







Mini cylinder(Aluminum barrel)——MBL Series

Product series

Series name	Mounting type				Acting type	Bore size	Collocation of sensor switch	
	Basic	LB	FA	SDB			CS1-M	DS1-M
Double acting type: MBL Double acting with cushion type: MBLC 	●	●	●	●	Double acting Double acting with cushion	20	●	●
Double rod type: MBLD Double rod with cushion type: MBLCD 	●	●	●	●		25	●	●
Adjustable stroke type: MBLJ Adjustable stroke with cushion type: MBLCJ 	●	●	●	●		32	●	●
	●	●	●	●		40	●	●
	●	●	●	●		50	●	●
	●	●	●	●		63	●	●
Single acting type: MSBL, MTBL 	●	●	●	●	Single acting	20	●	●
	●	●	●	●		25	●	●
	●	●	●	●		32	●	●
	●	●	●	●		40	●	●
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Installation and application

- When load changes in the work, the cylinder with abundant output capacity shall be selected.
- Relative cylinder with high temperature resistance or corrosion resistance shall be chosen under the condition of high temperature or corrosion.
- Necessary protection measure shall be taken in the environment with higher humidity, much dust or water drops, oil dust and welding dregs.
- Dirty substances in the pipe must be eliminated before cylinder is connected with pipeline to prevent the entrance of particles into the cylinder.
- The medium used by cylinder shall be filtered to 40 μm or below.
- Anti-freezing measure shall be adopted under low temperature environment to prevent moisture freezing.
- To avoid side load, otherwise, piston rod will be bent and deformed and damage the thread at the end of the rod. Single-acting type can not be added in return;
- If the cylinder is dismantled and stored for a long time, please to conduct anti-rust treatment to the surface. Anti-dust caps shall be added in air inlet and outlet ports. The front and back cover can not be dismantled, which shall be especially noticed.

Criteria for selection: Cylinder thrust

Unit: Newton(N)

Bore size (mm)	Rod size (mm)	Acting type	Pressure area (mm ²)	Operating pressure(MPa)							
				0.1	0.2	0.3	0.4	0.5	0.6	0.7	
20	8	Single acting	Push side	314.0	-	15.7	47.1	78.5	109.9	141.3	172.7
			Pull side	263.8	-	5.7	32.0	58.4	84.8	111.2	137.5
		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	Single acting	Push side	490.6	-	24.6	73.7	122.8	171.8	220.9	269.9
			Pull side	412.1	-	8.9	50.1	91.4	132.6	173.8	215.0
		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
32	12	Single acting	Push side	804.3	-	40.2	120.6	200.9	281.3	361.7	442.1
			Pull side	691.2	-	17.6	86.6	155.7	224.8	293.9	363.0
		Double acting	Push side	804.3	80.4	160.9	241.3	321.7	402.2	482.6	563.0
			Pull side	691.2	69.1	138.2	207.4	276.5	345.6	414.7	483.8
40	16	Single acting	Push side	1256.6	-	62.8	188.4	314.0	439.6	565.2	690.8
			Pull side	1055.6	-	22.6	128.1	233.6	339.1	444.6	550.1
		Double acting	Push side	1256.6	125.7	251.3	377.0	502.6	628.3	754.0	879.6
			Pull side	1055.6	105.6	211.1	316.7	422.2	527.8	633.4	738.9
50	16	Double acting	Push side	1962.5	196.3	392.5	588.8	785.0	981.3	1177.5	1373.8
		Pull side	1761.5	176.2	352.3	528.5	704.6	880.8	1056.9	1233.1	
63	16	Double acting	Push side	3115.7	311.6	623.1	934.7	1246.3	1557.9	1869.4	2181.0
		Pull side	2914.7	291.5	582.9	874.4	1165.9	1457.4	1748.8	2040.3	



Mini cylinder(Aluminum barrel)

MBL Series



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 40 μm filter element)						
Operating pressure	Double acting	0.1~1.0MPa(15~145psi)(1.0~10.0bar)					-	
	Single acting	0.2~1.0MPa(28~145psi)(2.0~10.0bar)					-	
Proof pressure		1.5MPa(215psi)(15bar)						
Temperature °C		-20~70						
Speed range mm/s		Double acting: 30~800 Single acting: 50~800						
Stroke tolerance		0~150 ^{+1.0} >150 ^{+1.5}						
Cushion type		MBLC, MBLCD, MBLCJ: Adjustable cushion; Others: Bumper						
Port size ①		1/8"				1/4"		

① PT thread, G thread and NPT thread are available. Add) Refer to P457~480 for detail of sensor switch.

Stroke

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

Note) Consult us for non-standard stroke.

Ordering code

MBL 20 × 50 S CA <input type="checkbox"/> <input type="checkbox"/>
MBLD 20 × 50 S <input type="checkbox"/> <input type="checkbox"/>
MBLJ 20 × 50-20 S <input type="checkbox"/> <input type="checkbox"/>

Model

- 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)

Thread type

- Blank: PT
- G: G
- T: NPT

Mounting type ①

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

Back cover

Model	Back cover
MBL, MBLC	CA: Pivot type
MSAL, MTAL	U: Flat-end type
Others	No this code

Magnet

- Blank: Without magnet
- S: With magnet

Bore size

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

Stroke

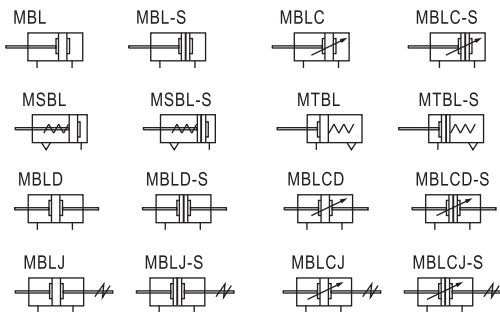
Refer to stroke table for details

Adjustable stroke

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

① Mounting accessories is common used with MAL/MA series, Please refer to page 257 for accessory parts.

Symbol



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.

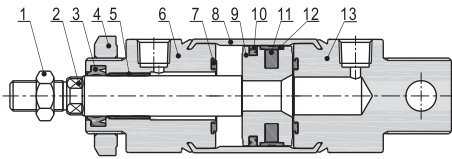


Mini cylinder(Aluminum barrel)

MBL Series

Inner structure and material of major parts

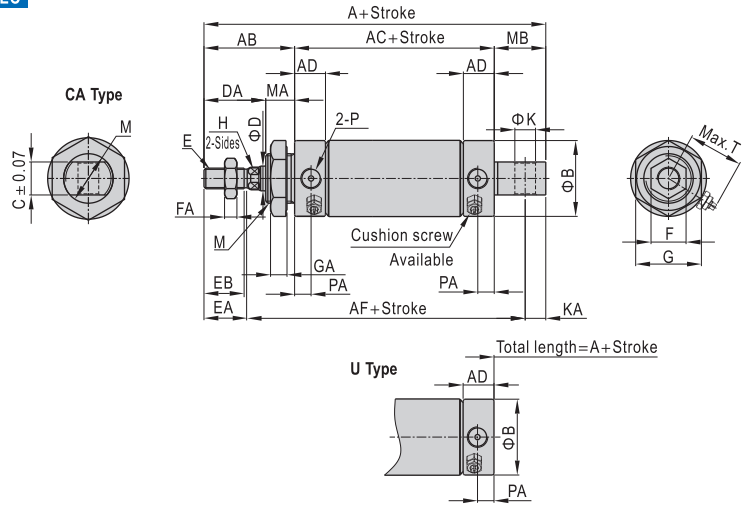
MBL-CA



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	Bushing	Wear resistant material
6	Front cover	Aluminum alloy
7	Bumper	TPU
8	Barrel	Aluminum alloy
9	Piston	Aluminum alloy
10	Piston seal	NBR
11	Magnet	Plastic
12	Wear ring	Wear resistant material
13	Back cover	Aluminum alloy

Dimensions

MBL/MBLC

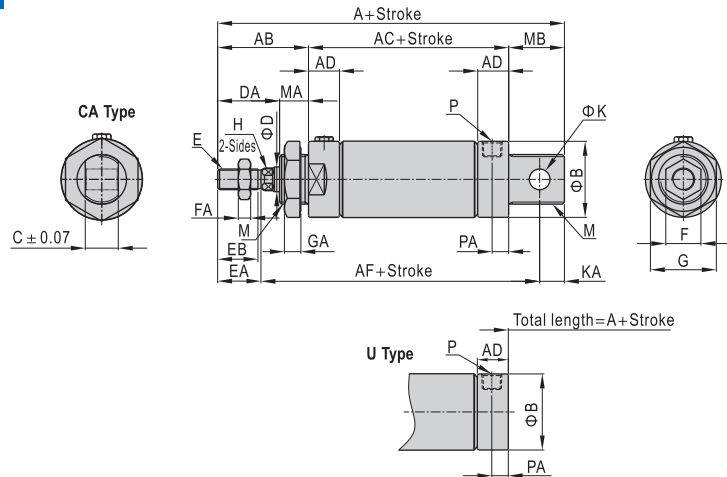


Bore size\Item	A	AB	AC	AD	AF	B	C	D	DA	M	MA	MB	
20	131	110	40	70	15.5	102	27	16	8	26	M22 × 1.5	14	21
25	135	114	44	70	15.5	105	30	16	10	30	M22 × 1.5	14	21
32	141	114	44	70	15.5	108	37	16	12	28	M24 × 2.0	16	27
40	165	138	46	92	22	130.5	45	20	16	30	M30 × 2.0	16	27
50	173	146	54	92	22	138	55	20	16	32	M36 × 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	K	KA	P	PA	T
20	M8 × 1.25	20	18.5	12	6	29	7	6	8	9	1/8"	7.5	22
25	M10 × 1.25	21	19.5	17	6	29	7	8	8	9	1/8"	7.5	23.5
32	M10 × 1.25	21	19.5	17	6	32	8	10	10	12	1/8"	7.5	29.5
40	M12 × 1.25	22.5	21	17	7	41	9	14	12	12	1/4"	11	33
50	M14 × 1.5	24	22.5	19	8	46	11	14	12	11	1/4"	11	38
63	M14 × 1.5	24	22.5	19	8	46	11	14	12	11	1/4"	11	44.5

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

MSBL



Item	A						AC			AF			B		C		
Back cover type	CA			U			AC			AF			B		C		
Bore size\Stroke	≤50	51~100	≥101	≤50	51~100	≥101	≤50	51~100	≥101	≤50	51~100	≥101	≤50	51~100	≥101	≤50	51~100
20	156	181	206	135	160	185	40	95	120	145	15.5	127	152	177	27	16	16
25	160	185	210	139	164	189	44	95	120	145	15.5	130	155	180	30	16	16
32	166	191	216	139	164	189	44	95	120	145	15.5	133	158	183	37	16	16
40	190	215	240	163	188	213	46	117	142	167	22	155.5	180.5	205.5	45	20	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	9	14	12	12	M30 × 2.0	16	27	1/4"	11

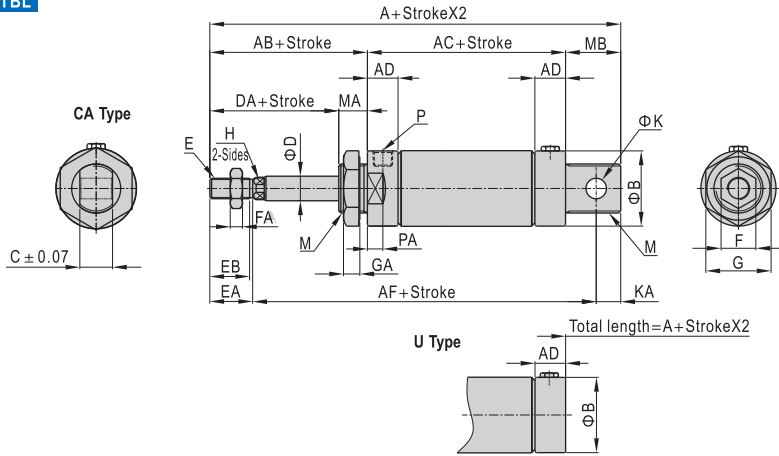
Remark: The dimensions of magnet type cylinder are the same as non-magnet type cylinder.



Mini cylinder(Aluminum barrel)

MBL Series

MTBL

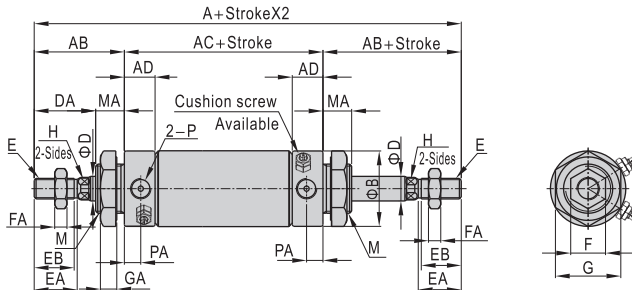


Item	A				AB	AC		AD	AF		B	C	D	DA
	CA		U			≤50	51~100		≤50	51~100				
Back cover type	≤50	51~100	≤50	51~100										
Bore size\Stroke	≤50	51~100	≤50	51~100										
20	156	181	135	160	40	95	120	15.5	127	152	27	16	8	26
25	160	185	139	164	44	95	120	15.5	130	155	30	16	10	30
32	166	191	139	164	44	95	120	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

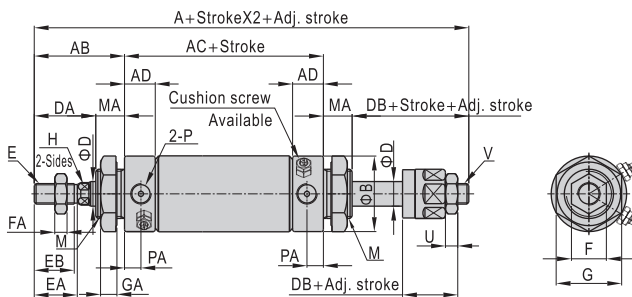
Bore size\Item	E	EA	EB	F	FA	G	GA	H	K	KA	M	MA	MB	P	PA
20	M8 × 1.25	20	18.5	12	6	29	7	6	8	9	M22 × 1.5	14	21	1/8"	7.5
25	M10 × 1.25	21	19.5	17	6	29	7	8	8	9	M22 × 1.5	14	21	1/8"	7.5
32	M10 × 1.25	21	19.5	17	6	32	8	10	10	12	M24 × 2.0	16	27	1/8"	7.5
40	M12 × 1.25	22.5	21	17	7	41	9	14	12	12	M30 × 2.0	16	27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

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

MBLD/MBLCD



MBLJ/MBLCJ



Bore size\Item	A				AB	AC	AD	B	D	DA	DB	E
	MBLD	MBLCD	MBLJ	MBLCJ								
20	150	147	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	G	GA	H	M	MA	P	PA	U	V	
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	9	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.



Mini cylinder(Aluminum barrel)

Accessories

Ordering code

Accessories of MBL series cylinder are the same with that of MAL/MA series.
Please see accessory list for detail of selection and order information.

Accessory selection

Cylinder model	MBL/MBLC	MSBL, MTBL	MBL(C)D, MBL(C)J
Accessories	Standard	With magnet	Standard
Mounting accessory	LB	●	●
	FA	●	●
	SDB	●	●
Knuckle ①	I	●	●
	Y	●	●
	U	●	●
	F	●	●
Sensor switch ②	CS1-M	×	●
	DS1-M	×	●

① Floating Joint(F) and Universal Joint(U) are common use part,

Please refer to P453~456 for knuckle detail,

② Please refer to P457~480 for detail of sensor switch.

Material of accessories selection

Accessories	Mounting accessories			Knuckle			
	LB	FA	SDB	I	Y	F	U
Bore size	LB	FA	SDB	I	Y	F	U
20~63	○	○	○	□	□	□	□

○—Low carbon steel, □—Carbon steel.

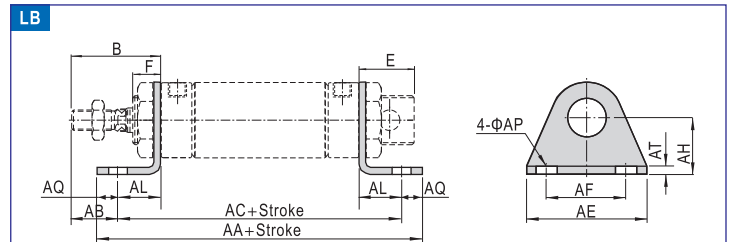
List for ordering code of accessories

Accessories	Mounting accessory		
	LB	FA	SDB
Bore size	LB	FA	SDB
20	F-MA20LB	F-MA20FA	F-MA20SDB
25	F-MA25LB	F-MA25FA	F-MA25SDB
32	F-MA32LB	F-MA32FA	F-MA32SDB
40	F-MA40LB	F-MA40FA	F-MA40SDB
50	-	-	F-MA40SDB
63	-	-	F-MA40SDB

Accessories	Knuckle			
	I: I Knuckle	Y: Y Knuckle	F: F Knuckle	U: U Knuckle
Bore size	I: I Knuckle	Y: Y Knuckle	F: F Knuckle	U: U Knuckle
20	F-MA20I	F-MA20Y	F-M8X125F	F-M8X125U
25	F-MA25I	F-MA25Y	F-M10X125F	F-M10X125U
32	F-MA32I	F-MA32Y	F-M12X125F	F-M12X125U
40	F-MA40I	F-MA40Y	F-M12X125F	F-M12X125U
50	F-MA50I	F-MA50Y	F-M14X150F	F-M14X150U
63	F-MA63I	F-MA63Y	F-M14X150F	F-M14X150U

Accessories	Sensor switch	
	CS1-M	DS1-M
Bore size	CS1-M	DS1-M
20	CS1-M-A20	DS1-M-A20
25	CS1-M-A25	DS1-M-A25
32	CS1-M-A32	DS1-M-A32
40	CS1-M-A40	DS1-M-A40
50	CS1-M-A50	DS1-M-A50
63	CS1-M-A63	DS1-M-A63

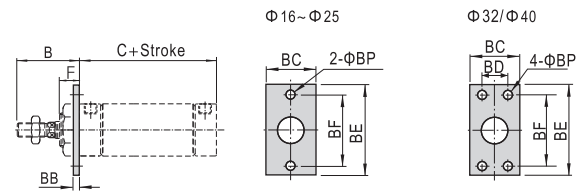
Dimensions



Bore size\Item	AA	AA(MSBL)			AC	AC(MSBL)		
		(MBL)	0~50	51~100		101~150	(MBL)	0~50
Stroke								
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

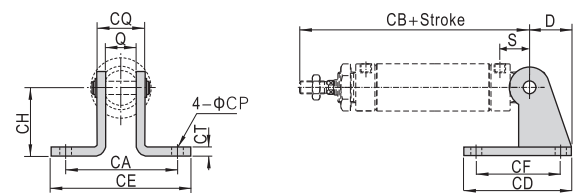
Bore size\Item	B	E	F	AB	AE	AF	AL	AQ	AP	AT	AH
20	40	21	14	25	54	40	15	8	6.5	3	25
25	44	21	14	29	54	40	15	8	6.5	3	25
32	44	27	16	19	59	45	25	8	6.5	4	32
40	46	27	16	21	64	50	25	8	6.5	4	36

FA



Bore size\Item	B	C	C(MSAL)			BB	BC	BD	BE	BF	BP	F
			(MAL)	0~50	51~100							
Stroke												
20	40	70	95	120	145	4	38	-	64	50	6.5	14
25	44	70	95	120	145	4	38	-	64	50	6.5	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

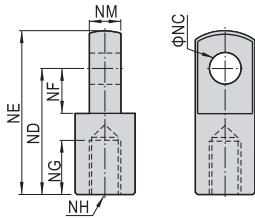
SDB



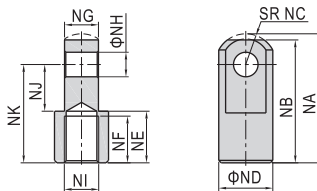
Bore size\Item	D	S	Q	CA	CB	CB(MSBL)			CD	CE	CF	CH	CT	CP	CQ
						(MBL)	0~50	51~100							
Stroke															
20	21	12	16	51	122	147	172	197	48	67	32	32	3	6.5	22
25	21	12	16	51	126	151	176	201	48	67	32	32	3	6.5	22
32	27	15	16	51	129	154	179	204	52	67	36	36	4	6.5	24
40	27	15	20	55	153	178	203	228	56	71	40	40	4	6.5	28

Accessories

I Knuckle



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

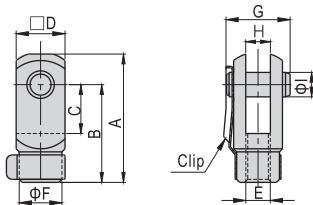


Type\Item	NA	NB	NC	ND	NE	NF	NG	NH	NJ	NK	NI
F-MAC50I	52.5	50	12.5	22	21	19	13.8	10	19	40	M14×1.5

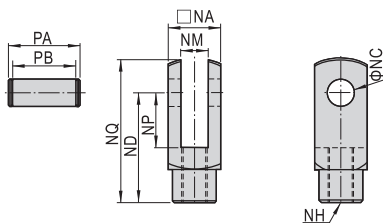


MBL

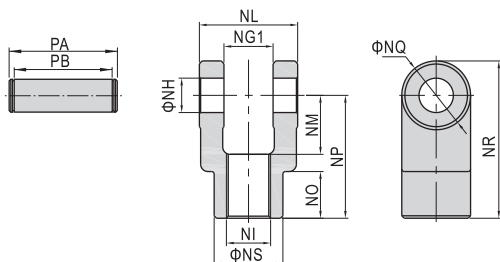
Y Knuckle



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

