MCMA series

MINIATURE CYLINDER

Features

■ Non lubrication

- Special housing and bushing enables self lubrication of piston rod.

■ High quality long service life

- Hard anodised stainless steel cylinder tubes offer a high resistance to corrosion and low internal friction.
- Cylinder mountings, available with a comprehensive range of accessories for rigid or flexible mounting.
- Operation, with the exception of MCMA-11, single and doubling type available MCMA-13 / 15.

■ Magnetic as standard.

Specification

Model		MCMA				
Tube I.D. (mm)		16	20	25	32	40
Port size		M5×0.8	Rc1/8			
Medium		Air				
Max. operating pressure		0.7 MPa				
Min. operating pressure		Double: 0.06 MPa ; Single: 0.15 MPa				
Proof pressure		1 MPa				
Available speed range		50~500 mm/sec				
Max. allowable kinetic energy (J)	Cushion pad	0.16	0.27	0.4	0.65	1.2
	Adjustable cushion	0.32	0.54	0.78	1.27	2.35
Ambient temperature		−5~+60℃ (No freezing)				
Lubricator		Not required				
Sensor switch (band) (※)	RCA	(Matching the BA20~BA40 band) (Matching the BGS20~BGS40 band)				
	RCM	(Matching the BM16~BM40 band)				
	RCS	(Matching the BJ16 band)				

※ RCA, RCM, RCS specification, please refer to page **8-6**, **13**, **14**.
※ The code of sensor switch band is BM16. "16" represents the tube I.D.

Table for standard stroke

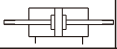
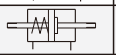
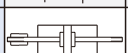
	Tube I.D.	Stroke (mm)
Single Acting	ϕ16	15, 25, 50, 75, 100
	ϕ20, 25, 32	15, 25, 50, 75, 100, 125, 150
Double Acting	ϕ16	15, 25, 50, 75, 100, 125, 150, 200, 250, 300, 350, 400, 450, 500
	ϕ20, 25, 32, 40	15, 25, 50, 75, 100, 125, 150, 200, 250, 300, 350, 400, 450, 500

- Stroke out of specification is also available.
- Please consult us if stroke out of specification.

Order example

MCMA − 11 − 32 − 100 − A − N − □

- MODEL
- STYLE
  - **1**: Single Rod
  - **2**: Double Rod
- TUBE I.D.
- STROKE
  - Blank: With cushion pad
  - **A**: With adjustable cushion
- Blank: Standard
  - **N**: Non-pivot type (end-plain)
- PORT THREAD
  - Blank: M5×0.8 (for ϕ16)
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread (for ϕ20~ϕ40)

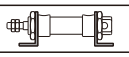
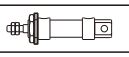
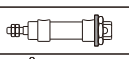
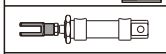
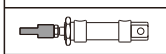
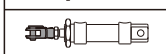
Code		Symbol	Description
1	1		Double acting / Male thread
1	3		Single acting / Normally extended male thread
1	5		Single acting / Normally returned male thread
2	1		Double rod / Male thread
2	3		Single action / Double rod male thread
2	7		Double rod / Adjustable male thread Please mark "adjustable distance(mm)" at order list

※ Order example for special specification, refer to page **0-7**.

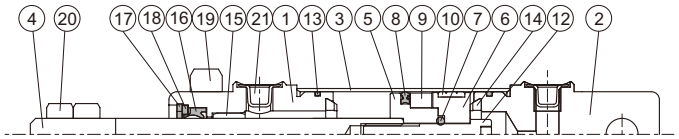
Mounting accessories

FA − MCMA − 32

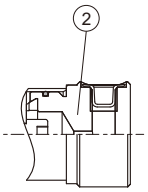
- MODEL
- TUBE I.D.
- MOUNTING TYPE

	**LB**
	**FA**
	**FB**
	**SDB**
	**Y**
	**I**
	**YS** (Y+Floating pin)

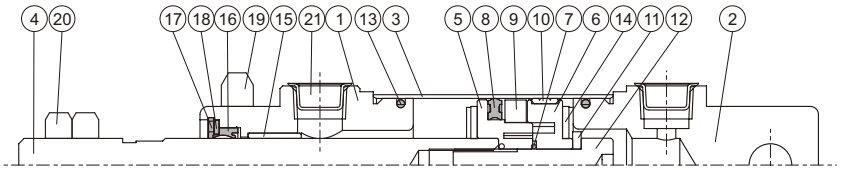
ϕ16, ϕ20



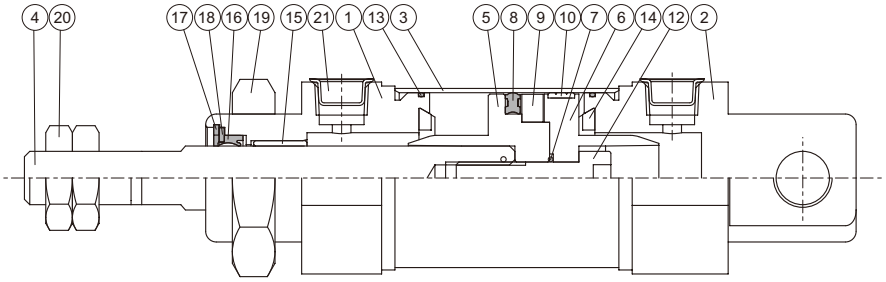
N type: ϕ16~ϕ40



ϕ25



ϕ32, ϕ40



Material

No.	Part name \ Tube I.D.	16	20	25	32	40	Q'y 11 type	Q'y 21 type	Component parts (inclusion) 11 type	Component parts (inclusion) 21 type	Repair kits (inclusion)
1	Rod cover	Aluminum alloy					1	2	●	●	
2	Head cover	Aluminum alloy					1	—	●		
3	Tube	Stainless steel					1	1			
4	Piston rod	※1	Carbon steel				1	1			
5	Piston-R	Aluminum alloy	※2	Aluminum alloy			1	1	●	●	
6	Piston-H	Aluminum alloy	※2	Aluminum alloy			1	1	●	●	
7	Piston gasket	NBR					1	1	●	●	
8	Piston packing	NBR					1	1	●	●	
9	Magnet ring	Magnet material					1	1	●	●	
10	Wear ring	Teflon + Graphite					1	1	●	●	
11	Washer	—		※3		—	1	—	●		
12	Piston bolt	SCM					1	—	●		
13	Cover ring	NBR					2	2	●	●	
14	Cushion gasket	NBR					2	2	●	●	
15	Rod bush	Bearing alloy					1	2	●	●	
16	Rod packing	NBR					1	2	●	●	●
17	Snap ring	Spring steel					1	2	●	●	
18	Washer	Carbon steel					1	2	●	●	
19	Tie nut	Carbon steel					1	2	●	●	
20	Rod front nut	Carbon steel					2	2	●	●	
21	Port plug	Plastic					2	2	●	●	

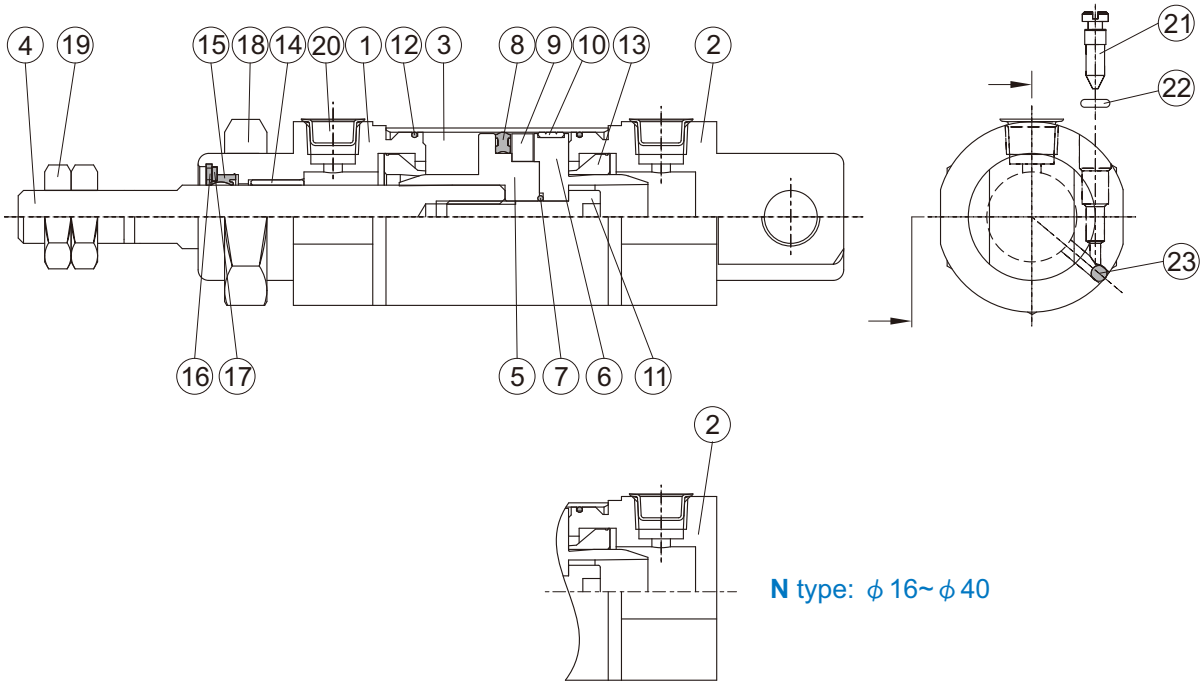
※1. Stainless steel ※2. Polyurethane ※3. Carbon steel

Order example of component parts / repair kits

Tube I.D.	Component parts	Repair kits
ϕ16	**CP-MCMA-16**	**PS-MCMA-16**
ϕ20	**CP-MCMA-20**	**PS-MCMA-20**
ϕ25	**CP-MCMA-25**	**PS-MCMA-25**
ϕ32	**CP-MCMA-32**	**PS-MCMA-32**
ϕ40	**CP-MCMA-40**	**PS-MCMA-40**

Non-pivot type (end-plain)

Tube I.D.	Component parts
ϕ16	**CP-MCMA-16-N**
ϕ20	**CP-MCMA-20-N**
ϕ25	**CP-MCMA-25-N**
ϕ32	**CP-MCMA-32-N**
ϕ40	**CP-MCMA-40-N**



Material

No.	Part name \ Tube I.D.	16	20	25	32	40	Q'y 11 type	Q'y 21 type	Componentn parts (inclusion) 11 type	Componentn parts (inclusion) 21 type	Repair kits (inclusion)
1	Rod cover	Aluminum alloy					1	2	●	●	
2	Head cover	Aluminum alloy					1	—	●		
3	Tube	Stainless steel					1	1			
4	Piston rod	※1	Carbon steel				1	1			
5	Piston-R	※2			※3	※2	1	1	●	●	
6	Piston-H	※2			※3	※2	1	1	●	●	
7	Piston gasket	NBR					1	1	●	●	
8	Piston packing	NBR					1	1	●	●	
9	Magnet ring	Magnet material					1	1	●	●	
10	Wear ring	Teflon + Graphite					1	1	●	●	
11	Piston bolt	SCM					1	—	●		
12	Cover ring	NBR					2	—	●	●	
13	Cushion packing	NBR					2	2	●	●	
14	Rod bush	Bearing alloy					1	2	●	●	
15	Rod packing	NBR					1	2	●	●	●
16	Snap ring	Spring steel					1	2	●	●	
17	Washer	Carbon steel					1	2	●	●	
18	Tie nut	Carbon steel					1	2	●	●	
19	Rod front nut	Carbon steel					2	2	●	●	
20	Port plug	Plastic					2	2	●	●	
21	Needle valve	※1		Carbon steel			2	2	●	●	
22	Needle valve packing	NBR					2	2	●	●	●
23	Steel ball	Stainless steel					2	2	●	●	

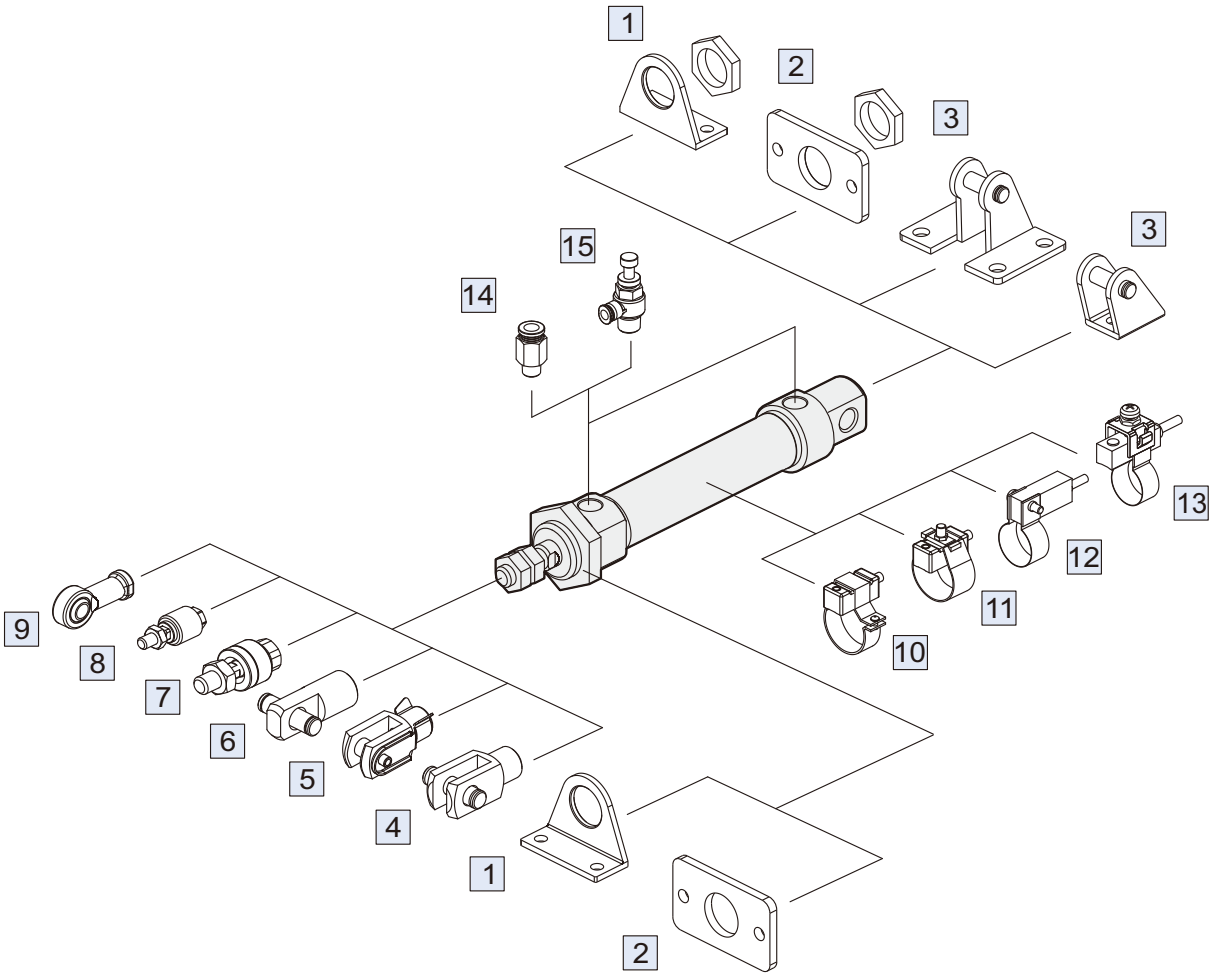
※1. Stainless steel ※2. Aluminum alloy ※3. Polyurethane

Order example of component parts / repair kits

Tube I.D.	Component parts	Repair kits
ϕ16	CP-MCMA-16A	PS-MCMA-16A
ϕ20	CP-MCMA-20A	PS-MCMA-20A
ϕ25	CP-MCMA-25A	PS-MCMA-25A
ϕ32	CP-MCMA-32A	PS-MCMA-32A
ϕ40	CP-MCMA-40A	PS-MCMA-40A

Non-pivot type (end-plain)

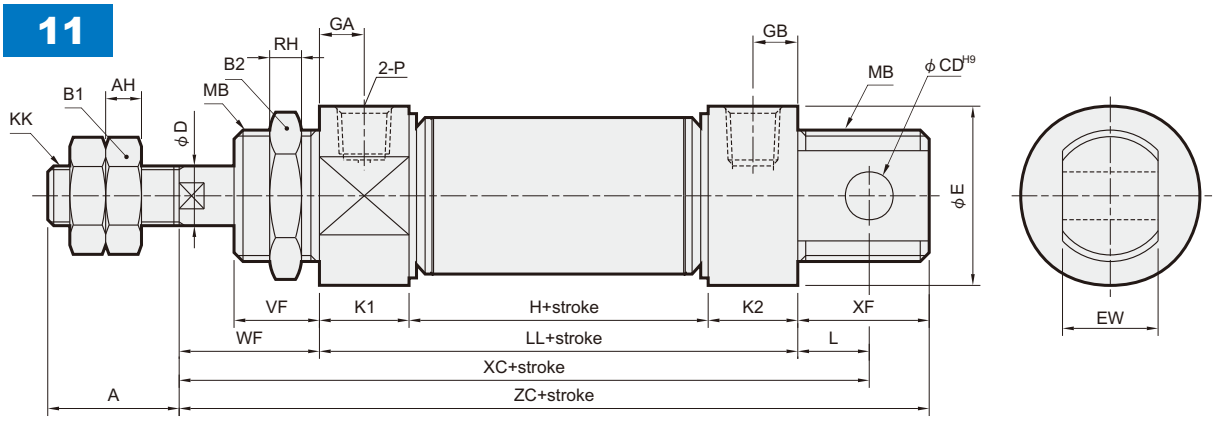
Tube I.D.	Component parts
ϕ16	CP-MCMA-16A-N
ϕ20	CP-MCMA-20A-N
ϕ25	CP-MCMA-25A-N
ϕ32	CP-MCMA-32A-N
ϕ40	CP-MCMA-40A-N



No.	Accessories	Page
1	Mounting accessories LB	3-7, 12
2	Mounting accessories FA/FB	3-8, 13
3	Mounting accessories SDB+PIN	3-8, 13, 14
4	Accessories Y+PIN	3-14
5	Accessories YS (Y+Floating pin)	3-14
6	Accessories I+PIN	3-14
7	Floating joint MFC	8-2
8	Floating joint MFCS	8-4

No.	Accessories	Page
9	Female rod ends PHS	8-5
10	Sensor switch RCA+BGS**	8-6
11	Sensor switch RCA+BA**	8-6
12	Sensor switch RCM+BM**	8-13
13	Sensor switch RCS+BJ 16	8-14
14	Fitting PC (PISCO)	8-5 (Vol.1)
15	Speed controller JSC (PISCO)	8-18 (Vol.1)

11



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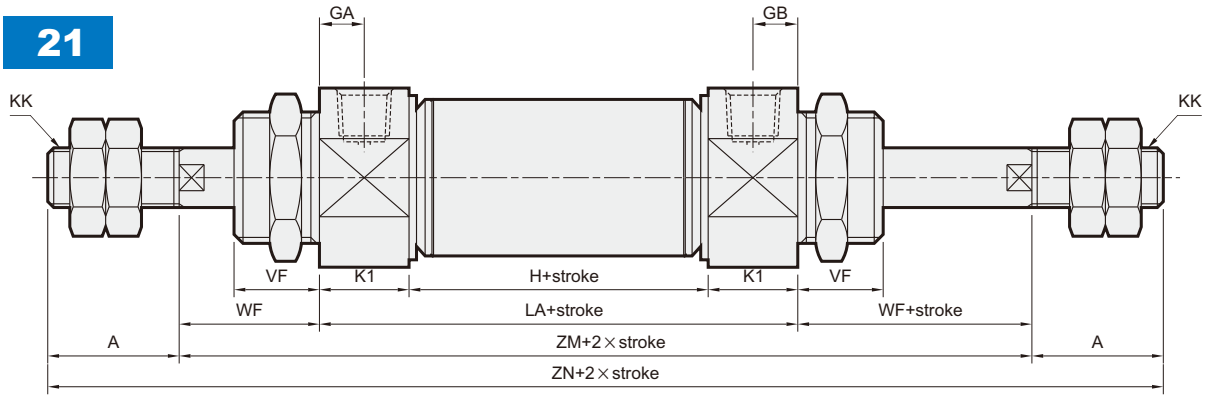
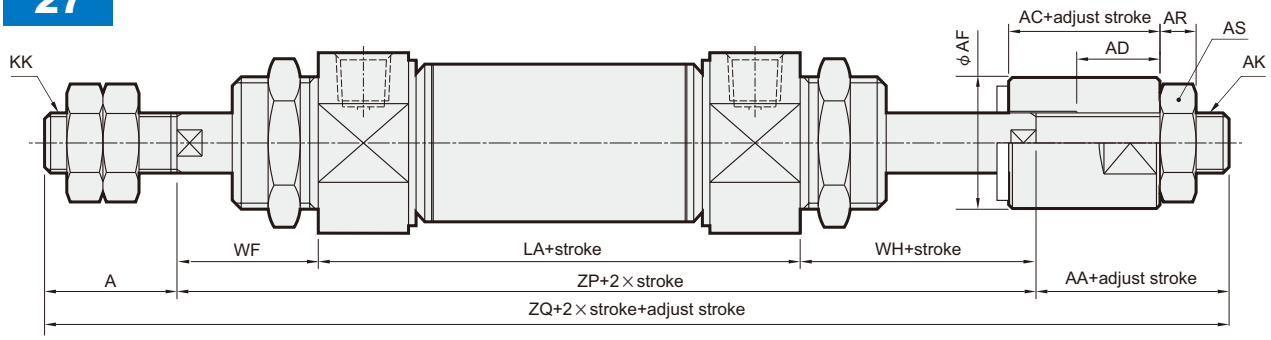


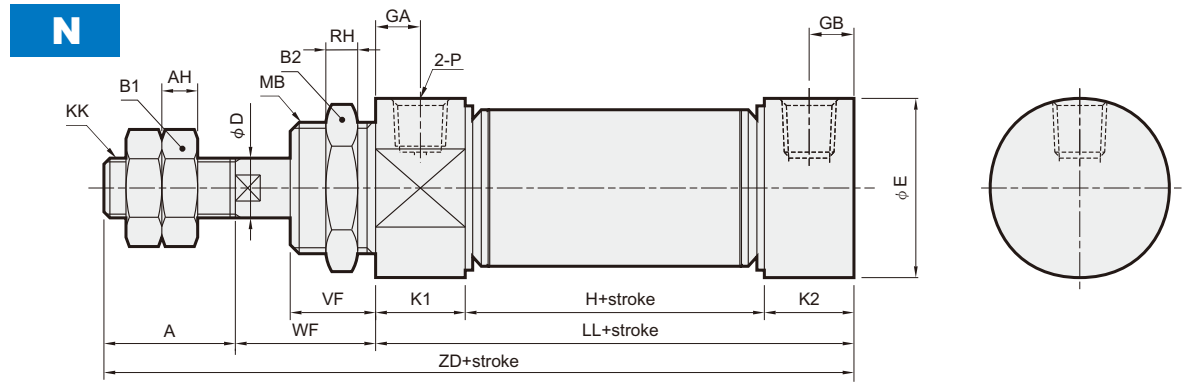
27



Code / Tube I.D.	A	AA	AC	AD	AF	AH	AR	AS	AK	B1	B2	CD	D	E	EW	GA	GB	H	KK
16	16	16	13	7.5	12	5	4	8	M5×0.8	10	22	6	6	19.7	$12^{-0.05}_{-0.4}$	5	5	34	M6×1.0
20	20	19	15	9.5	16	5	5	13	M8×1.25	13	30	8	8	26.7	$16^{-0.05}_{-0.4}$	7.5	7.5	40	M8×1.25
25	22	19	15	9.5	16	5	5	13	M8×1.25	17	30	8	10	29.7	$16^{-0.05}_{-0.4}$	7.5	7.5	40	M10×1.25
32	22	18	12	7	20	5	6	17	M10×1.25	17	32	10	12	36	$16^{-0.05}_{-0.4}$	7.5	10.5	37	M10×1.25
40	30	18	12	7	30	7	7	19	M12×1.25	19	41	12	14	45	$20^{-0.05}_{-0.4}$	7.5	10.5	42	M12×1.25

Code / Tube I.D.	K1	K2	L	LA	LL	MB	P	RH	VF	WF	WH	XC	XF	ZC	ZM	ZN	ZP	ZQ
16	10	10	9	54	54	M16×1.5	M5×0.8	6	12	22	19.5	85	16	92	98	130	95.5	127.5
20	15	15	12	70	70	M22×1.5	Rc1/8	6	12	18	19.5	100	21	109	106	146	107.5	146.5
25	15	15	12	70	70	M22×1.5	Rc1/8	6	15	27	22.5	109	21	118	124	168	119.5	160.5
32	15	18	14	67	70	M24×2.0	Rc1/8	8	18	30	24	114	24	124	127	171	121	161
40	15	18	16	72	75	M30×2.0	Rc1/8	8	17	27	24	118	28	130	126	186	123	171

N

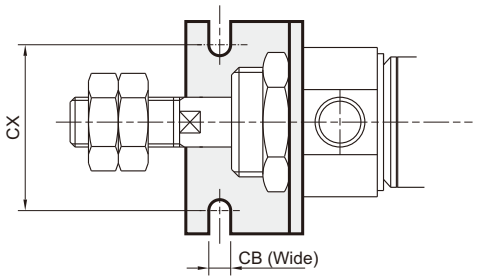


Code / Tube I.D.	A	AH	B1	B2	D	E	GA	GB	H	KK	K1	K2	LL	MB	P	RH	VF	WF	ZD
16	16	5	10	22	6	19.7	5	5	34	M6×1.0	10	10	54	M16×1.5	M5×0.8	6	12	22	92
20	20	5	13	30	8	26.7	7.5	7.5	40	M8×1.25	15	15	70	M22×1.5	Rc1/8	6	12	18	108
25	22	6	17	30	10	29.7	7.5	7.5	40	M10×1.25	15	15	70	M22×1.5	Rc1/8	6	15	27	119
32	22	6	17	32	12	36	7.5	10.5	37	M10×1.25	15	18	70	M24×2.0	Rc1/8	8	18	30	122
40	30	7	19	41	14	45	7.5	10.5	42	M12×1.25	15	18	75	M30×2.0	Rc1/8	8	17	27	132

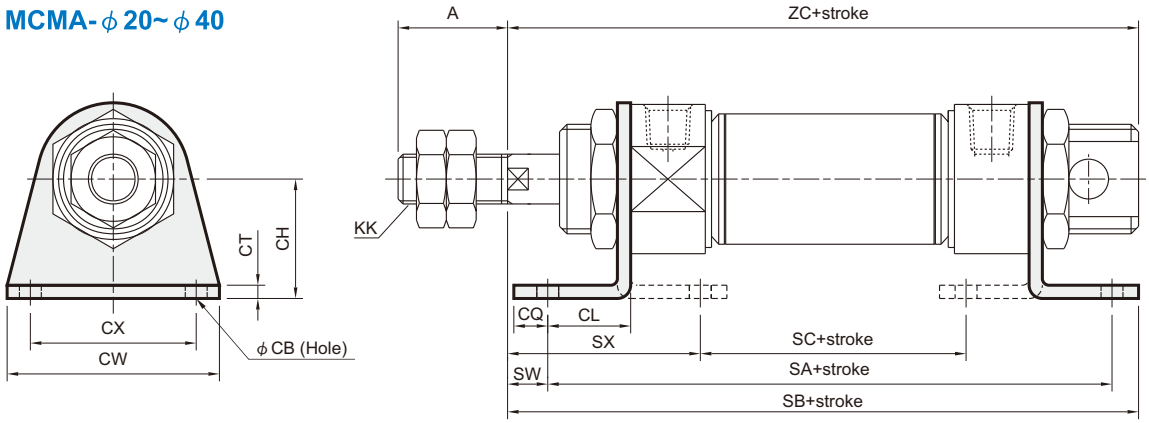
Mounting accessories

LB

MCMA-ϕ16

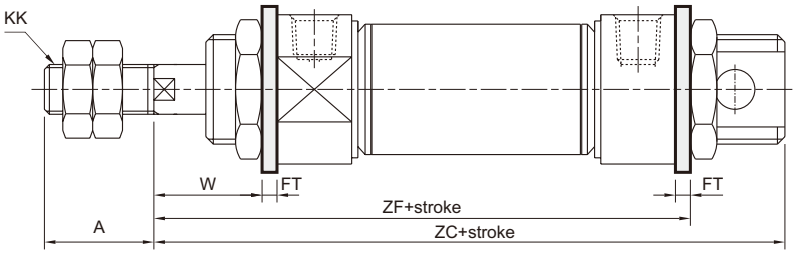


MCMA-ϕ20~ϕ40

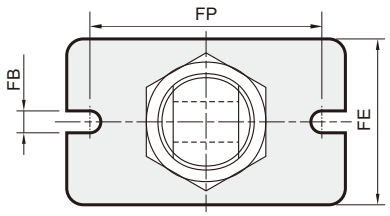


Code / Tube I.D.	A	CB	CH	CL	CQ	CT	CW	CX	KK	SA	SB	SC	SW	SX	ZC
16	16	5.5	20	13	6	3.2	44	32	M6×1.0	80	95	34.4	9	31.8	92
20	20	6.6	25	15	8	3.2	54	40	M8×1.25	100	111	46.4	3	29.8	109
25	22	6.6	25	15	8	3.2	54	40	M10×1.25	100	120	46.4	12	38.8	118
32	22	6.6	32	25	8	4	59	45	M10×1.25	120	133	28	5	51	124
40	30	6.6	36	25	8	4	64	50	M12×1.25	125	135	33	2	48	130

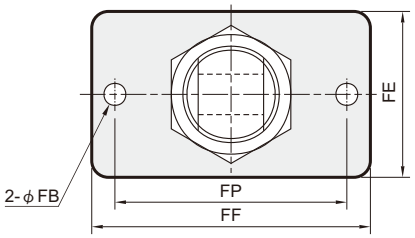
FA / FB



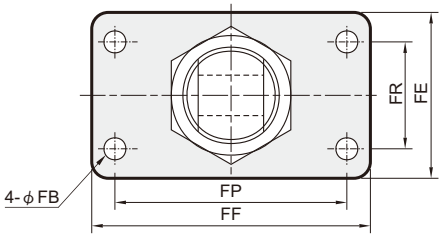
MCMA-ϕ 16



MCMA-ϕ 20. ϕ 25

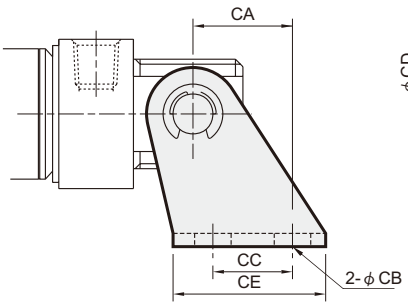


MCMA-ϕ 32. ϕ 40

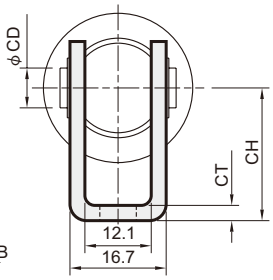


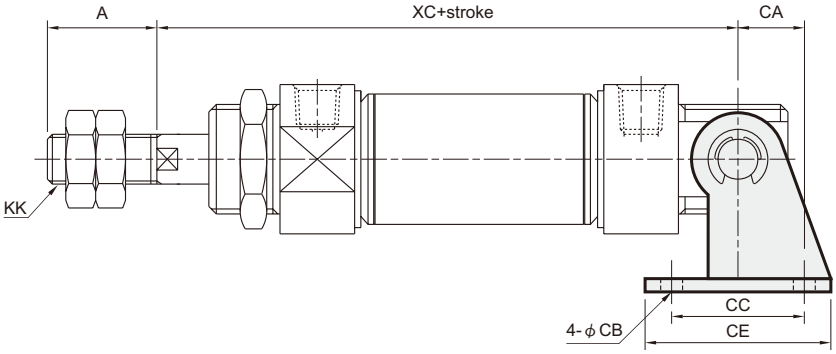
Code / Tube I.D	A	FB	FE	FF	FP	FR	FT	KK	W	ZC	ZF
16	16	5.5	26	52	40		3.2	M6×1.0	18.8	92	79.2
20	20	6.6	38	64	50		4.5	M8×1.25	13.5	109	92.5
25	22	6.6	38	64	50		4.5	M10×1.25	22.5	118	101.5
32	22	6.6	47	72	58	33	4.5	M10×1.25	25.5	124	104.5
40	30	6.6	50	84	70	36	4.5	M12×1.25	22.5	130	105.5

SDB

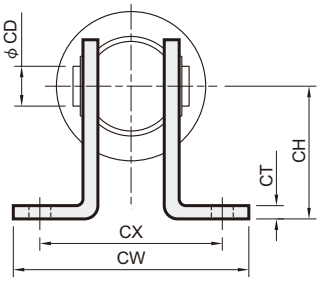


MCMA-ϕ 16



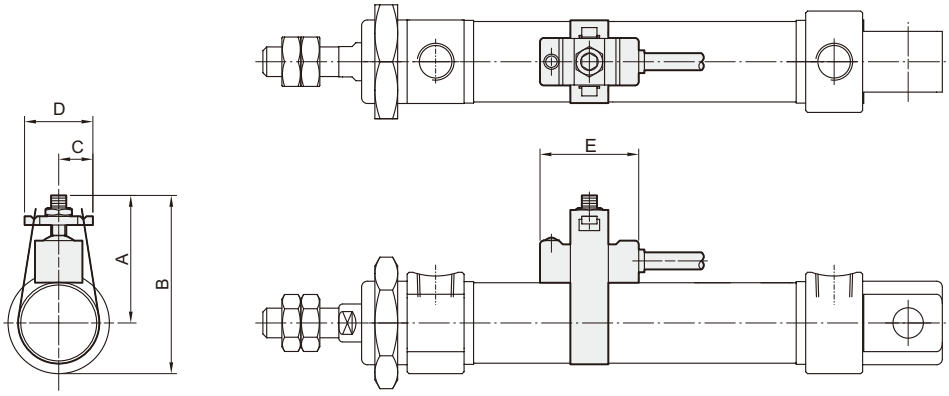


MCMA-ϕ 20~ϕ 40



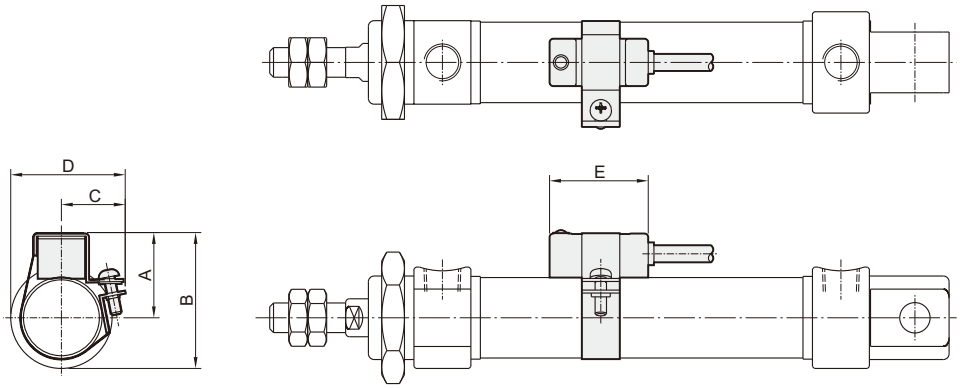
Code / Tube I.D	A	CA	CB	CC	CD	CE	CH	CT	CW	CX	KK	XC
16	16	15	5.5	12	6	23	20	2.3			M6×1.0	85
20	20	16	6.6	32	8	48	32	3.2	67	51	M8×1.25	100
25	22	16	6.6	32	8	48	32	3.2	67	51	M10×1.25	109
32	22	18	6.6	36	10	52	36	4	67	51	M10×1.25	114
40	30	20	6.6	40	12	56	40	4	69	53	M12×1.25	118

Sensor switch: RCA
Sensor switch band: BA**



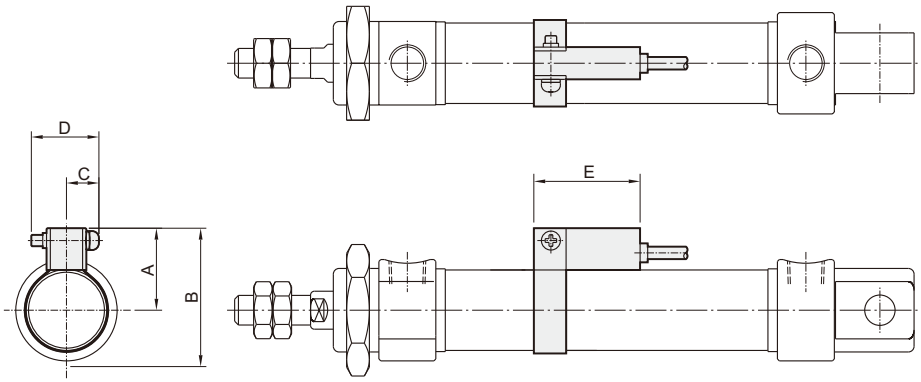
Code / Tube I.D.	A	B	C	D	E
20	33	46.5	9	18	26
25	35.5	50.5	9	18	26
32	39	57	9	18	26
40	43	65.5	9	18	26

Sensor switch: RCA
Sensor switch band: BGS**



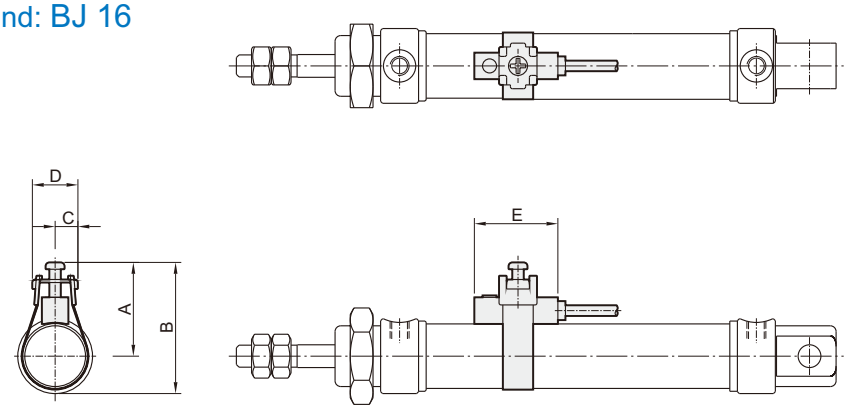
Code / Tube I.D.	A	B	C	D	E
20	25	38.5	18	30.5	26
25	25.5	40.5	18.5	31.5	26
32	29	47	22	39	26
40	33	55.5	26	47	26

Sensor switch: RCM
Sensor switch band: BM**



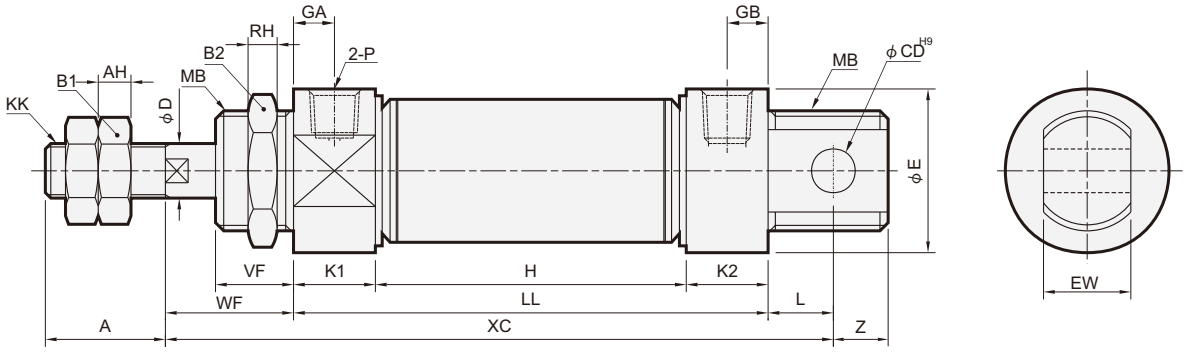
Code / Tube I.D.	A	B	C	D	E
16	20	30	10	16	28
20	22	36	10	16	28
25	25	40	10	16	28
32	28	46	10	16	28
40	32	55	10	16	28

Sensor switch: RCS
Sensor switch band: BJ 16



Code / Tube I.D.	A	B	C	D	E
16	23.4	33.3	6	12	22

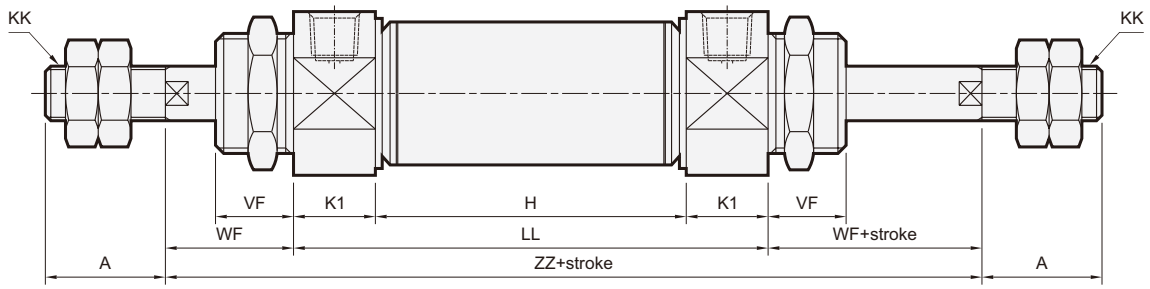
15



Code / Tube I.D	A	AH	B1	B2	CD	D	E	EW	GA	GB	KK	K1	K2	L	MB	P	RH	VF	WF	Z
16	16	5	10	22	6	6	19.7	$12^{-0.05}_{-0.4}$	5	5	M6×1.0	10	10	9	M16×1.5	M5×0.8	6	12	22	7
20	20	5	13	30	8	8	26.7	$16^{-0.05}_{-0.4}$	7.5	7.5	M8×1.25	15	15	12	M22×1.5	Rc1/8	6	12	18	9
25	22	6	17	30	8	10	29.7	$16^{-0.05}_{-0.4}$	7.5	7.5	M10×1.25	15	15	12	M22×1.5	Rc1/8	6	15	27	9
32	22	6	17	32	10	12	36	$16^{-0.05}_{-0.4}$	7.5	10.5	M10×1.25	15	18	14	M24×2.0	Rc1/8	8	18	30	10

Code / Stroke / I.D.	H							LL							XC						
	15	25	50	75	100	125	150	15	25	50	75	100	125	150	15	25	50	75	100	125	150
16	64	74	114	154	194			84	94	134	174	214			115	125	165	205	245		
20	80	90	140	190	240	290	340	110	120	170	220	270	320	370	140	150	200	250	300	350	400
25	80	90	140	190	240	290	340	110	120	170	220	270	320	370	149	159	209	259	309	359	409
32	77	87	137	187	237	287	337	110	120	170	220	270	320	370	154	164	214	264	314	364	414

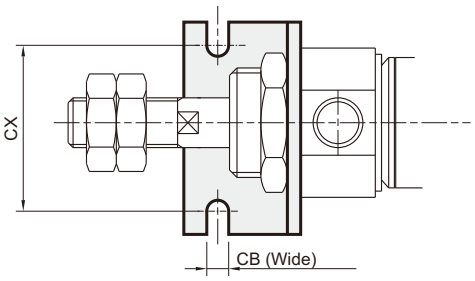
23



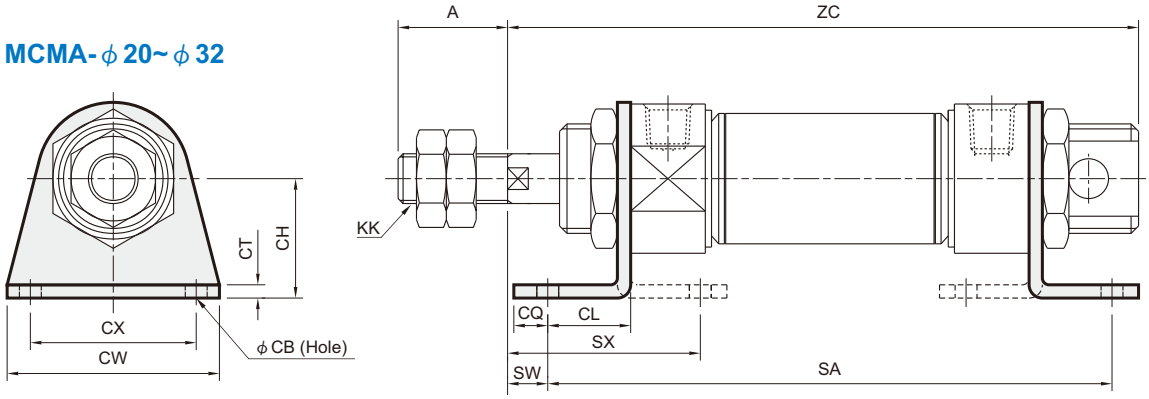
Code / Stroke / I.D.	H							LL							ZZ						
	15	25	50	75	100	125	150	15	25	50	75	100	125	150	15	25	50	75	100	125	150
16	64	74	114	154	194			84	94	134	174	214			125	135	175	215	255		
20	80	90	140	190	240	290	340	110	120	170	220	270	320	370	146	156	206	256	306	356	406
25	80	90	140	190	240	290	340	110	120	170	220	270	320	370	164	174	224	274	324	374	424
32	77	87	137	187	237	287	337	107	117	167	217	267	317	367	167	177	227	277	327	377	427

LB

MCMA-ϕ16



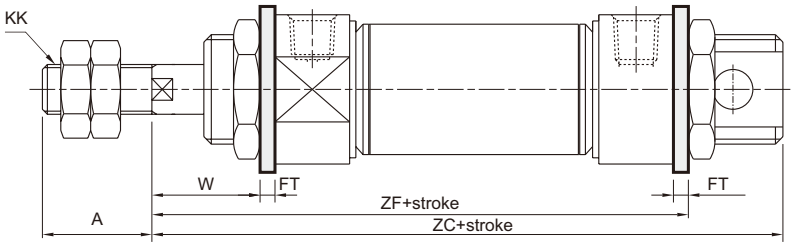
MCMA-ϕ20~ϕ32



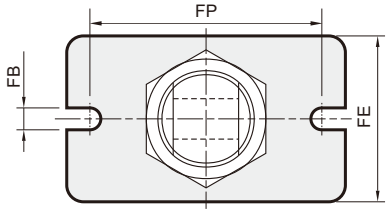
Code / Tube I.D.	A	CB	CH	CL	CQ	CT	CW	CX	KK	SW	SX
16	16	5.5	20	13	6	3.2	44	32	M6×1.0	9	31.8
20	20	6.6	25	15	8	3.2	54	40	M8×1.25	3	29.8
25	22	6.6	25	15	8	3.2	54	40	M10×1.25	12	38.8
32	22	6.6	32	25	8	4	59	45	M10×1.25	5	51

Code / Stroke / I.D.	SA							ZC						
	15	25	50	75	100	125	150	15	25	50	75	100	125	150
16	110	120	160	200	240			121	131	171	211	251		
20	140	150	200	250	300	350	400	146	156	206	256	306	356	406
25	140	150	200	250	300	350	400	155	165	215	265	315	365	415
32	160	170	220	270	320	370	420	162	172	222	272	322	372	422

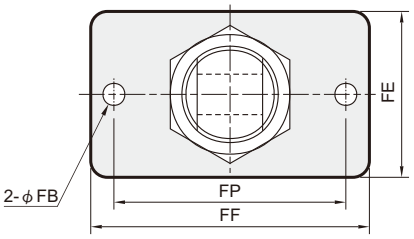
FA / FB



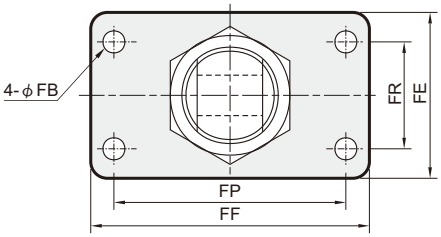
MCMA-ϕ16



MCMA-ϕ20. ϕ25



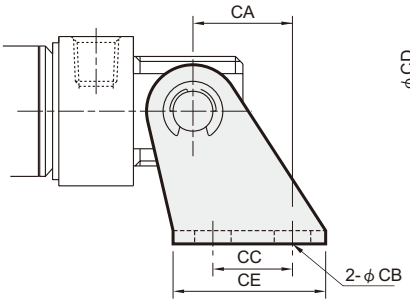
MCMA-ϕ32



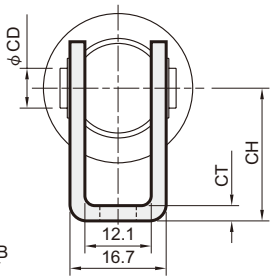
Code / Tube I.D.	A	FB	FE	FF	FP	FR	FT	KK	W
16	16	5.5	26	52	40		3.2	M6×1.0	18.8
20	20	6.6	38	64	50		4.5	M8×1.25	13.5
25	22	6.6	38	64	50		4.5	M10×1.25	22.5
32	22	6.6	47	72	58	33	4.5	M10×1.25	25.5

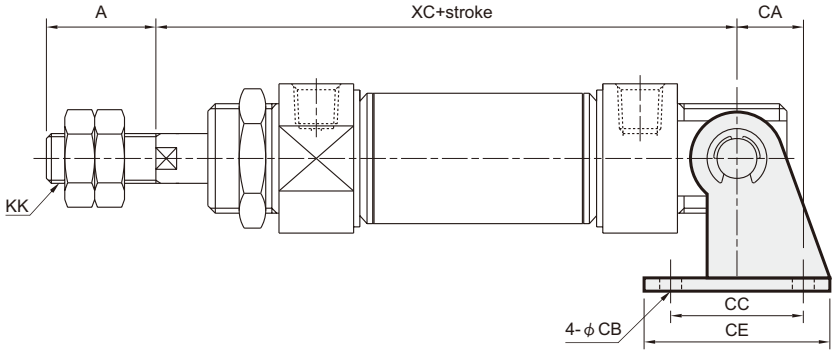
Code / Stroke / I.D.	ZC							ZF						
	15	25	50	75	100	125	150	15	25	50	75	100	125	150
16	121	131	171	211	251			109.2	119.2	159.2	199.2	239.2		
20	146	156	206	256	306	356	406	132.5	142.5	192.5	242.5	292.5	342.5	392.5
25	155	165	215	265	315	365	415	141.5	151.5	201.5	251.5	301.5	351.5	401.5
32	162	172	222	272	322	372	422	144.5	154.5	204.5	254.5	304.5	354.5	404.5

SDB

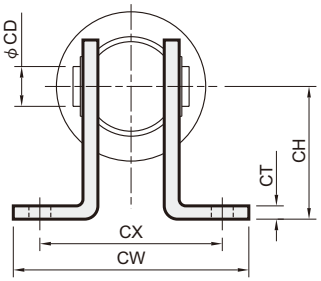


MCMA-ϕ16





MCMA-ϕ20~ϕ32

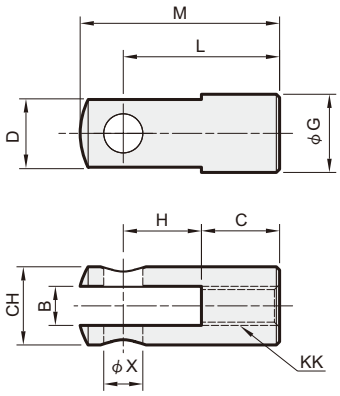


Code / Tube I.D.	A	CA	CB	CC	CD	CE	CH	CT	CX	CW	KK
16	16	15	5.5	12	6	23	20	2.3			M6×1.0
20	20	16	6.6	32	8	48	32	3.2	51	67	M8×1.25
25	22	16	6.6	32	8	48	32	3.2	51	67	M10×1.25
32	22	18	6.6	36	10	52	36	4	51	67	M10×1.25

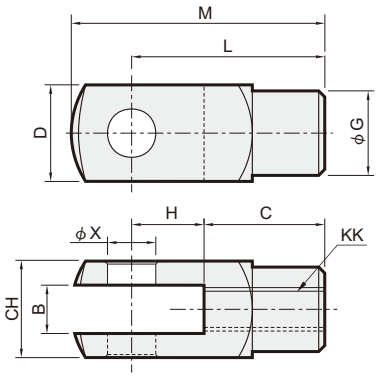
Code / Stroke / I.D.	XC						
	15	25	50	75	100	125	150
16	107	117	157	197	257		
20	139	149	199	249	299	349	399
25	141	151	172	222	272	322	372
32	142	152	173	223	273	323	373

Y connector

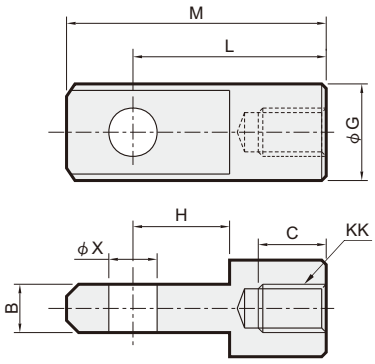
ϕ8 ~ ϕ16



ϕ20 ~ ϕ40



I connector



Code / Tube I.D.	B		C		CH		D		G		H		KK		L		M		X H9
	Y	I	Y	I	Y	I	Y	I	Y	I	Y	I	Y	I	Y	I	Y	I	
8,10	4 +0.4 +0.1		8		8		8				8		M4×0.7		16		20.75		4 +0.03 +0
12,16	6 +0.4 +0.1	6 −0.2 −0.3	12	8	12				12	12	12	10	M6×1		24	21	31	28	6 +0.03 +0
20	8 +0.5 +0.15	8 −0.1 −0.2	16	14	16		16		14	16	16	12	M8×1.25		32	32	42	42	8 +0.036 +0
25,32	10 +0.5 +0.15	10 −0.1 −0.2	20	17	19		19		18	20	20	15	M10×1.25		40	40	52	52	10 +0.036 +0
40	12 +0.5 +0.15	12 −0.1 −0.2	24	21	22		22		20	24	24	18	M12×1.25		48	48	62	62	12 +0.043 +0

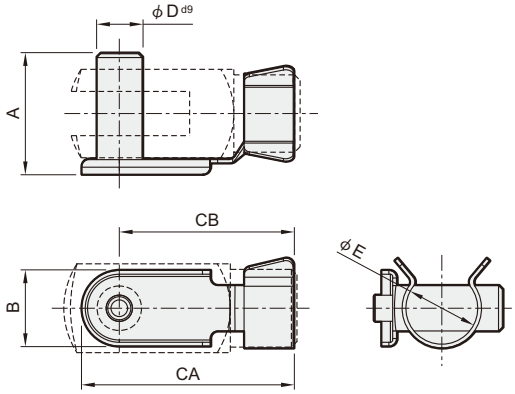
Pin

Order example

※ Only for Y connector and ϕ20~40 tube I.D.
※ ϕ16 tube I.D. use this order: **YS-MCMA-16**.

PIN – MCMA – 16 – Y – P

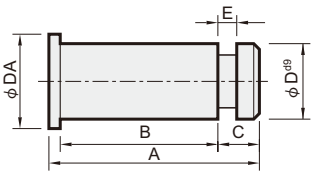
- PIN
- MODEL — **MCMI**: for ϕ8~12 tube I.D. / **MCMA**: for ϕ16~40 tube I.D.
- TUBE I.D.
- TYPE — **Y**: for Y&I connector / **SDB**: for SDB accessory
- **P**: With split pin / **S**: Floating pin (※)



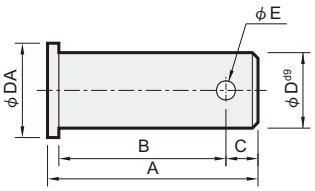
for floating pin

Code / Tube I.D.	A	B	CA	CB	D d9	E
16	16	10	28	23	ϕ6 −0.03 −0.06	9.5
20	22	12	37	31	ϕ8 −0.04 −0.08	13.5
25,32	26	14	45	38	ϕ10 −0.04 −0.08	17
40	31	16	54	46	ϕ12 −0.05 −0.09	19

ϕ8~ϕ16

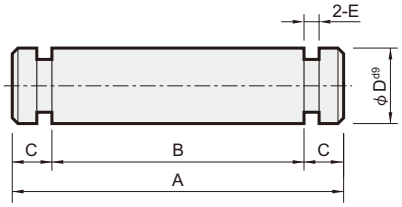


ϕ20~ϕ40



for Y & I connector

Code / Tube I.D.	A	B	C	D d9	DA	E	Split pin
8,10	12	8.5	2	4 −0.03 −0.06	8	0.7	E3
12,16	18.5	15	2	6 −0.03 −0.06	10	0.7	E4
20	24.5	20.5	2.5	8 −0.04 −0.08	12	ϕ2.5	2.5×16L
25,32	30	25	3.5	10 −0.04 −0.08	14	ϕ3.2	3.2×20L
40	37	30	5	12 −0.05 −0.09	16	ϕ3.2	3.2×20L



for SDB

Code / Tube I.D.	A	B	C	D d9	E	Split pin
8,10	18	14	2	4 −0.03 −0.06	0.7	E3.2
12	23.5	19.5	2	6 −0.03 −0.06	0.7	E5
16	21	17	2	6 −0.03 −0.06	0.7	E5
20,25	30	25	2.5	8 −0.04 −0.08	0.9	E7
32	33	27	3	10 −0.04 −0.08	0.9	E9
40	37	31	3	12 −0.05 −0.09	0.9	E9