



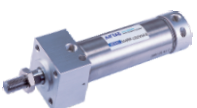




# Mini cylinder(Stainless steel)——MA Series

## Product series

Series name	Mounting type				Acting type	Bore size	Collocation of sensor switch					
	Basic	LB	FA	SDB			CS1-M	DS1-M	CS1-F	DS1-F	CS1-U	DS1-U
Double acting type: MA Double acting with adj. cushion:MAC 	●	●	●	●	Double acting Double acting (with adj. cushion)	16	●	●				
Single acting type: MSA, MTA 	●	●	●	●	Single acting	20	●	●				
Double rod type: MAD, MACD 	●	●	●			25	●	●				
Adjustable stroke type: MAJ, MACJ 	●	●	●		Double acting Double acting (with adj. cushion)	32	●	●				
Other series: MAR 					Double acting Double acting (with adj. cushion)	40	●	●				
						16	●	●				
						20	●	●				
						25	●	●				
						32	●	●				
						40	●	●				
						50	●	●	●	●	●	●
						63	●	●	●	●	●	●
						20	●	●				
						25	●	●				
						32	●	●				
						40	●	●				
						50	●	●	●	●	●	●
						63	●	●	●	●	●	●
Page	240	245					419					



## 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 μ m or below.
- Anti-freezing measure shall be adopted under low temperature environment to prevent moisture freezing.
- 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.
- 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 <sup>2</sup> )	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	



# Mini cylinder(Stainless steel)



## MA Series



### 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 °C	-20~70							
Speed range mm/s	Double acting: 30~800		Single acting: 50~800					
Stroke tolerance	0~150 <sup>+1.0</sup> <sub>0</sub> >150 <sup>+1.4</sup> <sub>0</sub>							
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 P419~442 for detail of sensor switch.

### Stroke

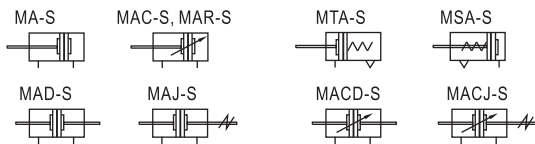
Bore size (mm)	Standard stroke (mm)															Max. std stroke	Max. stroke			
	16	20	25	32	40	50	63	75	80	100	125	150	160	175	200			250	300	350
MA MAC	16	25 50 75 80 100 125 150 160 175 200 250 300															200	500		
	20	25 50 75 80 100 125 150 160 175 200 250 300 350 400 450 500															300	600		
MAR	20	25 50 75 80 100 125 150 160 175 200 250 300															300	600		
	25,32,40,50,63	25 50 75 80 100 125 150 160 175 200 250 300 350 400 450 500															500	700		
MSA	16	25 50 75 100															-	-		
	20,25,32,40	25 50 75 100 125 150															-	-		
MTA	16,20,25,32,40	25 50 75 100															-	-		
MAD	16	25 50 75 80 100 125 150 160															-	-		
MACD	20	25 50 75 80 100 125 150 160 175 200															-	-		
MAJ	25,32,40,50,63	25 50 75 80 100 125 150 160 175 200 250															-	-		
MACJ	25,32,40,50,63	25 50 75 80 100 125 150 160 175 200 250															-	-		

Note) Consult us for non-standard stroke.

### Ordering code

<b>MA</b>	<b>20 × 50</b>	<b>S</b>	<b>CM</b>	<input type="checkbox"/>	<input type="checkbox"/>
<b>MAD</b>	<b>20 × 50</b>	<b>S</b>		<input type="checkbox"/>	<input type="checkbox"/>
<b>MAJ</b>	<b>20 × 50-20</b>	<b>S</b>		<input type="checkbox"/>	<input type="checkbox"/>
<b>MAR</b>	<b>U 20 × 50</b>	<b>S</b>		<input type="checkbox"/>	

### Symbol



### Product feature

- Standard cylinder manufactured by our enterprise.
- Piston adopts heterogeneous two-way seal structure. It has compact size and has the function of grease reservation.
- Front cover has fixed bumper which can reduce the impact of direction change of the cylinder.
- There are several modes of back cover, which makes the installation of cylinder more convenient.
- Front and back cover and stainless steel block adopt riveted rolling packed structure to form a reliable connection.
- The cylinder body has stainless steel pipes with high precision to produce high strength and corrosion resistance.
- There are cylinders and mounting accessories with several specifications for your choice.
- All cylinders of this series have magnet.

<b>Model</b> 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)	<b>Thread type</b> ② Blank: PT T: NPT G: G																										
<b>Front cover</b> <table border="1"> <tr><td>Model</td><td>Front cover</td></tr> <tr><td>MAR</td><td>F: Front mounting type U: Up mounting type</td></tr> <tr><td>Others</td><td>No this code</td></tr> </table>	Model	Front cover	MAR	F: Front mounting type U: Up mounting type	Others	No this code	<b>Mounting type</b> ① <table border="1"> <tr><td>Model</td><td>Mounting type</td></tr> <tr><td>MA</td><td>Blank: No accessories</td></tr> <tr><td>MAC</td><td>FA: FA type</td></tr> <tr><td>MSA</td><td>SDB: SDB type</td></tr> <tr><td>MTA</td><td>LB: LB type</td></tr> <tr><td>MAD</td><td>Blank: No accessories</td></tr> <tr><td>MACD</td><td>FA: FA type</td></tr> <tr><td>MAJ</td><td>LB: LB type</td></tr> <tr><td>MACJ</td><td>LB: LB type</td></tr> <tr><td>MAR</td><td>No this code</td></tr> </table>	Model	Mounting type	MA	Blank: No accessories	MAC	FA: FA type	MSA	SDB: SDB type	MTA	LB: LB type	MAD	Blank: No accessories	MACD	FA: FA type	MAJ	LB: LB type	MACJ	LB: LB type	MAR	No this code
Model	Front cover																										
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MAJ	LB: LB type																										
MACJ	LB: LB type																										
MAR	No this code																										
<b>Bore size</b> <table border="1"> <tr><td>Model</td><td>Bore size</td></tr> <tr><td>MA, MSA, MTA, MAD, MAJ</td><td>16 20 25 32 40</td></tr> <tr><td>MAC, MAR, MACD, MACJ</td><td>20 25 32 40 50 63</td></tr> </table>	Model	Bore size	MA, MSA, MTA, MAD, MAJ	16 20 25 32 40	MAC, MAR, MACD, MACJ	20 25 32 40 50 63	<b>Back cover</b> <table border="1"> <tr><td>Model</td><td>Back cover</td></tr> <tr><td>MA,MAC</td><td>CA: Pivot type</td></tr> <tr><td>MSA</td><td>U: Flat-end type</td></tr> <tr><td>MTA</td><td>CM: Round-end type</td></tr> <tr><td>Others</td><td>No this code</td></tr> </table>	Model	Back cover	MA,MAC	CA: Pivot type	MSA	U: Flat-end type	MTA	CM: Round-end type	Others	No this code										
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<b>Stroke</b> Refer to stroke table for details	<b>Magnet</b> S: With magnet																										
<b>Adjustable stroke</b> <table border="1"> <tr><td>Model</td><td>Adjustable stroke</td></tr> <tr><td rowspan="6">MAJ MACJ</td><td>10: 10mm</td></tr> <tr><td>20: 20mm</td></tr> <tr><td>30: 30mm</td></tr> <tr><td>40: 40mm</td></tr> <tr><td>50: 50mm</td></tr> <tr><td>75: 75mm</td></tr> <tr><td>100: 100mm</td></tr> <tr><td>Others</td><td>No this code</td></tr> </table>	Model	Adjustable stroke	MAJ MACJ	10: 10mm	20: 20mm	30: 30mm	40: 40mm	50: 50mm	75: 75mm	100: 100mm	Others	No this code															
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 245 for accessory parts.

② Standard thread is blank here.





# Mini cylinder(Stainless steel)

## MA Series

**MSA**     $\Phi 16 \sim \Phi 40$

Item	A			A1			B			C			D	D1	E	F	G	H
	$\leq 50$	51~100	$\geq 101$	$\leq 50$	51~100	$\geq 101$	$\leq 50$	51~100	$\geq 101$	$\leq 50$	51~100	$\geq 101$						
16	139	164	-	123	148	-	38	85	110	-	16	16	22	16	10	16		
20	162	187	212	141	166	191	40	101	126	151	21	12	28	12	16	20		
25	166	191	216	145	170	195	44	101	126	151	21	14	30	14	16	22		
32	172	197	222	145	170	195	44	101	126	151	27	14	30	14	16	22		
40	174	199	224	147	172	197	46	101	126	151	27	14	32	14	16.7	24		

Bore size\Item	J	K	L	M	P	Q	R	S	U	V	W	X	AR	AX	AY	
16	10	5	M6 × 1.0	M16 × 1.5	14	6	12	14	9	21	6	5	M5 × 0.8	6	25	22
20	12	6	M8 × 1.25	M22 × 1.5	10	8	16	19	12	27	8	6	1/8"	7	33	29
25	17	6	M10 × 1.25	M22 × 1.5	12	8	16	19	12	30	10	8	1/8"	7	33	29
32	17	6	M10 × 1.25	M24 × 2.0	12	10	16	25	15	35	12	10	1/8"	8	37	32
40	17	7	M12 × 1.25	M30 × 2.0	12	12	20	25	15	41.6	16	14	1/8"	9	47	41



MA

**MTA**     $\Phi 16 \sim \Phi 40$

Item	A				A1				B	C				D	D1	E	F
	$\leq 25$	$\leq 50$	$\leq 75$	$\leq 100$	$\leq 25$	$\leq 50$	$\leq 75$	$\leq 100$		$\leq 25$	$\leq 50$	$\leq 75$	$\leq 100$				
16	129	139	154	164	113	123	138	148	38	75	85	100	110	16	16	22	16
20	152	162	177	187	131	141	156	166	40	91	101	116	126	21	12	28	12
25	156	166	181	191	135	145	160	170	44	91	101	116	126	21	14	30	14
32	162	172	192	192	135	145	165	165	44	91	101	121	121	27	14	30	14
40	164	174	194	204	137	147	167	177	46	91	101	121	131	27	14	32	14

Bore size\Item	G	H	I	J	K	L	M	P	Q	R	S	U	V	W	X	AR	AX	AY
16	10	16	10	5	M6 × 1.0	M16 × 1.5	14	6	12	14	9	21	6	5	M5 × 0.8	6	25	22
20	16	20	12	6	M8 × 1.25	M22 × 1.5	10	8	16	19	12	27	8	6	1/8"	7	33	29
25	16	22	17	6	M10 × 1.25	M22 × 1.5	12	8	16	19	12	30	10	8	1/8"	7	33	29
32	16	22	17	6	M10 × 1.25	M24 × 2.0	12	10	16	25	15	35	12	10	1/8"	8	37	32
40	16.7	24	17	7	M12 × 1.25	M30 × 2.0	12	12	20	25	15	41.6	16	14	1/8"	9	47	41



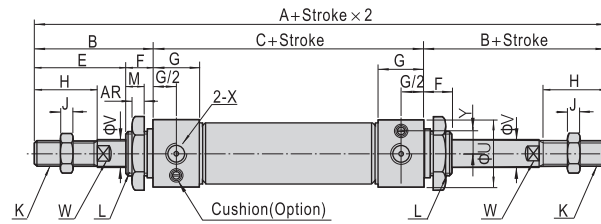
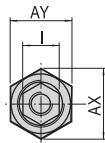
# Mini cylinder(Stainless steel)



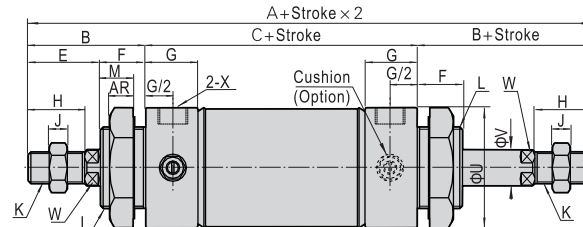
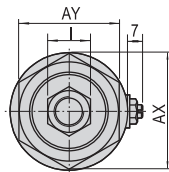
## MA Series

### MAD, MACD

Φ 16~Φ 40



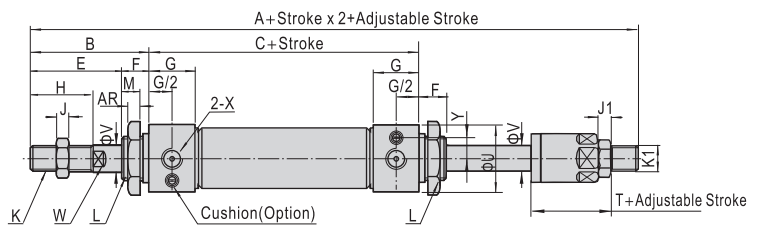
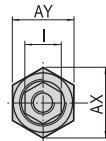
Φ 50, Φ 63



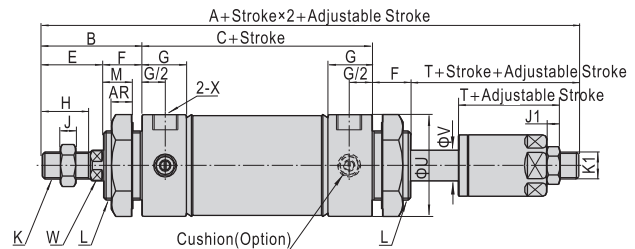
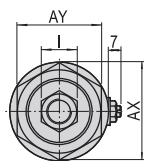
Bore size\Item	A	B	C	E	F	G	H	I	J	K	L	M	U	V	W	X	AR	AX	AY	Y
16	136	38	60	22	16	10	16	10	5	M6 × 1.0	M16 × 1.5	14	21	6	5	M5 × 0.8	6	25	22	-
20	156	40	76	28	12	16	20	12	6	M8 × 1.25	M22 × 1.5	10	27	8	6	1/8"	7	33	29	8.7
25	164	44	76	30	14	16	22	17	6	M10 × 1.25	M22 × 1.5	12	30	10	8	1/8"	7	33	29	10.2
32	164	44	76	30	14	16	22	17	6	M10 × 1.25	M24 × 2.0	12	35	12	10	1/8"	8	37	32	12
40	168	46	76	32	14	16.7	24	17	7	M12 × 1.25	M30 × 2.0	12	41.6	16	14	1/8"	9	47	41	15
50	199	52	95	32	20	23	24	19	8	M14 × 1.5	M36 × 2.0	15	53	16	14	1/4"	11	53	46	-
63	199	52	95	32	20	23	24	19	8	M14 × 1.5	M36 × 2.0	15	67	16	14	1/4"	11	53	46	-

### MAJ, MACJ

Φ 16~Φ 40



Φ 50, Φ 63



Bore size\Item	A	B	C	E	F	G	H	I	J	J1	K	K1
16	135	38	60	22	16	10	16	10	5	5	M6 × 1.0	M6 × 1.0
20	153	40	76	28	12	16	20	12	6	6	M8 × 1.25	M8 × 1.25
25	161	44	76	30	14	16	22	17	6	6	M10 × 1.25	M10 × 1.25
32	161	44	76	30	14	16	22	17	6	6	M10 × 1.25	M10 × 1.25
40	164	46	76	32	14	16.7	24	17	7	7	M12 × 1.25	M12 × 1.25
50	195	52	95	32	20	23	24	19	8	7	M14 × 1.5	M12 × 1.25
63	195	52	95	32	20	23	24	19	8	7	M14 × 1.5	M12 × 1.25

Bore size\Item	L	M	U	V	W	X	AR	AX	AY	Y	T
16	M16 × 1.5	14	21	6	5	M5 × 0.8	6	25	22	-	21
20	M22 × 1.5	10	27	8	6	1/8"	7	33	29	8.7	25
25	M22 × 1.5	12	30	10	8	1/8"	7	33	29	10.2	27
32	M24 × 2.0	12	35	12	10	1/8"	8	37	32	12	27
40	M30 × 2.0	12	41.6	16	14	1/8"	9	47	41	15	28
50	M36 × 2.0	15	53	16	14	1/4"	11	53	46	-	28
63	M36 × 2.0	15	67	16	14	1/4"	11	53	46	-	28



MA

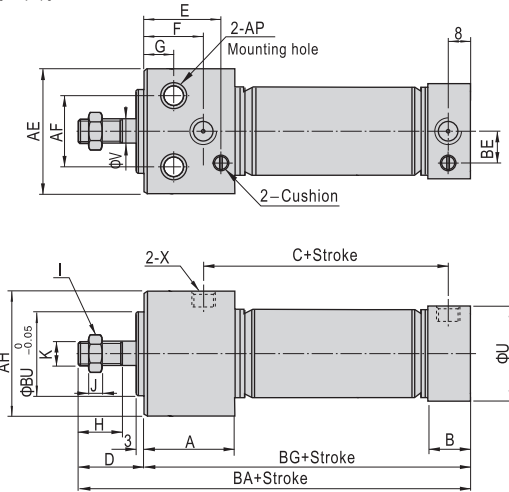
# Mini cylinder(Stainless steel)



## MA Series

### MARU(Up mounting type)

Φ20~Φ40



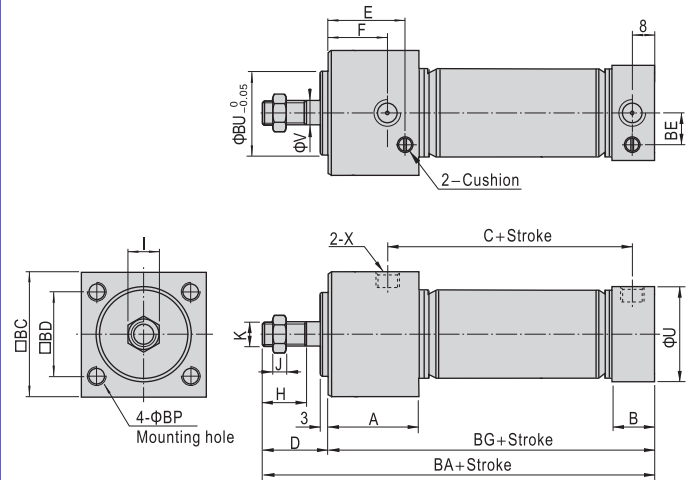
Bore size\Item	A	B	C	D	E	F	G	H	I	J	K	U	V
20	29	16	59	31	24	22	12	20	13	5	M8 × 1.25	27	8
25	29	16	59	33	24	22	12	22	17	6	M10 × 1.25	30	10
32	29	16	59	33	25	22	12	22	17	6	M10 × 1.25	35	12
40	37.5	16.6	62	35	31	27	15	24	19	8	M14 × 1.5	41.6	16

Bore size\Item	X	AE	AF	AP	AH	BA	BE	BG	BU
20	1/8"	33.5	21	Φ9.5 Dp:6.5 Thru.hole: Φ5.5	30.3	120	8.7	89	20
25	1/8"	39	25	Φ11.0 Dp:7.5 Thru.hole: Φ6.6	36.3	122	10.2	89	26
32	1/8"	47	30	Φ14.0 Dp:10 Thru.hole: Φ9.0	42.3	122	12	89	26
40	1/8"	58.5	38	Φ17.5 Dp:12.5 Thru.hole: Φ11	52.3	132.6	15	97.6	32

### MARF(Front mounting type)

Φ20~Φ40

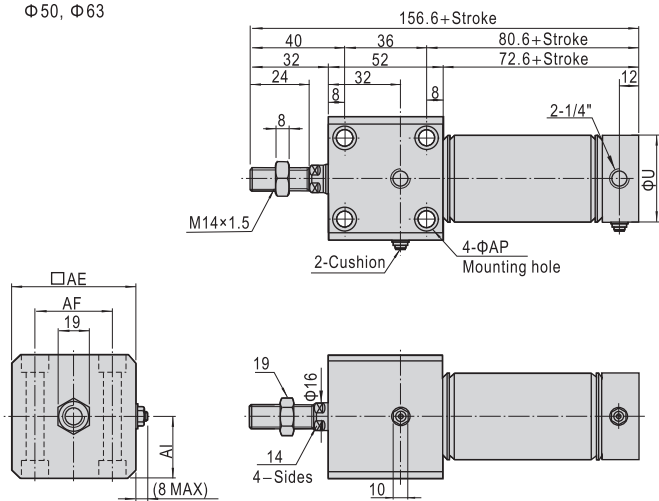


Bore size\Item	A	B	C	D	E	F	H	I	J	K	U
20	29	16	59	31	24	22	20	13	5	M8 × 1.25	27
25	29	16	59	33	24	22	22	17	6	M10 × 1.25	30
32	29	16	59	33	25	22	22	17	6	M10 × 1.25	35
40	37.5	16.6	62	35	31	27	24	19	8	M14 × 1.5	41.6

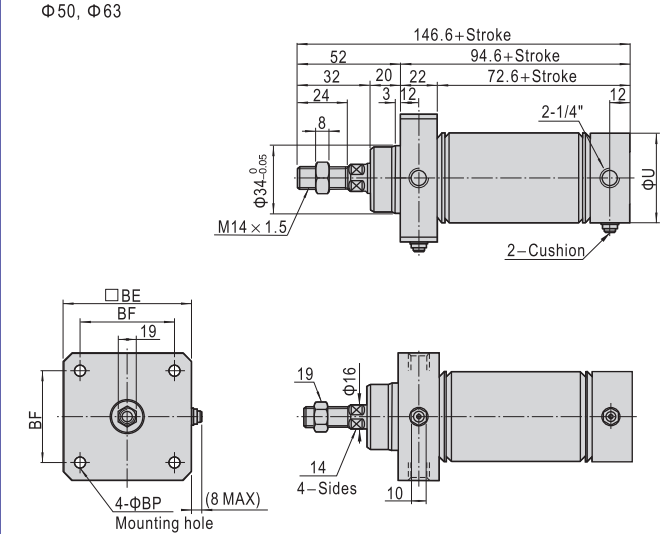
Bore size\Item	V	X	BA	BC	BD	BE	BG	BP	BU
20	8	1/8"	120	30.5	22	8.7	89	M5 × 0.8 Dp:9	20
25	10	1/8"	122	36.5	26	10.2	89	M6 × 1.0 Dp:11	26
32	12	1/8"	122	42.5	30	12	89	M6 × 1.0 Dp:11	26
40	16	1/8"	132.6	52.5	36	15	97.6	M8 × 1.25 Dp:14	32

Φ50, Φ63



Bore size\Item	U	AE	AF	AI	AP
50	53	62	44	31	Both sides: Φ11.0 Dp:6.5 Thru.hole: Φ6.6
63	67	74	48	37	Both sides: Φ14.0 Dp:8.5 Thru.hole: Φ9.0

Φ50, Φ63



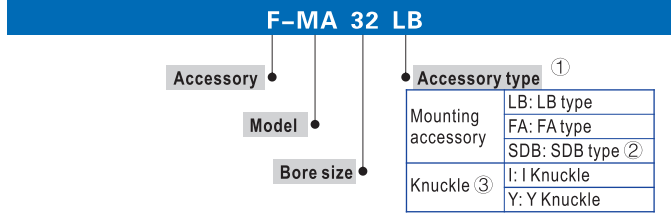
Bore size\Item	U	BE	BF	BP
50	53	62	48	6.6
63	67	74	58	9.0



# Mini cylinder(Stainless steel)

## Accessories

### Ordering code



- ① Please refer to accessory list for selection and ordering information.
- ② SDB is attached with relevant PIN.
- ③ Please refer to page 417, 418 for others knuckle.

### 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 P415-418 for knuckle detail,
- ② Please refer to P419-442 for detail of sensor switch.

### Material of accessories

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

○—Low carbon steel, □—Carbon steel.

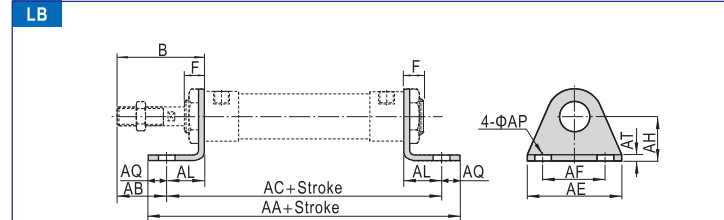
### List for ordering code of accessories

Accessories	Mounting accessory		
	LB	FA	SDB
Bore size	LB	FA	SDB
16	F-MA16LB	F-MA16FA	F-MA16SDB
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	-	-	-

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
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	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-MAC50I	F-MAC50Y	F-M14X150F	F-M14X150U

Accessories	Sensor switch					
	CS1-M □	DS1-M □	CS1-F	DS1-F	CS1-U	DS1-U
Bore size	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	-	-	-	-
63	CS1-M-S63	DS1-M-S63	CS1-F	DS1-F	CS1-U	DS1-U

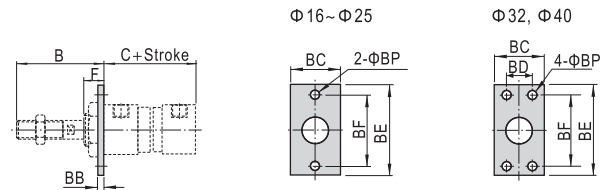
### Dimensions



Bore size\Item	AA	AA(MSA)			AC	AC(MSA)		
		0-50	51-100	101-150		0-50	51-100	101-150
Stroke	(MA)	0-50	51-100	101-150	(MA)	0-50	51-100	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

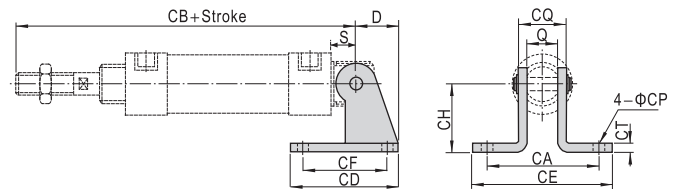
Bore size\Item	B	F	AB	AE	AF	AL	AQ	AP	AT	AH
16	38	16	25	44	32	13	6	5.5	3	20
20	40	12	25	54	40	15	8	6.5	3	25
25	44	14	29	54	40	15	8	6.5	3	25
32	44	14	19	59	45	25	8	6.5	4	32
40	46	14	21	64	50	25	8	6.5	4	36

### FA



Bore size\Item	Stroke	B	C	C(MSA)			BB	BC	BD	BE	BF	BP	F
				(MA)	0-50	51-100							
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	CB(MSA)			CD	CE	CF	CH	CT	CP	CQ
							(MA)	0-50	51-100							
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	

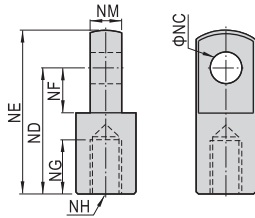


MA

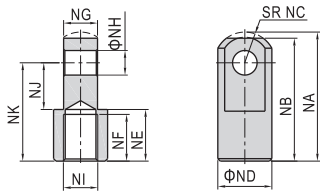
# Mini cylinder(Stainless steel)

## Accessories

### 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

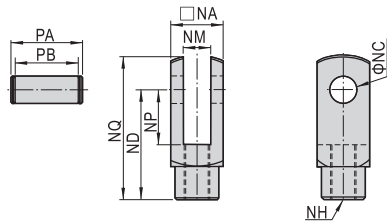


Type\Item	NA	NB	NC	ND	NE	NF	NG	NH	NJ	NK	NI
F-MAC50I	52.5	50	12.5	22	21	19	13.8	10	19	40	M14×1.5

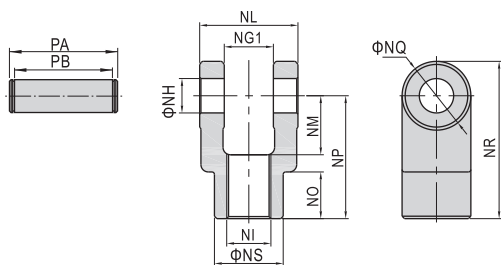


MA

### 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-MA20Y	16	8	30	15	40	8	M8×1.25	21.6	16.8
F-MA25Y	19	10	40	20	52	10	M10×1.25	25.6	19.8
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

