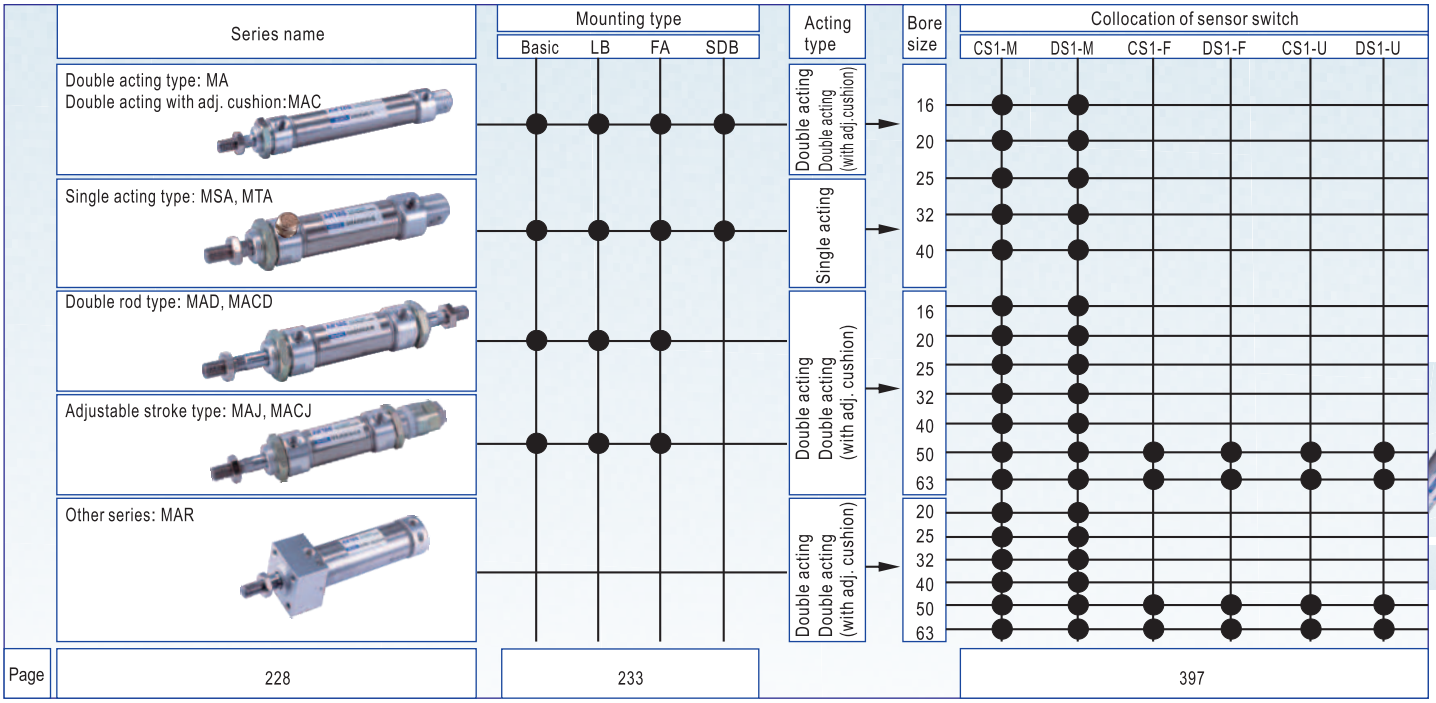
EN: This Datasheet/Document is presented by the manufacturer.

Please visit our website for pricing and availability at www.hestore.hu.

Product series



MA

Installation and application

1. When load changes in the work, the cylinder with abundant output capacity shall be selected.
2. Relative cylinder with high temperature resistance or corrosion resistance shall be chosen under the condition of high temperature or corrosion.
3. Necessary protection measure shall be taken in the environment with higher humidity, much dust or water drops, oil dust and welding dregs.
4. Dirty substances in the pipe must be eliminated before cylinder is connected with pipeline to prevent the entrance of particles into the cylinder.
5. The medium used by cylinder shall be filtered to 40 μ m or below.
6. Anti-freezing measure shall be adopted under low temperature environment to prevent moisture freezing.
7. The cylinder shall be carried out test run without load before application. Prior to run, buffer shall be turned to the minimum and gradually released to avoid the damage on cylinder caused by excessive impact.
8. 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.
9. 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
16	6	Single acting	Push side	201.0	-	-	20.1	40.2	60.3	80.4	100.5
			Pull side	172.7	-	-	11.6	28.9	46.2	63.4	80.7
		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	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

Specification

Bore size(mm)		16	20	25	32	40	50	63
Acting type	MSA, MTA	Single acting					–	
	MA, MAD, MAJ	Double acting					–	
	MAR	–	Double acting					
	MAC, MACD, MACJ	–	Double acting with cushion					
Fluid		Air(to be filtered by 40 μ m 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 ℃		-20~70						
Speed range mm/s		Double acting: 30~800 Single acting: 50~800						
Stroke tolerance		$0\sim150\ ^{+1.0}_{0}$ $>150\ ^{+1.4}_{0}$						
Cushion type		MAC、MACD、MACJ Series: Adjustable cushion					Other series: Bumper	
Port size ①		M5 × 0.8	1/8"				1/4"	

① PT thread, NPT thread and G thread are available. Add) Refer to P397~420 for detail of sensor switch.

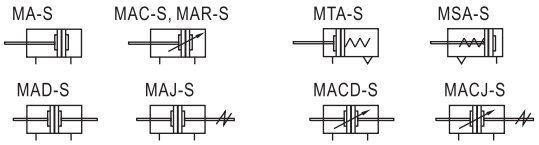
Stroke

Bore size (mm)			Standard stroke (mm)	Max. std stroke	Max. stroke
MA	-	16	25 50 75 80 100 125 150 160 175 200 250 300 350 400 450 500	500	600
	MAC MAR	20	25 50 75 80 100 125 150 160 175 200 250 300 350 400 450 500	500	800
		25	25 50 75 80 100 125 150 160 175 200 250 300 350 400 450 500	500	800
		32	25 50 75 80 100 125 150 160 175 200 250 300 350 400 450 500	500	800
		40	25 50 75 80 100 125 150 160 175 200 250 300 350 400 450 500	500	800
-		50	25 50 75 80 100 125 150 160 175 200 250 300 350 400 450 500	500	800
-		63	25 50 75 80 100 125 150 160 175 200 250 300 350 400 450 500	500	800
MAD MAJ	-	16	25 50 75 80 100 125 150 160 175 200 250 300	300	-
	MACD MACJ	20	25 50 75 80 100 125 150 160 175 200 250 300	300	-
		25	25 50 75 80 100 125 150 160 175 200 250 300	300	-
		32	25 50 75 80 100 125 150 160 175 200 250 300 350 400 450 500	500	-
		40	25 50 75 80 100 125 150 160 175 200 250 300 350 400 450 500	500	-
-		50	25 50 75 80 100 125 150 160 175 200 250 300 350 400 450 500	500	-
-		63	25 50 75 80 100 125 150 160 175 200 250 300 350 400 450 500	500	-

Bore size (mm)		Standard stroke (mm)
MSA	16	25 50 75 100
	20	25 50 75 100 125 150
	25	25 50 75 100 125 150
	32	25 50 75 100 125 150
	40	25 50 75 100 125 150
MTA	16	25 50 75 100
	20	25 50 75 100
	25	25 50 75 100
	32	25 50 75 100
	40	25 50 75 100

Note) Consult us for non–standard stroke.

Symbol



Product feature

1. Standard cylinder manufactured by our enterprise.
2. Piston adopts heterogeneous two-way seal structure. It has compact size and has the function of grease reservation.
3. Front cover has fixed bumper 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. There are cylinders and mounting accessories with several specifications for your choice.
8. All cylinders of this series have magnet.

Ordering code

MA 20 × 50 S CM □ □
MAD 20 × 50 S □ □
MAJ 20 × 50–20 S □ □
MAR U 20 × 50 S □

Model

MA: Mini cylinder(Double acting)
MSA: Mini cylinder(Single acting_push)
MTA: Mini cylinder(Single acting_pull)
MAD: Mini cylinder(Double rod)
MAJ: Mini cylinder(Adjustable stroke)
MAR: Mini cylinder (Double acting with cushion)
MAC: Mini cylinder (Double acting with cushion)
MACD: Mini cylinder (Double rod with cushion)
MACJ: Mini cylinder (Adjustable stroke with cushion)

Thread type ②

Blank: PT
T: NPT
G: G

Mounting type ①

Model	Mounting type
MA MAC MSA MTA	Blank: No accessories
	FA: FA type
	SDB: SDB type
	LB: LB type
MAD MACD MAJ MACJ	Blank: No accessories
	FA: FA type
	LB: LB type
MAR	No this code

Front cover

Model	Front cover
MAR	F: Front mounting type
	U: Up mounting type
Others	No this code

Back cover

Model	Back cover
MA,MAC MSA MTA	CA: Pivot type
	U: Flat-end type
	CM: Round-end type
Others	No this code

Bore size

Model	Bore size
MA, MSA, MTA, MAD, MAJ	16 20 25 32 40
MAC, MAR, MACD, MACJ	20 25 32 40 50 63

Magnet

S: With magnet

Stroke

Refer to stroke table for details

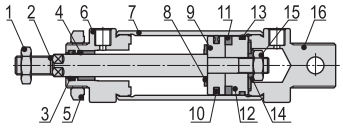
Adjustable stroke

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

① Please refer to page 233 for accessory parts.
② Standard thread is blank here.

Inner structure and material of major parts

MA-CA

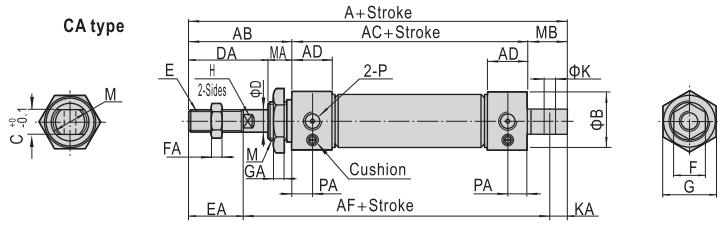


NO.	Item	Material
1	Rod nut	Carbon steel
2	Piston rod	Carbon steel with 20 μ m chrome plated
3	Front cover packing	NBR
4	Bushing	Wear resistant material
5	Front cover nut	Carbon steel
6	Front cover	Aluminum alloy
7	Barrel	Stainless steel
8	Bumper	NBR
9	Piston	Aluminum alloy
10	Piston seal	NBR
11	Magnet	Plastic
12	Magnet holder	Aluminum alloy
13	Wear ring	Wear resistant material
14	Washer	Free cutting material
15	Nut	Carbon steel
16	Back cover	Aluminum alloy

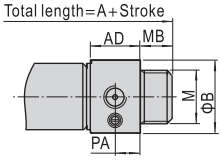
Dimensions

MA Φ16~Φ40
MAC Φ20~Φ40

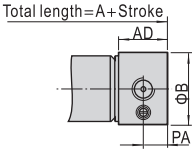
CA type



CM type



U type

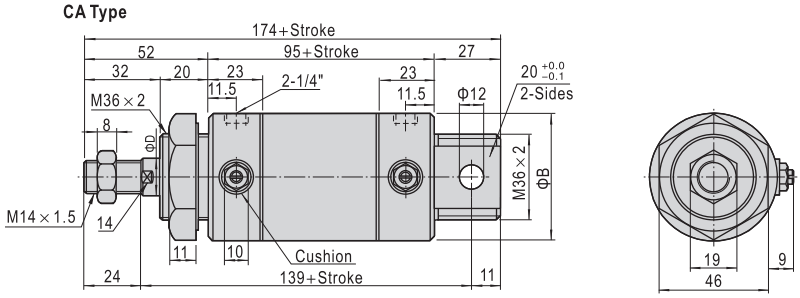


Bore size\Item / Back cover	A			AB	AC	AD	AF	B	C	D	DA	E	EA
	CA	CM	U										
16	114	114	98	38	60	10	91	21	12	6	22	M6×1.0	16
20	137	128	116	40	76	16	108	27	16	8	28	M8×1.25	20
25	141	134	120	44	76	16	110	30	16	10	30	M10×1.25	22
32	147	134	120	44	76	16	113	35	16	12	30	M10×1.25	22
40	149	136	122	46	76	16.5	113	41.5	20	16	32	M12×1.25	24

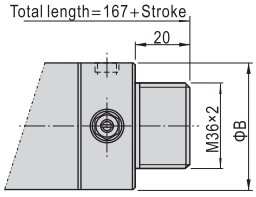
Bore size\Item / Back cover	F	FA	G	GA	H	K	KA	M	MA	MB		P	PA
										CA	CM		
16	10	5	22	6	5	6	9	M16×1.5	16	16	16	M5×0.8	5
20	12	6	29	7	6	8	12	M22×1.5	12	21	12	1/8"	8
25	17	6	29	7	8	8	12	M22×1.5	14	21	14	1/8"	8
32	17	6	32	8	10	10	15	M24×2.0	14	27	14	1/8"	8
40	17	7	41	9	14	12	15	M30×2.0	14	27	14	1/8"	8

MAC Φ50, Φ63

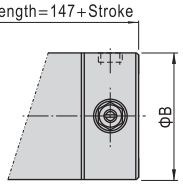
CA Type



CM Type



U Type

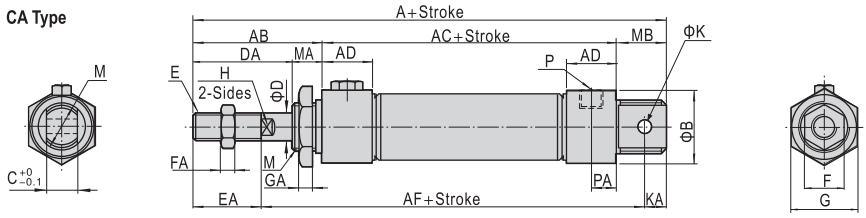


Bore size\Item	B	D
50	53	16
63	67	16

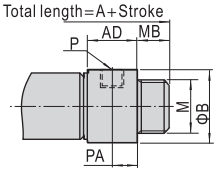
MA

MSA Φ16~Φ40

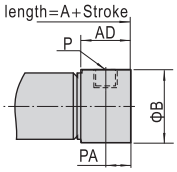
CA Type



CM Type Total length=A+Stroke



U Type Total length=A+Stroke

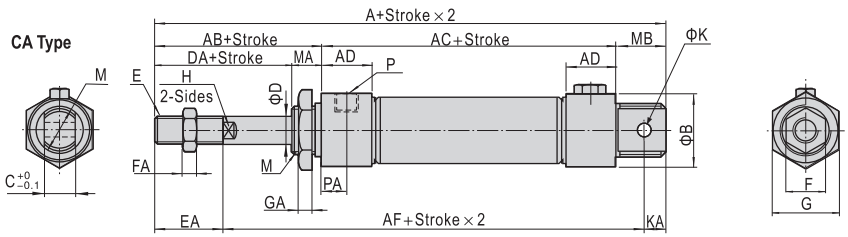


Item	A									AB	AC			AD	AF		
Back cover	CA			CM			U										
Bore size\Stroke	≤50	51~100	≥101	≤50	51~100	≥101	≤50	51~100	≥101		≤50	51~100	≥101		≤50	51~100	≥101
16	139	164	-	139	164	-	123	148	-	38	85	110	-	10	116	141	-
20	162	187	212	153	178	203	141	166	191	40	101	126	151	16	133	158	183
25	166	191	216	159	184	209	145	170	195	44	101	126	151	16	135	160	185
32	172	197	222	159	184	209	145	170	195	44	101	126	151	16	138	163	188
40	174	199	224	161	186	211	147	172	197	46	101	126	151	16.5	138	163	188

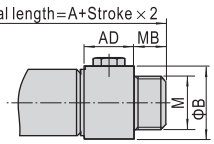
Bore size\Item / Back cover	B	C	D	DA	E	EA	F	FA	G	GA	H	K	KA	M	MA	MB		P	PA
																CA	CM		
16	21	12	6	22	M6×1.0	16	10	5	22	6	5	6	7	M16×1.5	16	16	16	M5×0.8	5
20	27	16	8	28	M8×1.25	20	12	6	29	7	6	8	9	M22×1.5	12	21	12	1/8"	8
25	30	16	10	30	M10×1.25	22	17	6	29	7	8	8	9	M22×1.5	14	21	14	1/8"	8
32	35	16	12	30	M10×1.25	22	17	6	32	8	10	10	12	M24×2.0	14	27	14	1/8"	8
40	41.5	20	16	32	M12×1.25	24	17	7	41	9	14	12	12	M30×2.0	14	27	14	1/8"	8

MTA Φ16~Φ40

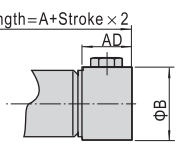
CA Type



CM Type Total length=A+Stroke×2



U Type Total length=A+Stroke×2

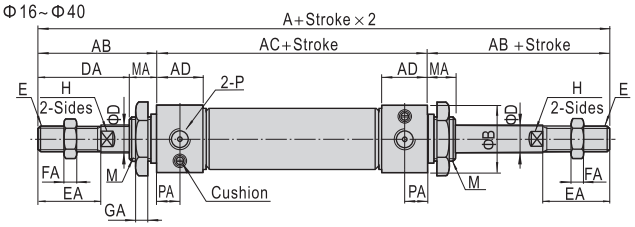


Item	A												AC				AF			
Back cover	CA				CM				U											
Bore size\Stroke	≤25	≤50	≤75	≤100	≤25	≤50	≤75	≤100	≤25	≤50	≤75	≤100	≤25	≤50	≤75	≤100	≤25	≤50	≤75	≤100
16	129	139	154	164	129	139	154	164	113	123	138	148	75	85	100	110	106	116	131	141
20	152	162	177	187	143	153	168	178	131	141	156	166	91	101	116	126	123	133	148	158
25	156	166	181	191	149	159	174	184	135	145	160	170	91	101	116	126	125	135	150	160
32	162	172	192	192	149	159	179	179	135	145	165	165	91	101	121	121	128	138	158	168
40	164	174	194	204	151	161	181	191	137	147	167	177	91	101	121	131	128	138	158	168

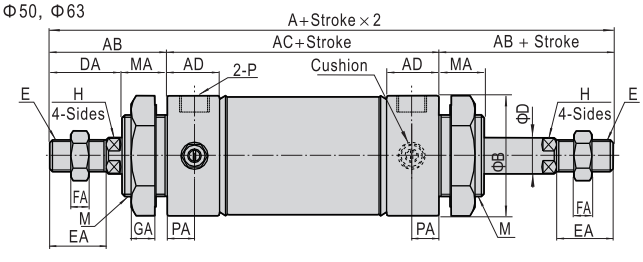
Bore size\Item / Back cover	AB	AD	B	C	D	DA	E	EA	F	FA	G	GA	H	K	KA	M	MA	MB		P	PA
																		CA	CM		
16	38	10	21	12	6	22	M6×1.0	16	10	5	22	6	5	6	7	M16×1.5	16	16	16	M5×0.8	5
20	40	16	27	16	8	28	M8×1.25	20	12	6	29	7	6	8	9	M22×1.5	12	21	12	1/8"	8
25	44	16	30	16	10	30	M10×1.25	22	17	6	29	7	8	8	9	M22×1.5	14	21	14	1/8"	8
32	44	16	35	16	12	30	M10×1.25	22	17	6	32	8	10	10	12	M24×2.0	14	27	14	1/8"	8
40	46	16.5	41.5	20	16	32	M12×1.25	24	17	7	41	9	14	12	12	M30×2.0	14	27	14	1/8"	8

MAD, MACD

Φ16~Φ40



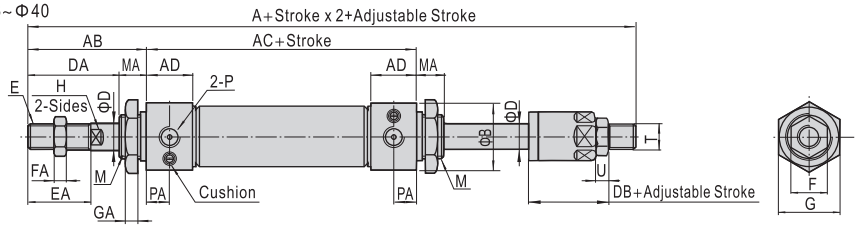
Φ50, Φ63



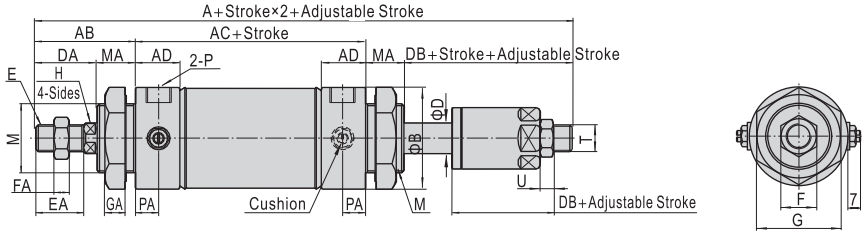
Bore size\Item	A	AB	AC	AD	B	D	DA	E	EA	F	FA	G	GA	H	M	MA	P	PA
16	136	38	60	10	21	6	22	M6×1.0	16	10	5	22	6	5	M16×1.5	16	M5×0.8	5
20	156	40	76	16	27	8	28	M8×1.25	20	12	6	29	7	6	M22×1.5	12	1/8"	8
25	164	44	76	16	30	10	30	M10×1.25	22	17	6	29	7	8	M22×1.5	14	1/8"	8
32	164	44	76	16	35	12	30	M10×1.25	22	17	6	32	8	10	M24×2.0	14	1/8"	8
40	168	46	76	16.5	41.5	16	32	M12×1.25	24	17	7	41	9	14	M30×2.0	14	1/8"	8
50	199	52	95	23	53	16	32	M14×1.5	24	19	8	46	11	14	M36×2.0	20	1/4"	11.5
63	199	52	95	23	67	16	32	M14×1.5	24	19	8	46	11	14	M36×2.0	20	1/4"	11.5

MAJ, MACJ

Φ16~Φ40



Φ50, Φ63

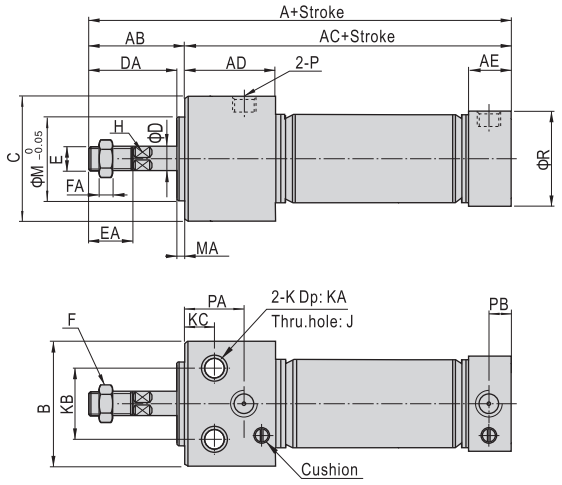


Bore size\Item	A	AB	AC	AD	B	D	DA	DB	E	EA	F	FA
16	135	38	60	10	21	6	22	21	M6×1.0	16	10	5
20	153	40	76	16	27	8	28	25	M8×1.25	20	12	6
25	161	44	76	16	30	10	30	27	M10×1.25	22	17	6
32	161	44	76	16	35	12	30	27	M10×1.25	22	17	6
40	164	46	76	16.5	41.5	16	32	28	M12×1.25	24	17	7
50	195	52	95	23	53	16	32	28	M14×1.5	24	19	8
63	195	52	95	23	67	16	32	28	M14×1.5	24	19	8

Bore size\Item	H	M	MA	P	PA	G	GA	T	U
16	5	M16×1.5	16	M5×0.8	5	22	6	M6×1.0	5
20	6	M22×1.5	12	1/8"	8	29	7	M8×1.25	6
25	8	M22×1.5	14	1/8"	8	29	7	M10×1.25	6
32	10	M24×2.0	14	1/8"	8	32	8	M10×1.25	6
40	14	M30×2.0	14	1/8"	8	41	9	M12×1.25	7
50	14	M36×2.0	20	1/4"	11.5	46	11	M12×1.25	7
63	14	M36×2.0	20	1/4"	11.5	46	11	M12×1.25	7

MARU(Up mounting type)

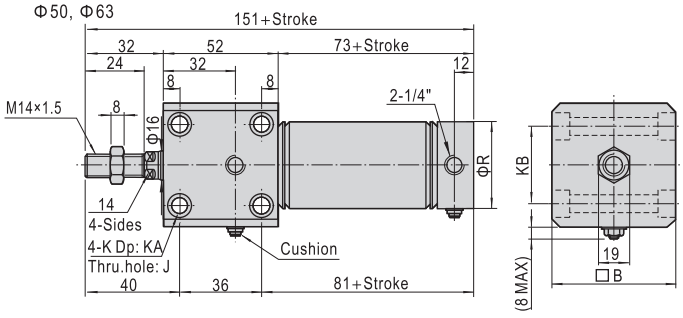
Φ20~Φ40



Bore size\Item	A	AB	AC	AD	AE	B	C	D	DA	E	EA
20	120	31	89	29	16	33.5	30.5	8	28	M8×1.25	20
25	122	33	89	29	16	39	36.5	10	30	M10×1.25	22
32	122	33	89	29	16	47	42.5	12	30	M10×1.25	22
40	132.5	35	97.5	37.5	16.5	58.5	52.5	16	32	M14×1.5	24

Bore size\Item	F	FA	H	J	K	KA	KB	KC	M	MA	P	PA	PB	R
20	13	5	6	Φ5.5	Φ9.5	6.5	21	12	20	3	1/8"	22	8	27
25	17	6	8	Φ6.5	Φ11.0	7.5	25	12	26	3	1/8"	22	8	30
32	17	6	10	Φ9.0	Φ14.0	10	30	12	26	3	1/8"	22	8	35
40	19	8	14	Φ11	Φ17.5	12.5	38	15	32	3	1/8"	27	8	41.5

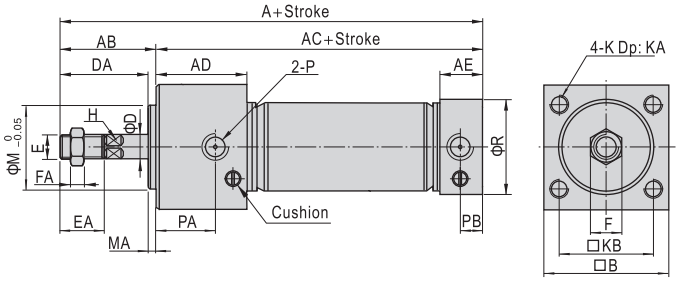
Φ50, Φ63



Bore size\Item	B	J	K	KA	KB	R
50	62	Φ6.5	Both sides:Φ11.0	6.5	44	53
63	74	Φ9.0	Both sides:Φ14.0	8.5	48	67

MARF(Front mounting type)

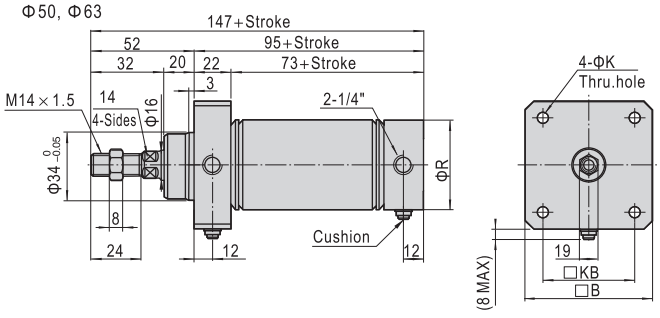
Φ20~Φ40



Bore size\Item	A	AB	AC	AD	AE	B	D	DA	E	EA
20	120	31	89	29	16	30.5	8	28	M8×1.25	20
25	122	33	89	29	16	36.5	10	30	M10×1.25	22
32	122	33	89	29	16	42.5	12	30	M10×1.25	22
40	132.5	35	97.5	37.5	16.5	52.5	16	32	M14×1.5	24

Bore size\Item	F	FA	H	K	KA	KB	M	MA	P	PA	PB	R
20	13	5	6	M5×0.8	9	22	20	3	1/8"	22	8	27
25	17	6	8	M6×1.0	11	26	26	3	1/8"	22	8	30
32	17	6	10	M6×1.0	11	30	26	3	1/8"	22	8	35
40	19	8	14	M8×1.25	14	36	32	3	1/8"	27	8	41.5

Φ50, Φ63



Bore size\Item	B	K	KB	R
50	62	6.5	48	53
63	74	9.0	58	67

Accessories

Ordering code

F–MA 32 LB

Accessory
Model
Bore size
Accessory type ①

Mounting accessory	LB: LB type
	FA: FA type
	SDB: SDB type ②
Knuckle ③	I: I Knuckle
	Y: Y Knuckle

① Please refer to accessory list for selection and ordering information.
② SDB is attached with relevant PIN.
③ Please refer to page 395, 396 for other knuckles.

Accessory selection

Accessories\Cylinder model		MA, MAC	MSA, MTA	MAD, MACD	MAJ, MACJ	MAR
Mounting accessory	LB	●	●	●	●	×
	FA	●	●	●	●	×
	SDB	●	●	×	×	×
Knuckle ①	I	●	●	●	●	●
	Y	●	●	●	●	●
	U	●	●	●	●	●
	F	●	●	●	●	●
Sensor switch ②	CS1–M	●	●	●	●	●
	DS1–M	●	●	●	●	●
	CS1–F	●	●	●	●	●
	DS1–F	●	●	●	●	●
	CS1–U	●	●	●	●	●
	DS1–U	●	●	●	●	●

① Please refer to P393~396 for knuckle detail,
② Please refer to P397~420 for detail of sensor switch.

Material of accessories

Accessories / Bore size	Mounting accessories			Knuckle			
	LB	FA	SDB	I	Y	F	U
16~63	○	○	○	□	□	□	□

○——Low carbon steel, □——Carbon steel.

List for ordering code of accessories

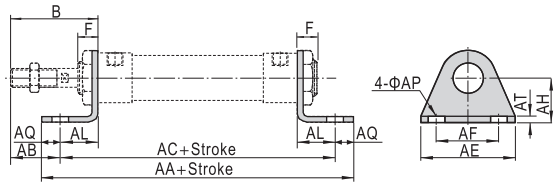
Accessories / Bore size	Mounting accessory		
	LB	FA	SDB
16	F-MA16LB	F-MA16FA	F-MA16SDB
20	F-MA20LB	F-MA20FA	F-MA20SDB
25			
32	F-MA32LB	F-MA32FA	F-MA32SDB
40	F-MA40LB	F-MA40FA	F-MA40SDB
50	-	-	
63	-	-	

Accessories / Bore size	Knuckle			
	I: I Knuckle	Y: Y Knuckle	F: F Knuckle	U: U Knuckle
16	F-MA16I	F-MA16Y	F-M6X100F	F-M6X100U
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 / Bore size	Sensor switch					
	CS1–M□	DS1–M□	CS1–F	DS1–F	CS1–U	DS1–U
16	CS1–M-S16	DS1–M-S16	–	–	-	-
20	CS1–M-S20	DS1–M-S20				
25	CS1–M-S25	DS1–M-S25				
32	CS1–M-S32	DS1–M-S32				
40	CS1–M-S40	DS1–M-S40				
50	CS1–M-S50	DS1–M-S50	CS1–F	DS1–F	CS1–U	DS1–U
63	CS1–M-S63	DS1–M-S63				

Dimensions

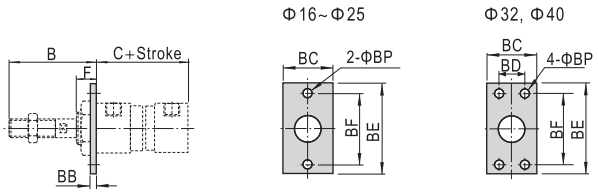
LB



Bore size\Item / Stroke	AA (MA)	AA(MSA) 0~50	AA(MSA) 51~100	AA(MSA) 101~150	AC (MA)	AC(MSA) 0~50	AC(MSA) 51~100	AC(MSA) 101~150
16	98	123	148	-	86	111	136	-
20	122	147	172	197	106	131	156	181
25	122	147	172	197	106	131	156	181
32	142	167	192	217	126	151	176	201
40	142	167	192	217	126	151	176	201

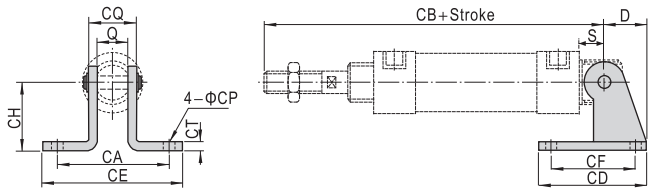
Bore size\Item	B	F	AB	AE	AF	AL	AQ	AP	AT	AH
16	38	16	25	44	32	13	6	5.5	3	20
20	40	12	25	54	40	15	8	6.5	3	25
25	44	14	29	54	40	15	8	6.5	3	25
32	44	14	19	59	45	25	8	6.5	4	32
40	46	14	21	64	50	25	8	6.5	4	36

FA



Bore size\Item / Stroke	B	C (MA)	C(MSA) 0~50	C(MSA) 51~100	C(MSA) 101~150	BB	BC	BD	BE	BF	BP	F
16	38	60	85	110	-	3	26	-	52	40	5.5	16
20	40	76	101	126	151	4	38	-	64	50	6.5	12
25	44	76	101	126	151	4	38	-	64	50	6.5	14
32	44	76	101	126	151	4	47	33	72	58	6.5	14
40	46	76	101	126	151	4	50	36	84	70	6.5	14

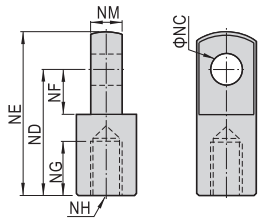
SDB



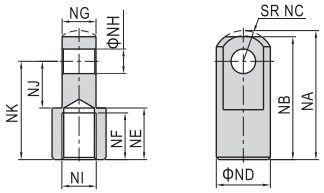
Bore size\Item / Stroke	D	S	Q	CA	CB (MA)	CB(MSA) 0~50	CB(MSA) 51~100	CB(MSA) 101~150	CD	CE	CF	CH	CT	CP	CQ
16	16	9	12	-	107	132	157	-	23	-	12	20	2	5.5	16
20	21	12	16	51	128	153	178	203	48	67	32	32	3	6.5	22
25	21	12	16	51	132	157	182	207	48	67	32	32	3	6.5	22
32	27	15	16	51	135	160	185	210	52	67	36	36	4	6.5	24
40	27	15	20	55	137	162	187	212	56	71	40	40	4	6.5	28

MA

I Knuckle

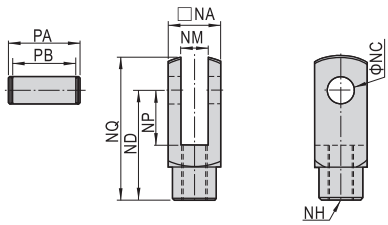


Type\Item	NC	ND	NE	NF	NG	NH	NM
F-MA16I	5	21	28	8.5	8	M6×1.0	6
F-MA20I	8	30	40	11	15	M8×1.25	8
F-MA25I	10	40	50	15	20	M10×1.25	10
F-MA40I	10	45	57	16	23	M12×1.25	14

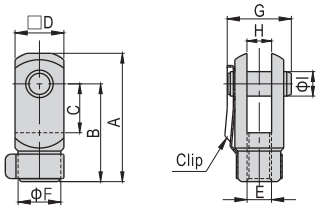


Type\Item	NA	NB	NC	ND	NE	NF	NG	NH	NJ	NK	NI
F-MAC50I	52.5	50	12.5	22	21	19	13.8	10	19	40	M14×1.5

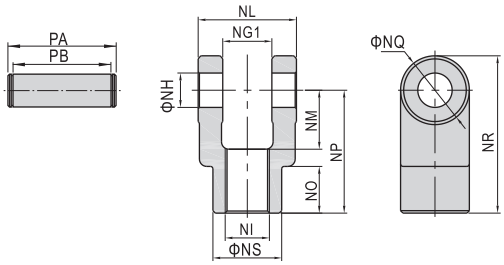
Y Knuckle



Type\Item	NA	NC	ND	NP	NQ	NM	NH	PA	PB
F-MA16Y	12	5	21	8.5	27.4	6	M6×1.0	16.8	12.4
F-MA40Y	25.4	10	45	20	57	14	M12×1.25	32	26.2



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	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

MA