



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	●	●
	●	●	●	●		32	●	●
	●	●	●	●		40	●	●
	●	●	●	●		50	●	●
Adjustable stroke type: MBLJ Adjustable stroke with cushion type: MBLCJ	●	●	●	●	Single acting	63	●	●
Single acting type: MSBL, MTBL	●	●	●	●		20	●	●
	●	●	●	●		25	●	●
	●	●	●	●		32	●	●
	●	●	●	●		40	●	●
Page	254				257		457	

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
		Double acting	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
		Double acting	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	Single acting					-
	Double acting					-
	Double acting with cushion					-
Fluid	Air(to be filtered by 40 μm filter element)					-
Operating pressure	0.1~1.0MPa(15~145psi)(1.0~10.0bar)					-
	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} ₋₀ >150 ^{+1.5} ₋₀					-
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		
MBL MBLC	20, 25	25	50	75	80	100	125	150	160	175	200	250	300	350	400	450	500	500	800		
	32, 40	25	50	75	80	100	125	150	160	175	200	250	300	350	400	450	500	500	800		
	50, 63	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							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.

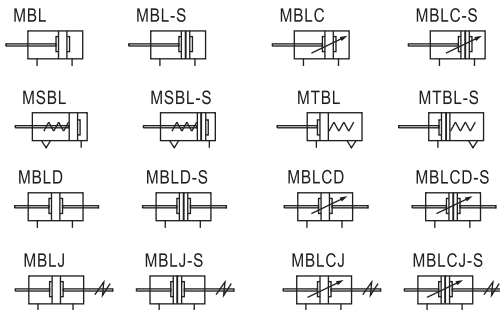
Ordering code

MBL 20 × 50	S	CA																	
MBLD 20 × 50	S																		
MBLJ 20 × 50-20 S																			

Model	Thread type	Mounting type ①	Back cover	Magnet
MBL: Mini cylinder(Double acting)	Blank: PT	Model	Model	Blank: Without magnet
MBLC: Mini cylinder (Double acting with cushion)	G: G	Blank: No accessories	MBL, MBLC	S: With magnet
MSBL: Mini cylinder(Single acting_push)	T: NPT	FA: FA type	MSAL, MTAL	
MTBL: Mini cylinder(Single acting_pull)		SDB: SDB type	Others	
MBLD: Mini cylinder(Double rod)		LB: LB type		
MBLCD: Mini cylinder (Double rod with cushion)		Blank: No accessories		
MBLJ: Mini cylinder(Adjustable stroke)		FA: FA type		
MBLCJ: Mini cylinder (Adjustable stroke with cushion)		LB: LB type		
Bore size	Stroke	Adjustable stroke		
Model	Refer to stroke table for details	Model		
MBL/MBLD/MBLJ		Adjustable stroke		
MBLC/MBLCD/MBLCJ		10: 10mm		
MSBL/MTBL		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.

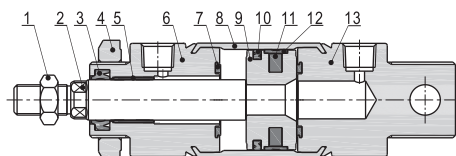


Mini cylinder(Aluminum barrel)

MBL Series

Inner structure and material of major parts

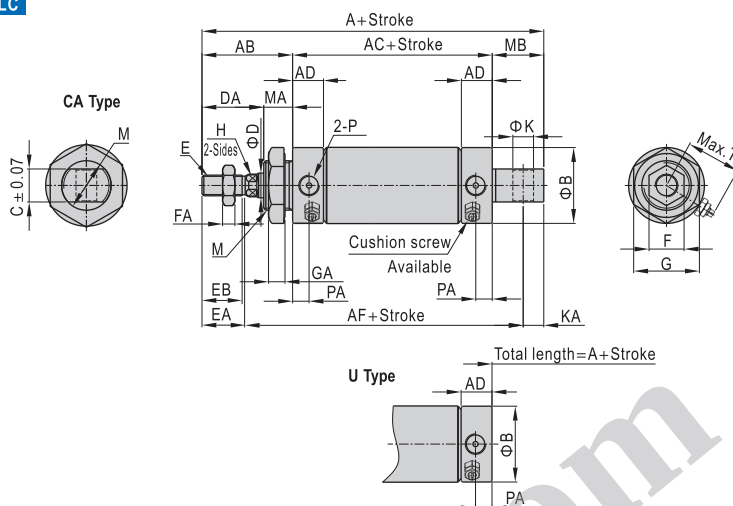
MBL-CA



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

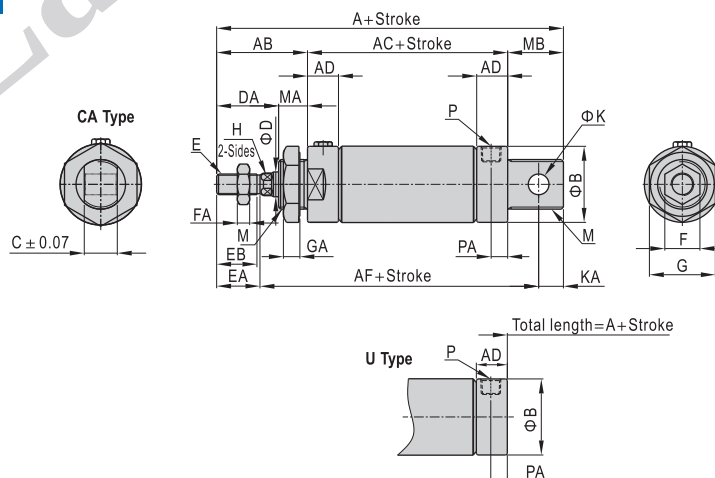


Bore size\Item Back cover type	A		AB	AC	AD	AF	B	C	D	DA	M	MA	MB
	CA	U											
20	131	110	40	70	15.5	102	27	16	8	26	M22 × 1.5	14	21
25	135	114	44	70	15.5	105	30	16	10	30	M22 × 1.5	14	21
32	141	114	44	70	15.5	108	37	16	12	28	M24 × 2.0	16	27
40	165	138	46	92	22	130.5	45	20	16	30	M30 × 2.0	16	27
50	173	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	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						AB	AC				AD	AF			B	C
Back cover type	CA			U				≤50 51~100 ≥101		≤50 51~100 ≥101			≤50 51~100 ≥101				
Bore size\Stroke	≤50	51~100	≥101	≤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	

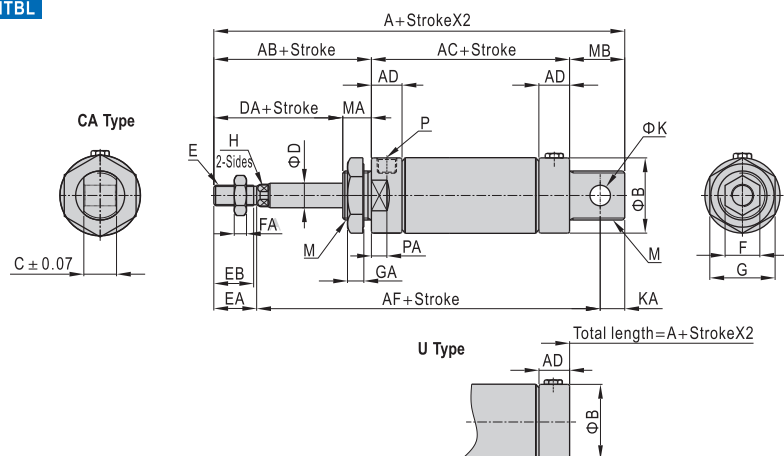
Bore size\Item	D	DA	E	EA	EB	F	FA	G	GA	H	K	KA	M	MA	MB	P	PA
20	8	26	M8×1.25	20	18.5	12	6	29	7	6	8	9	M22×1.5	14	21	1/8"	7.5
25	10	30	M10×1.25	21	19.5	17	6	29	7	8	8	9	M22×1.5	14	21	1/8"	7.5
32	12	28	M10×1.25	21	19.5	17	6	32	8	10	10	12	M24×2.0	16	27	1/8"	7.5
40	16	30	M12×1.25	22.5	21	17	7	41	9	14	12	12	M30×2.0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

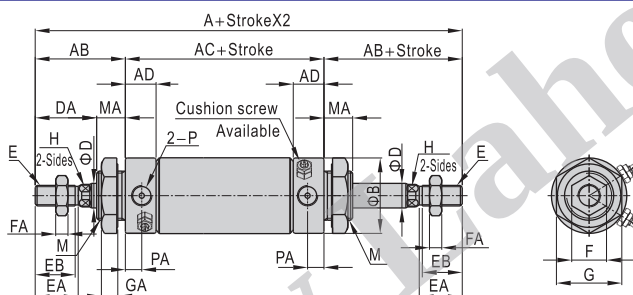
MTBL



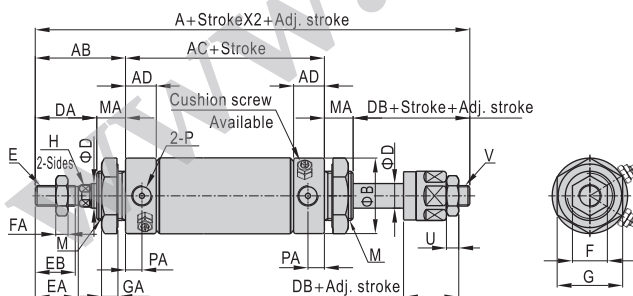
Item	A					AB	AC		AD	AF		B	C	D	DA
Back cover type	CA		U		≤50		51~100	≤50		51~100					
Bore size\Stroke	≤50	51~100	≤50	51~100		≤50	51~100		≤50	51~100					
20	156	181	135	160	40	95	120	15.5	127	152	27	16	8	26	
25	160	185	139	164	44	95	120	15.5	130	155	30	16	10	30	
32	166	191	139	164	44	95	120	15.5	133	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	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 Model	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	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	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 MALIMA 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 Bore size	Mounting accessories			Knuckle			
	LB	FA	SDB	I	Y	F	U
20~63	○	○	○	□	□	□	□

○——Low carbon steel, □——Carbon steel.

List for ordering code of accessories

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

Accessories	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				
40	F-MA40I	F-MA40Y	F-M12X125F	F-M12X125U
50	F-MAC50I	F-MAC50Y	F-M14X150F	F-M14X150U
63				

Accessories	Sensor switch	
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

LB

Technical drawing of LB mounting bracket. The front view shows dimensions B, F, E, AC+Stroke, AA+Stroke, AQ, AB, and AL. The side view shows dimensions 4-ΦAP, AF, AE, AT, and AH.

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

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

Φ 16 ~ Φ 25

Φ 32 / Φ 40

Technical drawing of FA mounting bracket. The front view shows dimensions B, C+Stroke, BB, BC, 2-ΦBP, BF, and BE. The side view shows dimensions BC, BD, 4-ΦBP, BF, and BE.

Bore size\Item	B	C	C(MSAL)			BB	BC	BD	BE	BF	BP	F
Stroke	(MAL)	0~50	51~100	101~150								
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

Technical drawing of SDB mounting bracket. The front view shows dimensions CQ, Q, OH, CA, CE, 4-ΦCP, and CH. The side view shows dimensions CB+Stroke, D, S, CF, and CD.

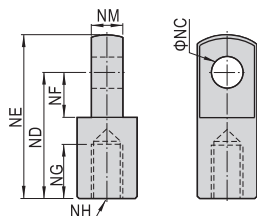
Bore size\Item	D	S	Q	CA	CB	CB(MSBL)			CD	CE	CF	CH	CT	CP	CQ
Stroke					(MBL)	0~50	51~100	101~150							
20	21	12	16	51	122	147	172	197	48	67	32	32	3	6.5	22
25	21	12	16	51	126	151	176	201	48	67	32	32	3	6.5	22
32	27	15	16	51	129	154	179	204	52	67	36	36	4	6.5	24
40	27	15	20	55	153	178	203	228	56	71	40	40	4	6.5	28



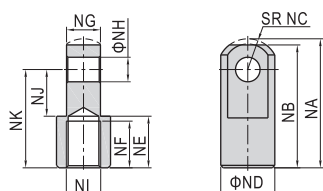
MBL

Accessories

I Knuckle

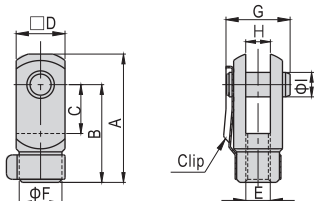


Type\Item	NC	ND	NE	NF	NG	NH	NM
F-MA20I	8	30	40	11	15	M8×1.25	8
F-MA25I	10	40	50	15	20	M10×1.25	10
F-MA40I	10	45	57	16	23	M12×1.25	14

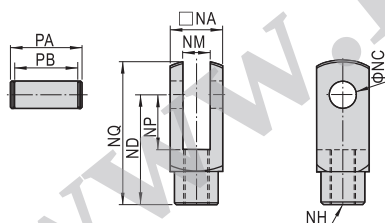


Type\Item	NA	NB	NC	ND	NE	NF	NG	NH	NJ	NK	NI
F-MAC50I	52.5	50	12.5	22	21	19	13.8	10	19	40	M14×1.5

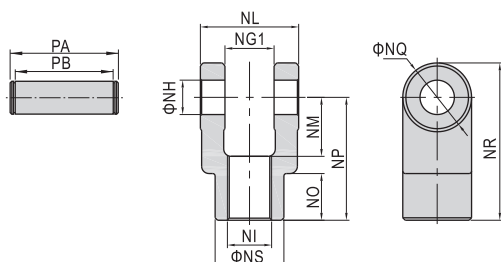
Y Knuckle



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