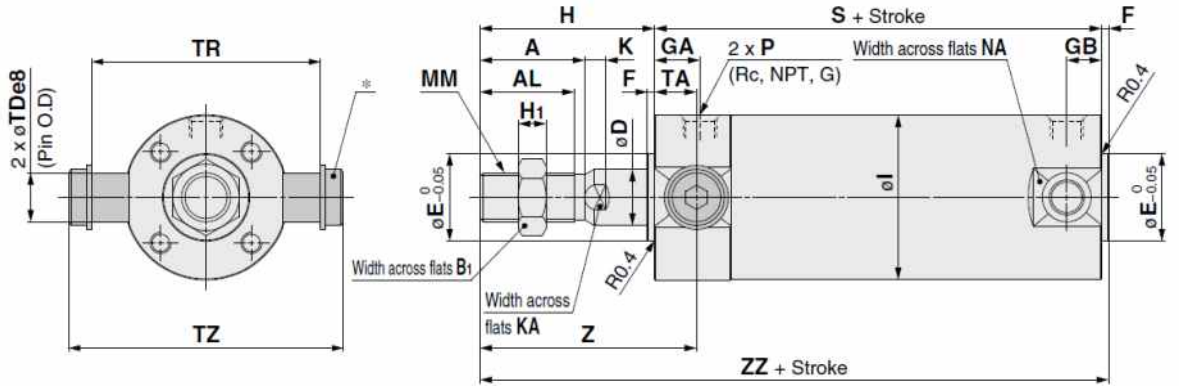
With Rod Boot

Bore size	e	f	h	IJ	JH	JW	ℓ	ZZ
20	30	18	55	27	15.5	10.5	1/4 stroke	132 (140)
25	30	19	62	32	16.5	10.5		140(148)
32	35	19	62	38	18.5	10.5		142 (150)
40	35	19	70	48	21.5	10.5		158 (167)
50	40	19	78	59	24	10.5		179 (191)
63	40	20	78	72	24	10.5		179 (191)
80	52	10	80	59	-	-		202 (216)
100	62	7	80	71	-	-		205 (219)

* Refer to the basic type for the female rod end.
Note) ( ): Denotes the dimensions for long stroke.

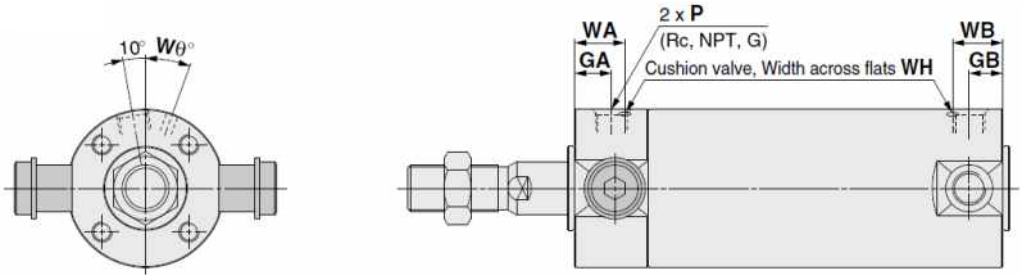
* The minimum stroke with rod boot is 20 mm.

Rod Trunnion: CG1UN

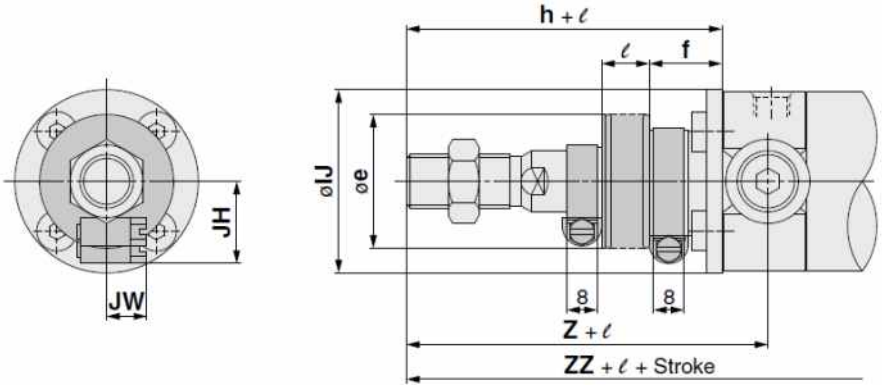


* Constructed of a trunnion pin, flat washer and hexagon socket head cap bolt.

With air cushion



With rod boot



Bore size	Stroke		Rc, NPT port			G port			A	AL	B1	D	E	F	H	H1	I	K	KA	MM	NA	S
	Standard	Long stroke	GA	GB	P	GA	GB	P														
20	Up to 200	201~1500	12	10(12)	1/8	12	10(12)	M5X0.8	18	15.5	13	8	12	2	35	5	26	5	6	M8 x 1.25	24	69(77)
25	Up to 300	301~1500	12	10(12)	1/8	12.5	10(12.5)	M5X0.8	22	19.5	17	10	14	2	40	6	31	5.5	8	M10 x 1.25	29	69(77)
32	Up to 300	301~1500	12	10(12)	1/8	10.5	10(10.5)	1/8	22	19.5	17	12	18	2	40	6	38	5.5	10	M10 x 1.25	35.5	71(79)
40	Up to 300	301~1500	13	10(13)	1/8	13	10(10)	1/8	30	27	19	16	25	2	50	8	47	6	14	M14 x 1.5	44	78(87)
50	Up to 300	301~1500	14	12(14)	1/4	14	12(14)	1/4	35	32	27	20	30	2	58	11	58	7	18	M18 x 1.5	55	90(102)
63	Up to 300	301~1500	14	12(14)	1/4	14	12(14)	1/4	35	32	27	20	32	2	58	11	72	7	18	M18 x 1.5	69	90(102)

Bore size	TA	TDe8	TR	TZ	Z	ZZ
20	11	8 $^{-0.025}_{-0.047}$	39	47.6	46	106 (114)
25	11	10 $^{-0.025}_{-0.047}$	43	53	51	111 (119)
32	11	12 $^{-0.032}_{-0.059}$	54.5	67.7	51	113 (121)
40	12	14 $^{-0.032}_{-0.059}$	65.5	78.7	62	130 (139)
50	13	16 $^{-0.032}_{-0.059}$	80	98.6	71	150(162)
63	13	18 $^{-0.032}_{-0.059}$	98	119.2	71	150 (162)

With Air Cushion

Bore size	Rc, NPT port			WA	WB	W θ	WH
	GA	GB	P				
20	12	10(12)	M5 x 0.8	16	15 (16)	25°	1.5
25	12.5	10(12.5)	M5 x 0.8	16	14.5 (16)	25°	1.5
32	12	10(12)	1/8	16	14(16)	25°	1.5
40	13	10(13)	1/8	17	15 (17)	20°	1.5
50	14	12(14)	1/4	18	16 (18)	20°	3
63	14	12(14)	1/4	18	17 (18)	20°	3

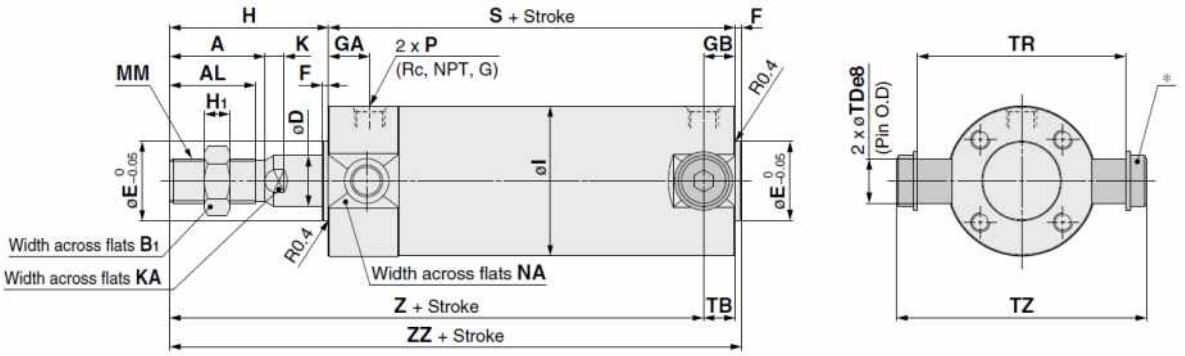
With Rod Boot

Bore size	e	f	h	IJ	JH	JW	ℓ	Z	ZZ
20	30	18	55	27	15.5	10.5	1/4 stroke	66	126 (134)
25	30	19	62	32	16.5	10.5		73	133(141)
32	35	19	62	38	18.5	10.5		73	135 (143)
40	35	19	70	48	21.5	10.5		82	150 (159)
50	40	19	78	59	24	10.5		91	170 (182)
63	40	20	78	72	24	10.5		91	170 (182)

* Refer to the basic type for the female rod end.
Note) ( ): Denotes the dimensions for long stroke.

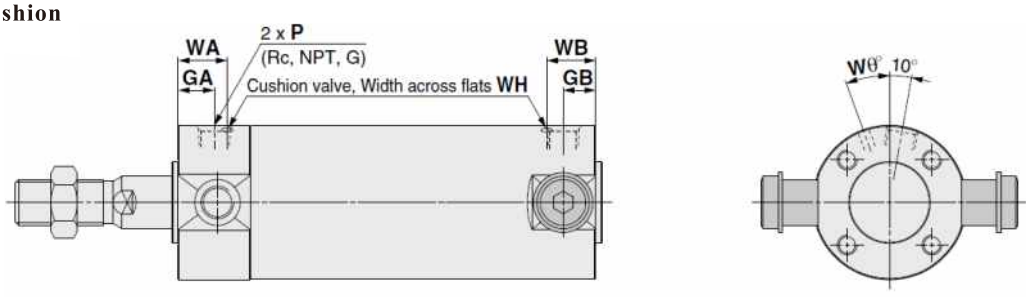
* The minimum stroke with rod boot is 20 mm.

Head Trunnion: CG1TN

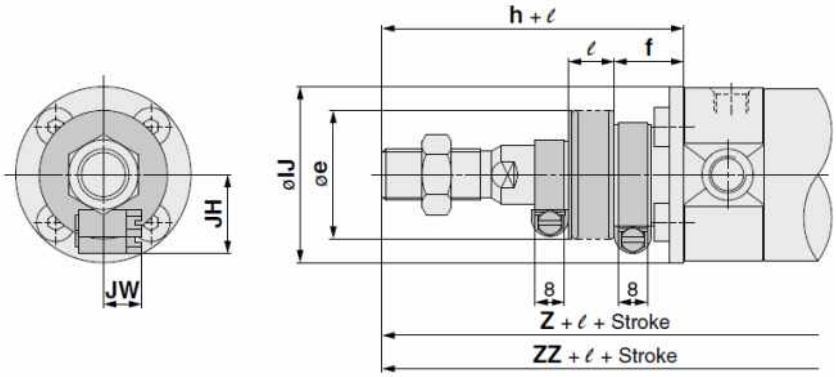


* Constructed of a trunnion pin, flat washer and hexagon socket head cap bolt.

With air cushion



With rod boot



Bore size	Stroke		Rc, NPT port			G port			A	AL	B1	D	E	F	H	H1	I	K	KA	MM	NA	S
	Standard	Long stroke	GA	GB	P	GA	GB	P														
20	Up to 200	201~1500	12	10(12)	1/8	12	10(12)	M5X0.8	18	15.5	13	8	12	2	35	5	26	5	6	M8 x 1.25	24	69(77)
25	Up to 300	301~1500	12	10(12)	1/8	12.5	10(12.5)	M5X0.8	22	19.5	17	10	14	2	40	6	31	5.5	8	M10 x 1.25	29	69(77)
32	Up to 300	301~1500	12	10(12)	1/8	10.5	10(10.5)	1/8	22	19.5	17	12	18	2	40	6	38	5.5	10	M10 x 1.25	35.5	71(79)
40	Up to 300	301~1500	13	10(13)	1/8	13	10(10)	1/8	30	27	19	16	25	2	50	8	47	6	14	M14 x 1.5	44	78(87)
50	Up to 300	301~1500	14	12(14)	1/4	14	12(14)	1/4	35	32	27	20	30	2	58	11	58	7	18	M18 x 1.5	55	90(102)
63	Up to 300	301~1500	14	12(14)	1/4	14	12(14)	1/4	35	32	27	20	32	2	58	11	72	7	18	M18 x 1.5	69	90(102)

Bore size	TB	TDe8	TR	TZ	Z	ZZ
20	11	8 $^{-0.025}_{-0.047}$	39	47.6	93(101)	106(114)
25	11	10 $^{-0.025}_{-0.047}$	43	53	98(106)	111(119)
32	10(11)	12 $^{-0.032}_{-0.059}$	54.5	67.7	101(108)	113(121)
40	10(12)	14 $^{-0.032}_{-0.059}$	65.5	78.7	18(125)	130(139)
50	12(13)	16 $^{-0.032}_{-0.059}$	80	98.6	136(147)	150(162)
63	14(13)	18 $^{-0.032}_{-0.059}$	98	119.2	136(147)	150(162)

* Refer to the basic type for the female rod end.

With Air Cushion

Bore size	Rc, NPT port			WA	WB	W 0	WH
	GA	GB	P				
20	12	10(12)	M5 x 0.8	16	15 (16)	25°	1.5
25	12.5	10(12.5)	M5 x 0.8	16	14.5 (16)	25°	1.5
32	12	10(12)	1/8	16	14(16)	25°	1.5
40	13	10(13)	1/8	17	15 (17)	20°	1.5
50	14	12(14)	1/4	18	16 (18)	20°	3
63	14	12(14)	1/4	18	17 (18)	20°	3

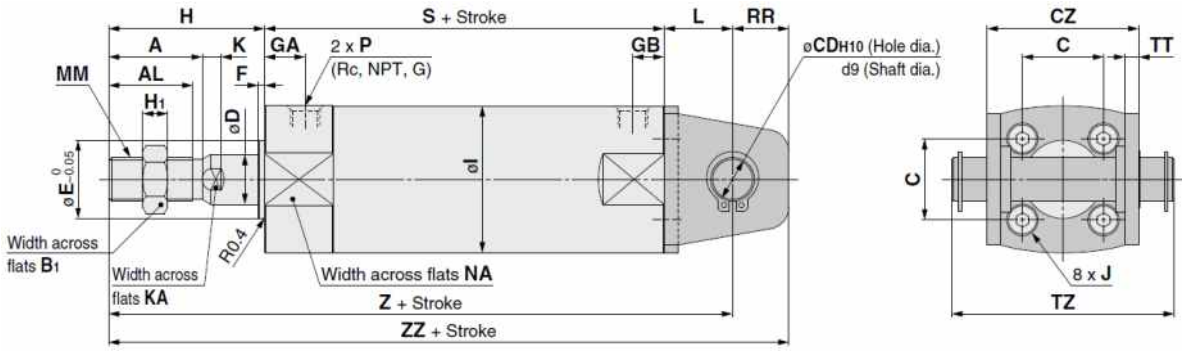
With Rod Boot

Bore size	e	f	h	IJ	JH	JW	ℓ	Z	ZZ
20	30	18	55	27	15.5	10.5	1/4 stroke	113(121)	126(134)
25	30	19	62	32	16.5	10.5		120(128)	133(141)
32	35	19	62	38	18.5	10.5		123(130)	135(143)
40	35	19	70	48	21.5	10.5		138(145)	150(159)
50	40	19	78	59	24	10.5		156(167)	170(182)
63	40	20	78	72	24	10.5		156(167)	170(182)

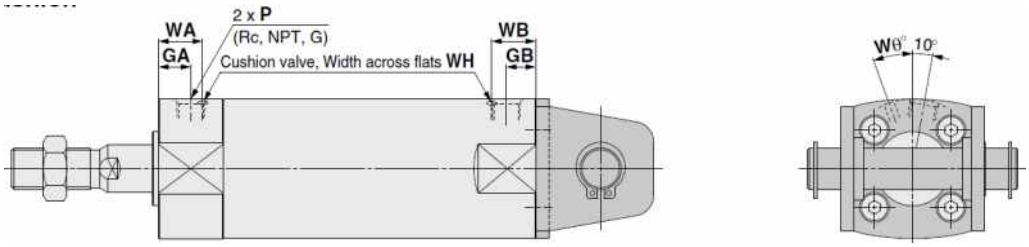
* The minimum stroke with rod boot is 20 mm.

Note) ( ): Denotes the dimensions for long stroke.

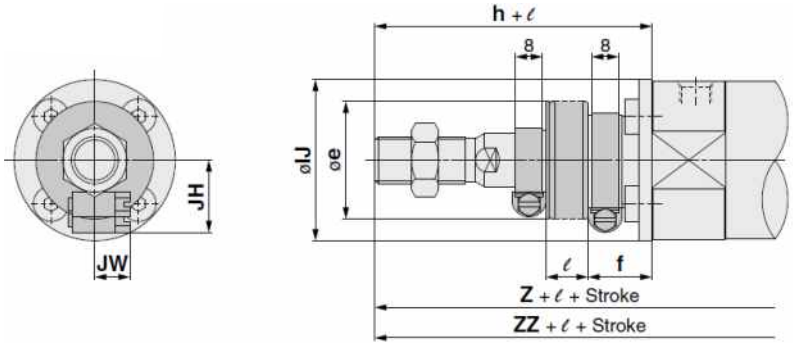
Clevis: CG1DN (ø20 to ø63)



With air cushion



With rod boot



Bore size	Stroke		Rc, NPT port			G port			A	AL	B1	C	CD	CZ	D	E	F	H	H1	I	J	K	KA	L	MM	NA
	Standard	Long stroke	GA	GB	P	GA	GB	P																		
20	Up to 200	201~1500	12	10(12)	1/8	12	10(12)	M5X0.8	18	15.5	13	14	8	29	8	12	2	35	5	26	M4x0.7	5	6	14	M8 x 1.25	24
25	Up to 300	301~1500	12	10(12)	1/8	12.5	10(12.5)	M5X0.8	22	19.5	17	16.	10	33	10	14	2	40	6	31	M5x0.8	5.5	8	16	M10x1.25	29
32	Up to 300	301~1500	12	10(12)	1/8	10.5	10(10.5)	1/8	22	19.5	17	20	12	40	12	18	2	40	6	38	M5x0.8	5.5	10	20	M10x1.25	35.5
40	Up to 300	301~1500	13	10(13)	1/8	13	10(10)	1/8	30	27	19	26	14	49	16	25	2	50	8	47	M6x1	6	14	22	M14x1.5	44
50	Up to 300	301~1500	14	12(14)	1/4	14	12(14)	1/4	35	32	27	32	16	60	20	30	2	58	11	58	M8x1.25	7	18	25	M18x1.5	55
63	Up to 300	301~1500	14	12(14)	1/4	14	12(14)	1/4	35	32	27	38	18	74	20	32	2	58	11	72	M10x1.5	7	18	30	M18x1.5	69

Bore size	RR	S	TT	TZ	Z	ZZ	Applicable pin part no.
20	11	69(77)	3.2	43.4	118(126)	129(137)	CD-G02
25	13	69(77)	3.2	48	125(133)	138(146)	CD-G25
32	15	71(79)	4.5	59.4	131(139)	146(154)	CD-G03
40	18	78(87)	4.5	71.4	150(159)	168(177)	CD-G04
50	20	90(102)	6	86	173(185)	193(205)	CD-G05
63	22	90(102)	8	105.4	178(190)	200(212)	CD-G06

With Air Cushion

Bore size	Rc, NPT port			WA	WB	W θ	WH
	GA	GB	P				
20	12	10(12)	M5 x 0.8	16	15 (16)	25°	1.5
25	12.5	10(12.5)	M5 x 0.8	16	14.5 (16)	25°	1.5
32	12	10(12)	1/8	16	14(16)	25°	1.5
40	13	10(13)	1/8	17	15 (17)	20°	1.5
50	14	12(14)	1/4	18	16 (18)	20°	3
63	14	12(14)	1/4	18	17 (18)	20°	3

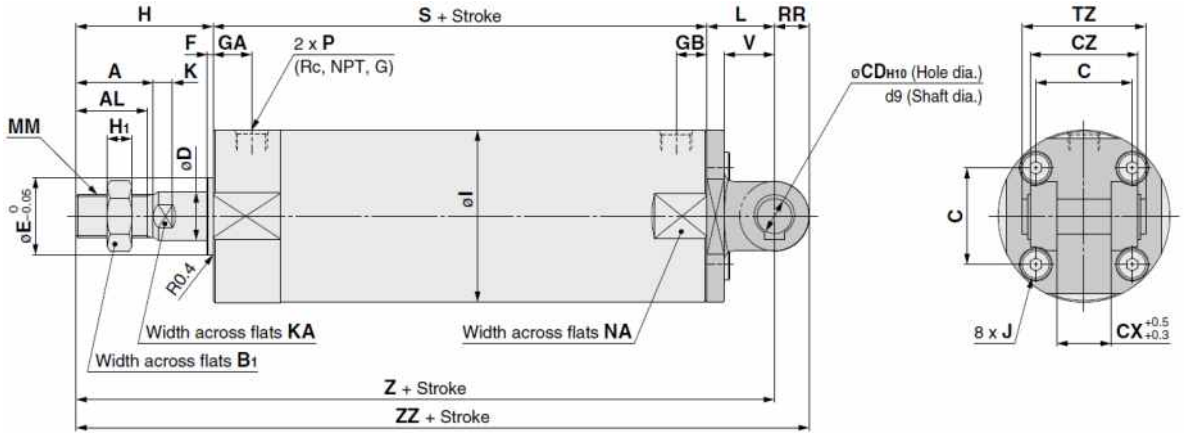
With Rod Boot

Bore size	e	f	h	IJ	JH	JW	ℓ	Z	ZZ
20	30	18	55	27	15.5	10.5	1/4 stroke	138(146)	149(157)
25	30	19	62	32	16.5	10.5		147155)	160(168)
32	35	19	62	38	18.5	10.5		153(161)	168(176)
40	35	19	70	48	21.5	10.5		170(179)	188(197)
50	40	19	78	59	24	10.5		193(205)	213(225)
63	40	20	78	72	24	10.5		198(210)	220(232)

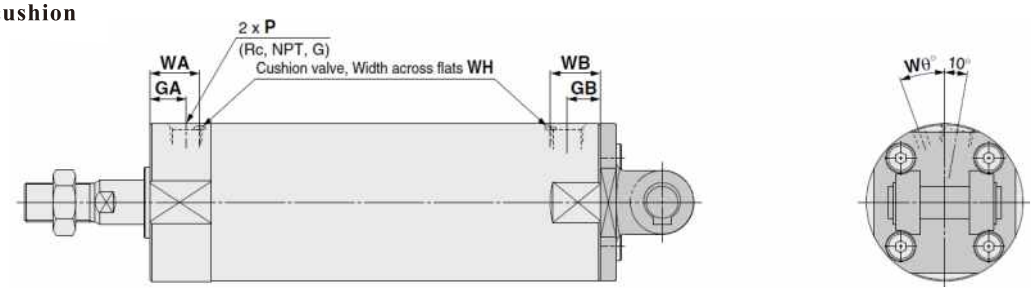
* Refer to the basic type for the female rod end.
Note) ( ): Denotes the dimensions for long stroke.

* The minimum stroke with rod boot is 20 mm.

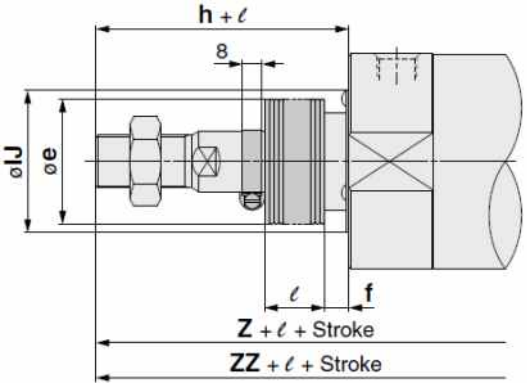
Clevis: CG1DN (ø80, ø100)



With air cushion



With rod boot



Bore size	Stroke		Rc, NPT port			G port			A	AL	B1	C	CD	CX	CZ	D	E	F	H	H1	I	J	K	KA	L	MM	NA
	Standard	Long stroke	GA	GB	P	GA	GB	P																			
80	Up to 200	201~1500	20	16(20)	3/8	17.5	16(17.5)	3/8	40	37	32	50	18	28	56	25	40	3	71	13	89	M10x1.5	10	22	35	M22 x1.5	86
100	Up to 300	301~1500	20	16(20)	1/2	17.5	16(17.5)	1/2	40	37	41	60	22	32	64	30	50	3	71	13	110	M12x1.75	10	26	43	M26x1.5	106

Bore size	RR	S	TZ	V	Z	ZZ	Applicable pin part no.
80	18	108(122)	64	26	214(228)	232(246)	IY-G08
100	22	108(122)	72	32	222(236)	244(258)	IY-G10

With Air Cushion

Bore size	Rc, NPT port			WA	WB	W θ	WH
	GA	GB	P				
80	20	16(20)	3/8	24	20(24)	20°	4
100	20	16(20)	1/2	24	20(24)	20°	4

With Rod Boot

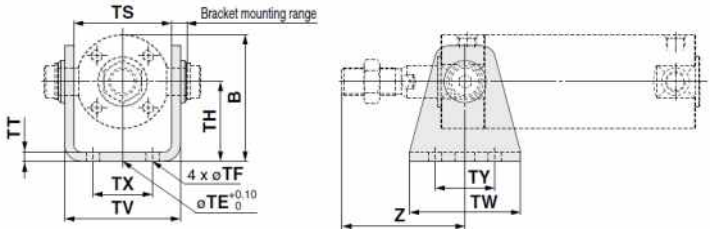
Bore size	e	f	h	IJ	ℓ	Z	ZZ
80	52	10	80	59	1/4 stroke	223(237)	241(255)
100	62	7	80	71		231(245)	253(267)

* Refer to the basic type for the female rod end.
Note) ( ): Denotes the dimensions for long stroke.

* The minimum stroke with rod boot is 20 mm.

With Pivot Bracket [( ): Denotes the dimensions for long stroke.]

Rod Trunnion (U) with Pivot Bracket



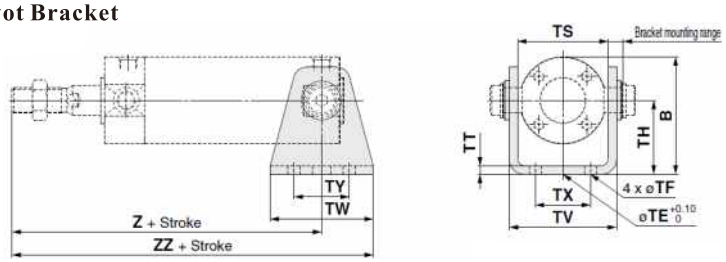
Male Thread

Bore size	B	TE	TF	TH	TS	TT	TV	TW	TX	TY	Z
20	38	10	5.5	25	28	3.2	35.8	42	16	28	46
25	45.5	10	5.5	30	33	3.2	39.8	42	20	28	51
32	54	10	6.6	35	40	4.5	49.4	48	22	28	51
40	63.5	10	6.6	40	49	4.5	58.4	56	30	30	62
50	79	20	9	50	60	6	72.4	64	36	36	71
63	96	20	11	60	74	8	90.4	74	46	46	71

Female Thread

Bore size	Z
20	24
25	25
32	25
40	27
50	29
63	29

Head Trunnion (T) with Pivot Bracket



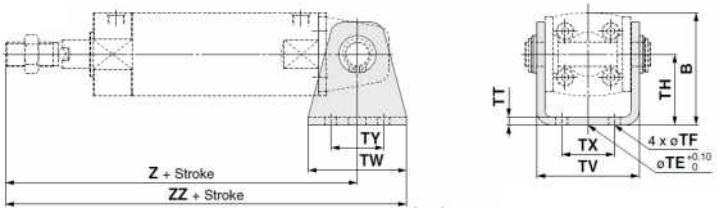
Male Thread

Bore size	B	TE	TF	TH	TS	TT	TV	TW	TX	TY	Z	ZZ
20	38	10	5.5	25	28	3.2	35.8	42	16	28	93 (101)	114 (122)
25	45.5	10	5.5	30	33	3.2	39.8	42	20	28	98 (106)	119 (127)
32	54	10	6.6	35	40	4.5	49.4	48	22	28	101 (108)	125 (132)
40	63.5	10	6.6	40	49	4.5	58.4	56	30	30	118 (125)	146 (153)
50	79	20	9	50	60	6	72.4	64	36	36	136 (147)	168 (179)
63	96	20	11	60	74	8	90.4	74	46	46	136 (147)	173 (184)

Female Thread

Bore size	Z	ZZ
20	71 (79)	92 (100)
25	72 (80)	93 (101)
32	75 (82)	99 (106)
40	83 (90)	111 (118)
50	94 (105)	126 (137)
63	94 (105)	131 (142)

Clevis (D) with Pivot Bracket
ø20 to ø63



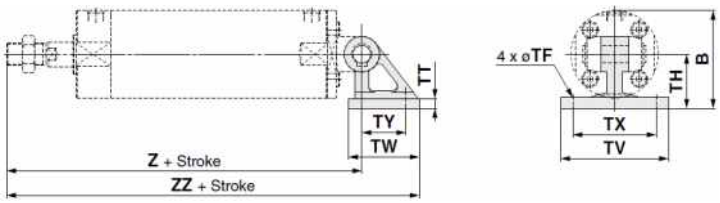
Male Thread

Bore size	B	TE	TF	TH	TT	TV	TW	TX	TY	Z	ZZ
20	38	10	5.5	25	3.2	35.8	42	16	28	118 (126)	139 (147)
25	45.5	10	5.5	30	3.2	39.8	42	20	28	125 (133)	146 (154)
32	54	10	6.6	35	4.5	49.4	48	22	28	131 (139)	155 (163)
40	63.5	10	6.6	40	4.5	58.4	56	30	30	150 (159)	178 (187)
50	79	20	9	50	6	72.4	64	36	36	173 (185)	205 (217)
63	96	20	11	60	8	90.4	74	46	46	178 (190)	215 (227)

Female Thread

Bore size	Z	ZZ
20	96 (104)	117 (125)
25	99 (107)	120 (128)
32	105 (113)	129 (137)
40	115 (124)	143 (152)
50	131(143)	163 (175)
63	136(148)	173 (185)

Clevis (D) with Pivot Bracket
ø80, ø100



Male Thread

Bore size	B	TF	TH	TT	TV	TW	TX	TY	Z	ZZ
80	99.5	11	55	11	110	72	85	45	214 (228)	272.5 (286.5)
100	120	13.5	65	12	130	93	100	60	222 (236)	298.5 (312.5)

Female Thread

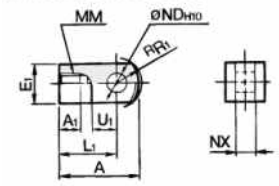
Bore size	Z	ZZ
80	162(176)	220.5 (234.5)
100	173 (187)	249.5 (263.5)

Dimensions of Accessories

Single Knuckle Joint

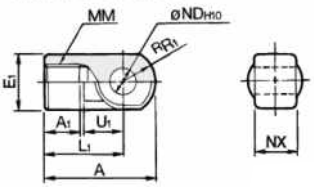
I-G02, G03

Material: Carbon steel



I-G04, G05, G08, G10

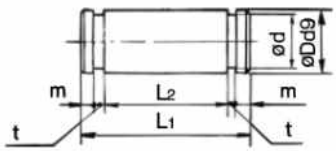
Material: Cast iron



Part no.	Applicable bore size	A	A1	E1	L1	MM	R1	U1	ND_{H10}	NX
I-G02	20	34	8.5	□ 16	25	M8x1.25	10.3	11.5	$8^{+0.058}_{0}$	$8^{-0.2}_{-0.4}$
I-G03	25,32	41	10.5	□ 20	30	M10x1.25	12.8	14	$10^{+0.058}_{0}$	$10^{-0.2}_{-0.4}$
I-G04	40	42	14	ø22	30	M14x1.5	12	14	$10^{+0.058}_{0}$	$18^{-0.3}_{-0.5}$
I-G05	50,63	56	18	ø28	40	M18x1.5	16	20	$14^{+0.070}_{0}$	$22^{-0.3}_{-0.5}$
I-G08	80	71	21	ø38	50	M22x1.5	21	27	$18^{+0.070}_{0}$	$28^{-0.3}_{-0.5}$
I-G10	100	79	21	ø44	55	M26x1.5	24	31	$22^{+0.084}_{0}$	$32^{-0.3}_{-0.5}$

Knuckle Pin

Material: Carbon steel

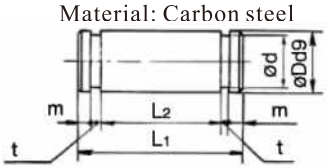


Part no.	Applicable bore size	D_{d9}	L1	d	L2	m	t	Included retaining ring
IY-G02	20	$8^{-0.040}_{-0.076}$	21	7.6	16.2	1.5	0.9	Type C8 for axis
IY-G03	25,32	$10^{-0.040}_{-0.076}$	25.6	9.6	20.2	1.55	1.15	Type C10 for axis
IY-G04	40	$10^{-0.040}_{-0.076}$	41.6	9.6	36.2	1.55	1.15	Type C10 for axis
IY-G05	50,63	$14^{-0.050}_{-0.093}$	50.6	13.4	44.2	2.05	1.15	Type C14 for axis
IY-G08	80	$18^{-0.050}_{-0.093}$	64	17	56.2	2.55	1.35	Type C18 for axis
IY-G10	100	$22^{-0.065}_{-0.117}$	72	21	64.2	2.55	1.35	Type C22 for axis

* Retaining rings are included.

Clevis Pin

Material: Carbon steel

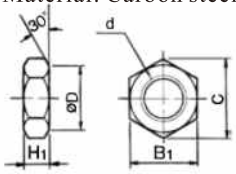


Part no.	Applicable bore size	D_{d9}	L1	d	L2	m	t	Included retaining ring
CD-G02	20	$8^{-0.040}_{-0.076}$	43.4	7.6	38.6	1.5	0.9	Type C8 for axis
CD-G25	25	$10^{-0.040}_{-0.076}$	48	9.6	42.6	1.55	1.15	Type C10 for axis
CD-G03	32	$12^{-0.050}_{-0.093}$	59.4	11.5	54	1.55	1.15	Type C12 for axis
CD-G04	40	$14^{-0.050}_{-0.093}$	71.4	13.4	65	2.05	1.15	Type C14 for axis
CD-G05	50	$16^{-0.050}_{-0.093}$	88	15.2	79.6	2.05	1.15	Type C16 for axis
CD-G06	63	$18^{-0.050}_{-0.093}$	105.4	17	97.8	2.45	1.35	Type C18 for axis

* Retaining rings are included.
* A clevis pin and a knuckle pin are common for the bore size ø80 and ø100.

Rod End Nut

Material: Carbon steel

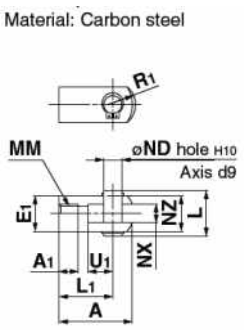


Part no.	Applicable bore size	d	H1	B1	C	C
NT-02	20	M8x1.25	5	13	(15)	12.5
NT-03	25,32	M10x1.25	6	17	(19.6)	16.5
NT-G04	40	M14x1.5	8	19	(21.9)	15
NT-05	50,63	M18x1.5	11	27	(31.2)	26
NT-08	80	M22x1.5	13	32	(37.0)	31
NT-10	100	M26x1.5	16	41	(47.3)	39

Double Knuckle Joint

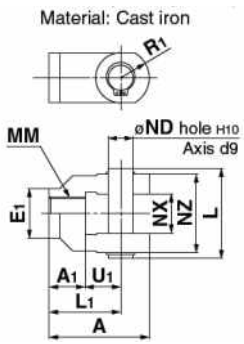
Y-G02, G03

Material: Carbon steel



Y-G04, G05, G08, G10

Material: Cast iron



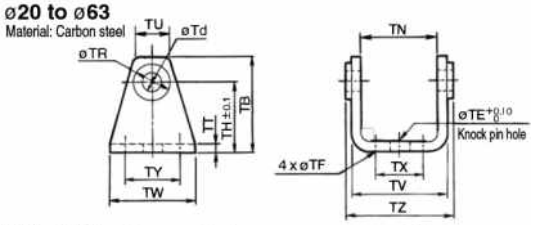
Part no.	Applicable bore size	A	A1	E1	L1	MM	R1	U1	ND	NX	NZ	L	Included pin part no.
Y-G02	20	34	8.5	□ 16	25	M8x1.25	10.3	11.5	8	$8^{+0.4}_{+0.2}$	16	21	IY-G02
Y-G03	25,32	41	10.5	□ 20	30	M10x1.25	12.8	14	10	$10^{+0.4}_{+0.2}$	20	25.6	IY-G03
Y-G04	40	42	16	ø22	30	M14x1.5	12	14	18	$18^{+0.5}_{+0.3}$	36	41.6	IY-G04
Y-G05	50,63	56	20	ø28	40	M18x1.5	16	20	22	$22^{+0.5}_{+0.3}$	44	50.6	IY-G05
Y-G08	80	71	23	ø38	50	M22x1.5	21	27	28	$28^{+0.5}_{+0.3}$	56	64	IY-G08
Y-G10	100	79	24	ø44	55	M26x1.5	24	31	32	$32^{+0.5}_{+0.3}$	64	72	IY-G10

* A knuckle pin and retaining rings are included.

Pivot Bracket

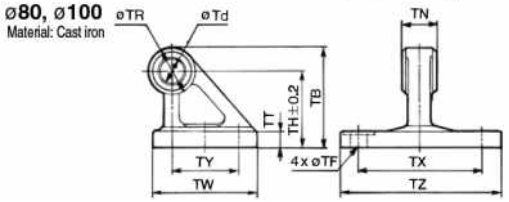
ø20 to ø63

Material: Carbon steel



ø80, ø100

Material: Cast iron



Part no.	Applicable bore size	TB	Td	TE	TF	TH	TN	TR	TT
CG-020-24A	20	36	8	10	5.5	25	(29.3)	13	3.2
CG-025-24A	25	43	10	10	5.5	30	(33.1)	15	3.2
CG-032-24A	32	50	12	10	6.6	35	(40.4	17	4.5
CG-040-24A	40	58	14	10	6.6	40	(49.2)	21	4.5
CG-050-24A	50	70	16	20	9	50	(60.4)	24	6
CG-063-24A	63	82	18	20	11	60	(74.6)	26	8
CG-080-24A	80	73	18	-	11	55	$28^{-0.1}_{-0.3}$	36	11
CG-100-24A	100	90	22	-	13.5	65	$32^{-0.1}_{-0.3}$	50	12

Part no.	Applicable bore size	TU	TV	TW	TX	TY	TZ	Applicable pin O.D.
CG-020-24A	20	(18.1)	(35.8)	42	16	28	38.3	$8d_{9}^{-0.040}_{-0.076}$
CG-025-24A	25	(20.7)	(39.8)	42	20	28	42.1	$10d_{9}^{-0.040}_{-0.076}$
CG-032-24A	32	(23.6)	(49.4)	48	22	28	53.8	$12d_{9}^{-0.050}_{-0.093}$
CG-040-24A	40	(27.3)	(58.4)	56	30	30	64.6	$14d_{9}^{-0.050}_{-0.093}$
CG-050-24A	50	(29.4)	(72.4)	64	36	36	79.2	$16d_{9}^{-0.050}_{-0.093}$
CG-063-24A	63	(34.3)	(90.4)	74	46	46	97.2	$16d_{9}^{-0.050}_{-0.093}$
CG-080-24A	80	-	-	72	85	45	110	$16d_{9}^{-0.050}_{-0.093}$
CG-100-24A	100	-	-	93	100	60	130	$22d_{9}^{-0.065}_{-0.117}$

Mounting Brackets, Rod End Brackets, and Nut Material: Stainless Steel

Part No.

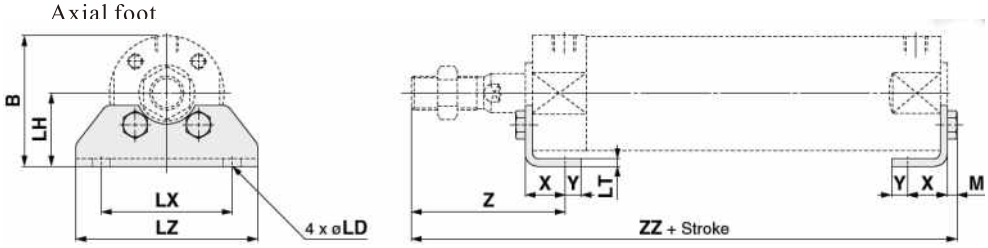
Bore size	Axial foot*1	Single knuckle joint	Double knuckle joint*1	Rod end nut
20	-	I-G02SUS	Y-G02SUS	NT-02SUS
25	-	I-G03SUS	Y-G03SUS	NT-03SUS
32	CG-L032SUS			
40	CG-L040SUS	I-G04SUS	Y-G04SUS	NT-G04SUS
50	CG-L050SUS	I-G05SUS	Y-G05SUS	NT-05SUS
63	CG-L063SUS			
80	CG-L080SUS	I-G08SUS	Y-G08SUS	NT-08SUS
100	CG-L0100SUS	I-G10SUS	Y-G10SUS	NT-10SUS

*1 A knuckle pin and retaining rings are shipped together. Refer to the XC27 for details on stainless steel double clevis pins and double knuckle pins. The accessories need to be ordered separately from the cylinder.

Dimensions

The single knuckle joint, double knuckle joint, mounting nut, and rod end nut are the same as the standard type.

Axial foot



Bore size	B	LD	LH	LT	LX	LZ	M	X	Y	Z	ZZ
32	44	7.2	[25]	[3]	[44]	60	[3.5]	[16]	6	[53]	[117.5(125.5)]
40	53.5	7.2	[30]	[3]	[54]	75	[4]	[16.5]	6.5	[63.5]	[135(144)]
50	69	[10]	[40]	4	[66]	90	5.5	21.5	11.5	[75.5]	[157.5(169.5)]
63	81	[12]	[45]	4	[82]	110	7	21.5	11.5	[75.5]	159(171)
80	99.5	12	[55]	4	[100]	130	7	28	17	[95]	190(204)
100	125	[14]	[70]	[6]	[120]	160	8	[30]	15	[95]	193(207)

*1 [ ]: Same as the standard type ( ): Denotes the dimensions for long strokes
*2 Supplied with 4 mounting screws.

Special function cylinder

Series	Action/Type		Cushion	Applicable bore size
CG1 (Standard type)	Double acting	Single rod	Rubber	ø20 to ø100
			Air	
		Double rod	Rubber	
			Air	
	Single acting/Single rod		Rubber	ø20 to ø40
CG1K (Non-rotating rod type)	Double acting	Single rod	Rubber	ø20 to ø63
			Air	ø40 to ø63
		Double rod	Rubber	ø20 to ø63
CG1R (Direct mount type)	Double acting Single rod		Rubber	ø20 to ø63
			Air	
CG1KR (Direct mount, Non-rotating rod type)	Double acting Single rod		Rubber	ø20 to ø63
CBG1 (With end lock)	Double acting Single rod		Rubber	ø20 to ø100
			Air	
CG1□Y (Smooth Cylinder)	Double acting Single rod		-	ø20 to ø100

*) Please contact the us for details.
**) Our company can provide for various other purposes cylinders. Please contact us.