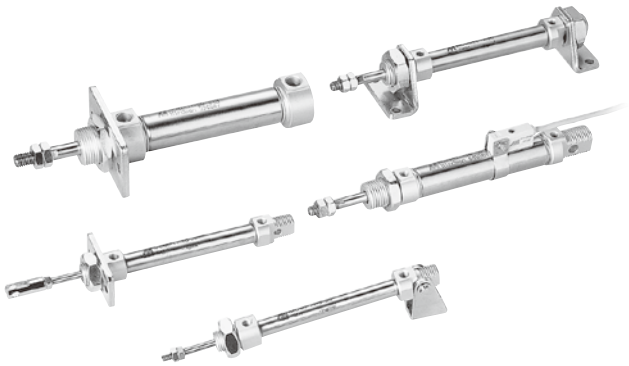
MCMI series

ISO 6432 **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.

■ ISO 6432 standard (ø8~ø25)

Enables world-wide inter-changeability.

■ Port thread Rc. NPT. are also available

■ Magnetic as standard

Table for standard stroke

Acting type		Tube I.D.	Stroke (mm)	Max. stroke (mm)
Single acting	13/15	ø16,20,25	10,25,50,75,100	150
Double acting	11	ø8	10,25,40,50,80,100	200
		ø10,12	10,25,40,50,80,100, 125,160,200	300
		ø16,20,25 ø32,40	10,25,50,75,100,125, 150,200,300,400,500	1000
	21/27	ø16,20,25 ø32,40	10,25,50,75,100,125, 150,200,300,400	450

* Intermediate stroke are available, please contact us.

Specification

Model		MCMI							
Tube I.D. (mm)		8	10	12	16	20	25	32	40
Port size		M5×0.8				G1/8			G1/4
Medium		Air							
Max. operating perssure		0.7 MPa							
Min. operating perssure (MPa)	Double acting	0.1	0.08		0.06				
	Single acting Extended	—			0.23			—	
	Single acting Returned	—			0.18			—	
Proof pressure		1 MPa							
Lubricator		Not required							
Ambient temperature		-5~+60°C (No freezing)							
Available speed range		50~750 mm/sec							
Max. allowable kinetic energy (J)	Cushion pad	0.02	0.03	0.04	0.09	0.27	0.4	0.65	1.2
	Cushion air	—	—	—	0.4	0.66	0.97	1.27	2.35
Sensor switch (*)		RCM (Please refer to page 8-16)							
Sensor switch (band)		BM8	BM10	BM12	BM16	BM20	BM25	BM32	BM40

* For precautions, please refer to page 3-2.

Tightening torque

Tube I.D.	Rod thread	Tightening torque (kgf·cm)
ø8	M4×0.7	11.8
ø10	M4×0.7	11.8
ø12	M6×1.0	41
ø16	M6×1.0	41
ø20	M8×1.25	170
ø25	M10×1.25	340
ø32	M10×1.5	340
ø40	M12×1.75	590

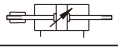
* Make sure the tightening torque of rod thread does not exceed the value above. The tolerance of tightening torque is ±5%.

Order example

MCMI — 11 — 16 — 100 — A — N

MODEL	1: Single rod 2: Double rod	TUBE I.D.	STROKE	Blank: Cushion pad (Unadjustable) A: Cushion air (Adjustable) ⚠ (*) * ø8~12 not applicable.

STYLE

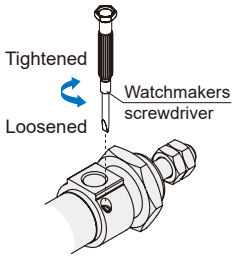
Code		Symbol	Description	Tube I.D.
1	1		Double acting / Male thread	ø8~ø40
1	3		Single acting / Normally extended male thread	ø16~ø25
1	5		Single acting / Normally returned male thread	
2	1		Double rod / Male thread	ø16~ø40
2	7		Double rod / Adjustable male thread Please mark "adjustable stroke" at order list	

* Single acting type, please contact us.
* Order example for special specification, refer to page 0-7.

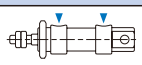
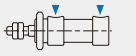
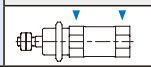
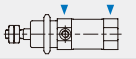
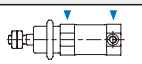
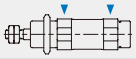
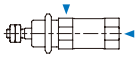
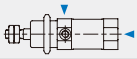
⚠ Caution

For (**A**) Cushion air (Adjustable)

1. To adjust a cushion needle, please slowly turn the needle valve from the fully closed status to the required status which needs to be within 2.5 turns.
2. If the needle valve loosen excessively, the buffer doesn't take effect and the lifetime of cylinder would be shortened.

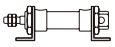
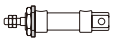
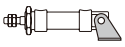
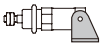


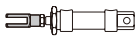
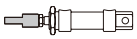
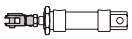
COVER TYPE

Code	Symbol	Description	Port position	Tube I.D.
–		Standard type	Standard	ø8~ø25
N		Non-pivot type		
		Non-pivot type		ø32~ø40
R		Rod trunnion		
H		Head trunnion		
F		Head foot type		
C		Non-pivot type	Axial port	
RC		Rod trunnion		

* (R), (H), (RC) not suitable for (A) cushion air.

Accessories & Connector

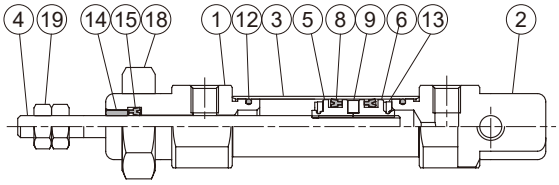
	Accessories					
Code	LB	FA	FB	SDB	SDB-R	SDB-H
Mounting / Tube I.D.						
ø8	LB-M3-8	FA-M3-8		SDB-M3-8	–	–
ø10					–	–
ø12	LB-M3-12	FA-M3-12		SDB-M3-12	–	–
ø16					–	–
ø20	LB-M3-20	FA-M3-20		SDB-M3-20	–	–
ø25					–	–
ø32	LB-M3-32	–		–	SDB-M3-32	
ø40	LB-M3-40	–		–	SDB-M3-40	

	Connector		
Code	Y	I	YS (Y+Floating pin)
Mounting / Tube I.D.			
ø8	Y-M3-8	–	–
ø10		–	–
ø12	Y-M3-12	I-M3-12	–
ø16			YS-M3-16
ø20	Y-M3-20	I-M3-20	YS-M3-20
ø25	Y-Q2-32	I-Q2-32	YS-Q2-32
ø32	Y-M3-32	I-M3-32	YS-M3-32
ø40	Y-M3-40	I-M3-40	YS-M3-40

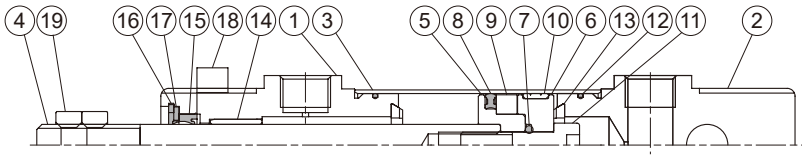
Pin

Applicable	YS connector	Y&I connector	SDB connector
Code	PIN-S	PIN-Y-P (With split pin / snap ring)	PIN-SDB-P (With snap ring)
Fig / Tube I.D.		ø8~ø16 ø20~ø40	
ø8	–	PIN-M3-8-2-P	PIN-M3-8-1-P
ø10	–		
ø12	–	PIN-M3-12-2-P	PIN-M3-12-1-P
ø16	PIN-M3-16-S		
ø20	PIN-M3-20-S	PIN-M3-20-2-P	PIN-M3-20-1-P
ø25	PIN-Q2-32-S	PIN-Q2-32-2-P	
ø32			–
ø40	PIN-Q2-40-S	PIN-Q2-40-2-P	–

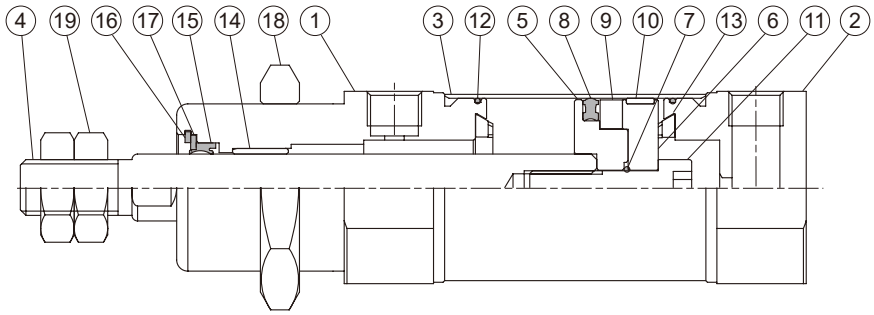
ø8~ø12



ø16~ø25



ø32, ø40



Material

No.	Tube I.D. / Part name	8	10	12	16	20	25	32	40	Q'y 11 type	Q'y 21 type	Component parts (inclusion) 11 type	Component parts (inclusion) 21 type *3
1	Rod cover	Aluminum alloy								1	2	●	●
2	Head cover	Aluminum alloy								1	–	●	
3	Tube	Stainless steel								1	1		
4	Piston rod	Stainless steel				Carbon steel				1	1		
5	Piston-R	Aluminum alloy								1	1	●	●
6	Piston-H	Aluminum alloy								1	1	●	●
7	Piston gasket	–		NBR						1	1	●	●
8	Piston packing	NBR								1*1	1*1	●	●
9	Magnet ring	Magnet material								1	1	●	●
10	Wear ring	–		Resin						1	1	●	●
11	Piston bolt	–		SCM						1	–	●	
12	Cover ring	NBR				–		NBR		2	2	●	●
13	Cushion gasket	NBR								2	2	●	●
14	Rod bush	Bearing alloy								1	2	●	●
15	Rod packing *2	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	●	●

*1. ø8~ø12 (Q'y: 2 pcs) *2. Only the rod packing ø16~ø40 is repairable, please contact our sales if needed.
*3. Style 21 is not suitable for ø8~ø12.

Order example of component parts

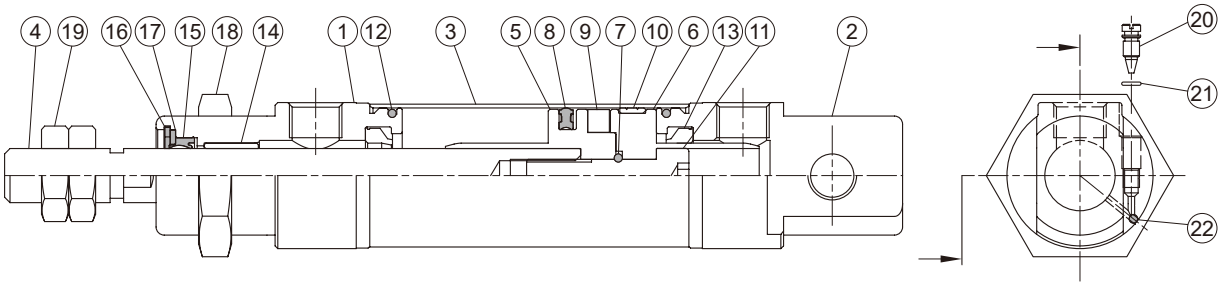
CP – MCMI – 2 – 16 – N

- MODEL
- Blank: Single rod / **2**: Double rod
- TUBE I.D.
- END COVER TYPE

Tube I.D.	Blank: Standard type	**N**: Non-pivot type	**R**: Rod trunnion	**H**: Head trunnion	**F**: Head foot type	**C**: Non-pivot type	**RC**: Rod trunnion
ø8~ø25	●	●					
ø32, ø40		●	●	●	●	●	●

MCMI Inside structure & Parts list – Cushion air

ISO 6432 **MINIATURE CYLINDER**



Material

No.	Tube I.D. / Part name	16	20	25	32	40	Q'y		Component parts (inclusion)	
							11 type	**21** type	**11** type	**21** type
1	Rod cover	Aluminum alloy					1	2	●	●
2	Head cover	Aluminum alloy					1	–	●	
3	Tube	Stainless steel					1	1		
4	Piston rod	Stainless steel	Carbon steel				1	1		
5	Piston-R	Aluminum alloy					1	1	●	●
6	Piston-H	Aluminum alloy					1	1	●	●
7	Piston gasket	NBR					1	1	●	●
8	Piston packing	NBR					1*1	1*1	●	●
9	Magnet ring	Magnet material					1	1	●	●
10	Wear ring	Resin					1	1	●	●
11	Piston bolt	SCM					1	–	●	
12	Cover ring	NBR	–			NBR	2	2	●	●
13	Cushion packing	NBR					2	2	●	●
14	Rod bush	Bearing alloy					1	2	●	●
15	Rod packing *2	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	Needle valve	Stainless steel					2	2	●	●
21	Needle valve packing	NBR					2	2	●	●
22	Steel ball	Stainless steel					2	2	●	●

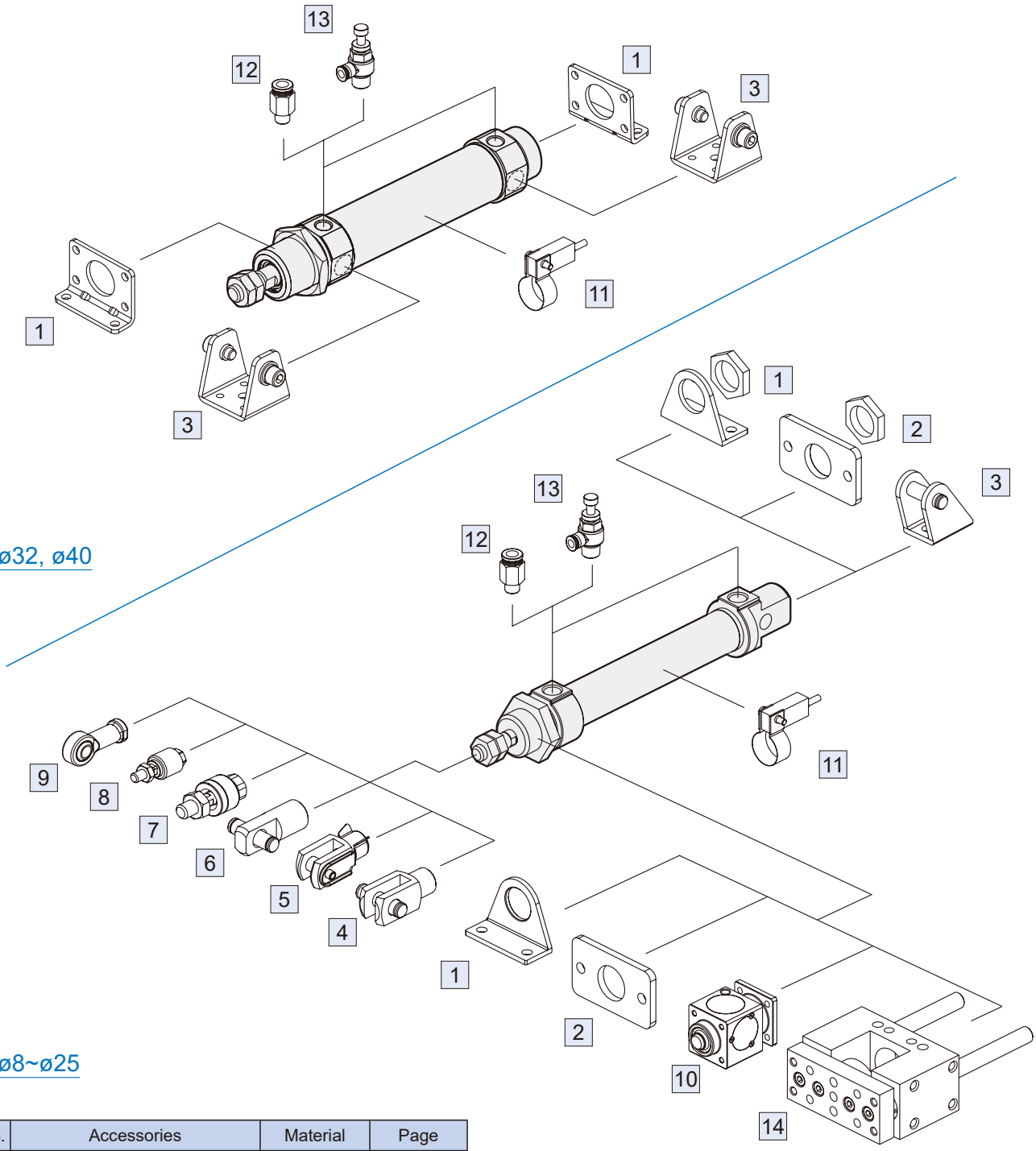
*1. ø8~ø12 (Q'y: 2 pcs) *2. Only the rod packing is repairable, please contact our sales if needed.

Order example of component parts

CP – MCMI – 2 – 16 – A – N

- MODEL
- Blank: Single rod; **2**: Double rod
- TUBE I.D.
- **A**: Cushion air (Adjustable)
- END COVER TYPE

Tube I.D.	Blank: Standard type	**N**: Non-pivot type	**F**: Head foot type	**C**: Non-pivot type
ø16~ø25	●	●		
ø32, ø40		●	●	●



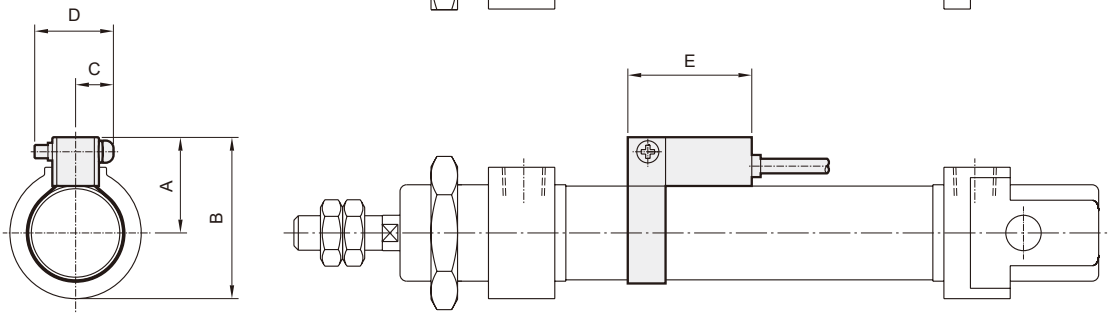
No.	Accessories	Material	Page
1	Mounting accessories LB	Carbon steel	3-49, 51
2	Mounting accessories FA/FB	Carbon steel	3-48, 49
3	Mounting accessories SDB+PIN	Carbon steel	3-48, 51, 14
4	Accessories Y+PIN	Carbon steel	3-14
5	Accessories YS (Y+Floating pin)	Carbon steel	3-14
6	Accessories I+PIN	Carbon steel	3-14
7	Floating joint MFC	Carbon steel	8-2
8	Floating joint MFCS	Carbon steel	8-5

* Aluminum alloy + copper alloy

No.	Accessories	Material	Page
9	Female rod ends PHS	Carbon steel	8-6
10	Locking unit MCBMI	(*)	1-88
11	Sensor switch RCM+BM**	–	8-16
12	Fitting PC	–	8-3 (Vol.1)
13	Fitting JSC	–	8-15 (Vol.1)
14	Twin-guide cylinders MGTB/TK/TU	–	4-39

Installation of sensor switch

Sensor switch: RCM
Sensor switch band: BM**

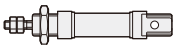
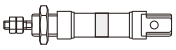
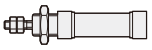
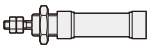
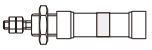


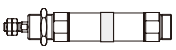
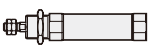
Code / Tube I.D.	A	B	C	D	E
8	16	23.5	10	16	28
10	17	24.5	10	16	28
12	18	28	10	16	28
16	20	30	10	16	28
20	22	35.5	10	16	28
25	25	38.5	10	16	28
32	28	45.5	10	16	28
40	32	54	10	16	28

Cylinder & accessories weight

Cylinder weight

Unit: g

Model	Basic weight **MCMI-11**	Basic weight **MCMI-11-A**	Stroke 25 mm **MCMI-11**	Basic weight **MCMI-11-N**	Basic weight **MCMI-11-A-N**	Stroke 25 mm **MCMI-11-***
Tube I.D.						
ø8	36	–	6	32	–	6
ø10	38	–	8	35	–	8
ø12	78	–	11	69	–	11
ø16	95	93	13	88	85	13
ø20	162	190	18	151	179	18
ø25	206	229	28	191	214	28

Model	Basic weight **MCMI-11-F**	Basic weight **MCMI-11-A-F**	Stroke 25 mm **MCMI-11-F**	Basic weight **MCMI-11-N/C/R/H**	Basic weight **MCMI-11-A-N/C**	Stroke 25 mm **MCMI-11-***
Tube I.D.						
ø32	334	402	39	307	375	39
ø40	591	601	60	639	649	60

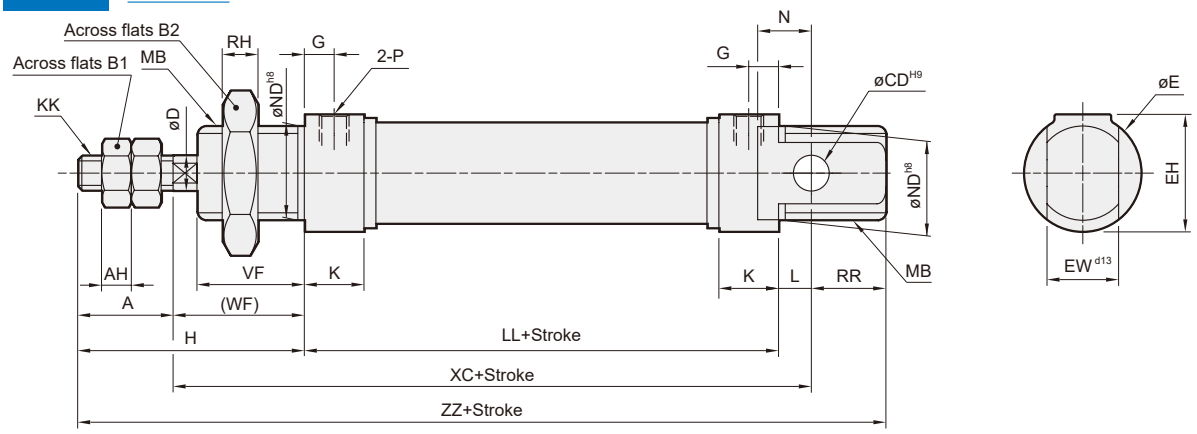
Accessories weight

Unit: g

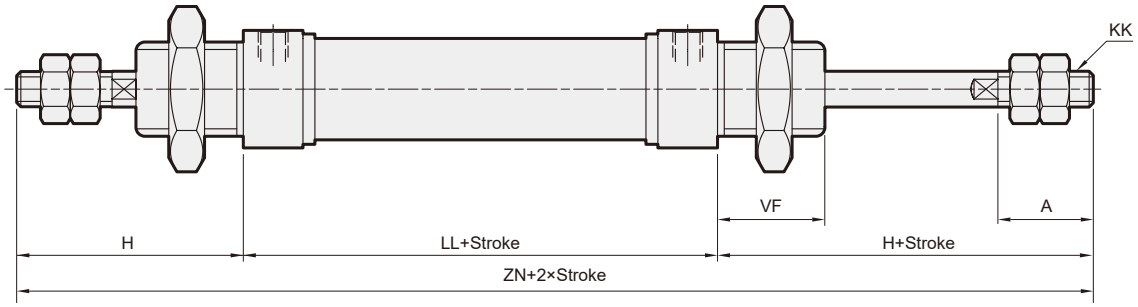
Model	**LB**	**FA/FB**	**SDB**	**Y**	**I**	**YS**	**Pin**	Floating pin	Rod nut	Cover nut
Tube I.D.										
ø8	42	16	16	4	–	–	2	–	1	8
ø10	42	16	16	4	–	–	2	–	1	8
ø12	65	25	24	13	15	–	4	–	2	16
ø16	65	25	24	13	15	18	5	5	2	11
ø20	103	67	103	40	42	50	10	10	4	20
ø25	103	67	103	72	82	90	19	18	8	20
ø32	160	–	111	–	–	–	–	–	8	28
ø40	246	–	164	–	–	–	–	–	10	41

11 ø8~ø25

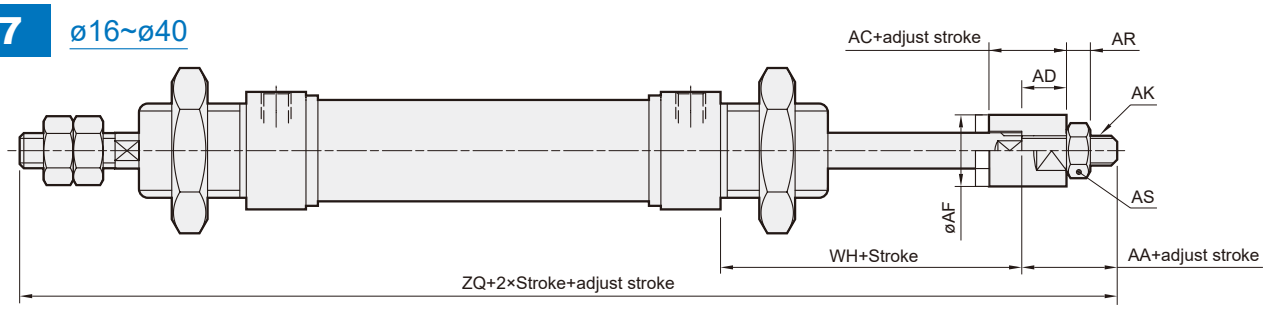
* Please refer to page 3-50 for dimensions of ø32~ø40.



21 ø16~ø40



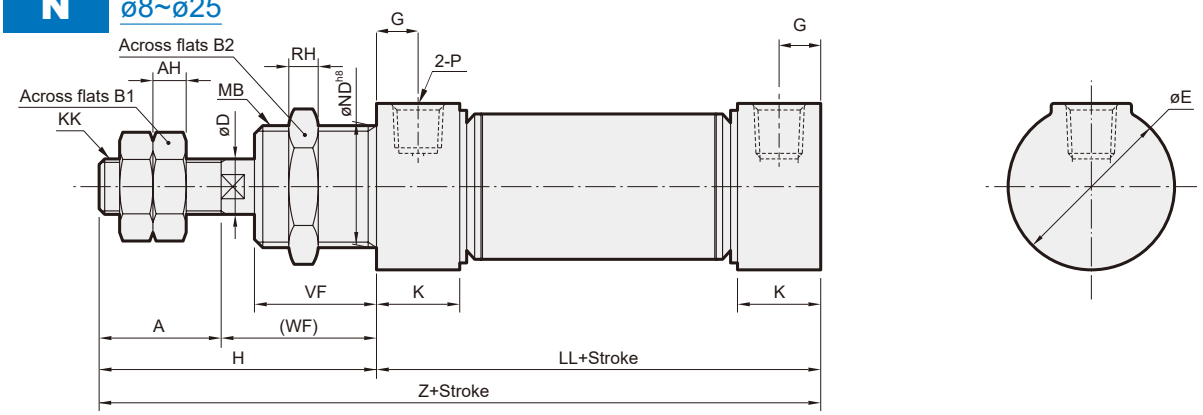
27 ø16~ø40



Code / Tube I.D.	A	AA	AC	AD	AF	AH	AK	AR	AS	B1	B2	CD	D	E	EH	EW	G	H	K	KK	L	LL	MB
8,10	12	–	–	–	–	3.2	–	–	–	7	19	4	4	15	15	8	6	28	11	M4×0.7	2	46	M12×1.25
12	16	–	–	–	–	5	–	–	–	10	24	6	6	20	20	12	6	38	11	M6×1.0	3	50	M16×1.5
16	16	16	13	7.5	12	5	M5×0.8	4	8	10	22	6	6	20	20	12	5	38	10	M6×1.0	5.5	54.5	M16×1.5
20	20	19	15	9.5	16	5	M8×1.25	5	13	13	30	8	8	27	27	16	8	44	15	M8×1.25	3	68	M22×1.5
25	22	19	15	9.5	16	6	M8×1.25	5	13	17	30	8	10	27	27	16	7.5	50	15	M10×1.25	9	67	M22×1.5
32	20	16	12	7	20	6	M10×1.25	6	17	17	38	–	12	37.5	–	–	9	58	16	M10×1.5	–	68	M30×1.5
40	24	17	12	7	30	7	M12×1.25	7	19	19	46	–	14	46.5	–	–	12	69	22	M12×1.75	–	89	M38×1.5

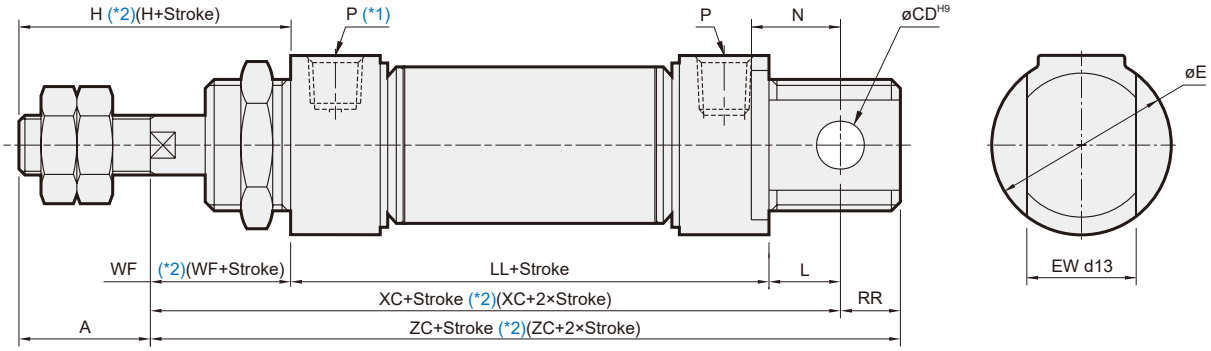
Code / Tube I.D.	N	ND	P	RH	RR	VF	WF	WH	XC	ZN	ZP	ZQ	ZZ
8,10	6	12	M5×0.8	6	10	12	16	–	64	–	–	–	86
12	9	16	M5×0.8	8	14	17	22	–	75	–	–	–	105
16	9	16	M5×0.8	6	12.5	18	22	25.5	82	130.5	102	134	110.5
20	12	22	G1/8	6	17	20	24	27	95	156	119	158	132
25	12	22	G1/8	6	13	22	28	29.5	104	167	124.5	165.5	139
32	–	30	G1/8	7	–	30	38	37	–	184	145.5	179	–
40	–	38	G1/8	8	–	35	45	42	–	227	179	217	–

N ø8~ø25



Code / Tube I.D.	A	AH	B1	B2	D	E	G	H	KK	K	LL	MB	ND	P	RH	VF	WF	Z
8	12	3.2	7	19	4	16.7	6	28	M4×0.7	11	46	M12×1.25	12	M5×0.8	6	12	16	74
10	12	3.2	7	19	4	16.7	6	28	M4×0.7	11	46	M12×1.25	12	M5×0.8	6	12	16	74
12	16	5	10	24	6	19.7	6	38	M6×1.0	11	50	M16×1.5	16	M5×0.8	8	17	22	88
16	16	5	10	22	6	20	5	38	M6×1.0	10	54.5	M16×1.5	16	M5×0.8	6	18	22	92.5
20	20	5	13	30	8	27	8	44	M8×1.25	15	68	M22×1.5	22	G1/8	6	20	24	112
25	22	6	17	30	10	27	7.5	50	M10×1.25	15	67	M22×1.5	22	G1/8	6	22	28	117

13 15 ø16~ø25



*1. 15 type ø16 without this air port.
*2. ( ) Dimension for 13 type.

Code / Tube I.D.	A	CD	E	EW	H	L	N	P	RR	WF	ZN
16	16	6	20	12	38	5.5	9	M5×0.8	12.5	22	130.5
20	20	8	27	16	44	3	12	G1/8	17	24	156
25	22	8	27	16	50	9	12	G1/8	13	28	167

MCMI-13

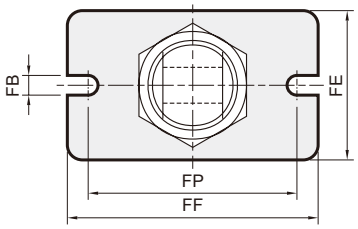
Code / Stroke / Tube I.D.	LL			XC			ZC		
	1~50	51~100	101~150	1~50	51~100	101~150	1~50	51~100	101~150
16	73.5	99.5	125.5	101	127	153	113.5	139.5	165.5
20	93	118	143	120	145	170	137	162	187
25	90.5	115.5	140.5	127.5	152.5	177.5	140.5	165.5	190.5

MCMI-15

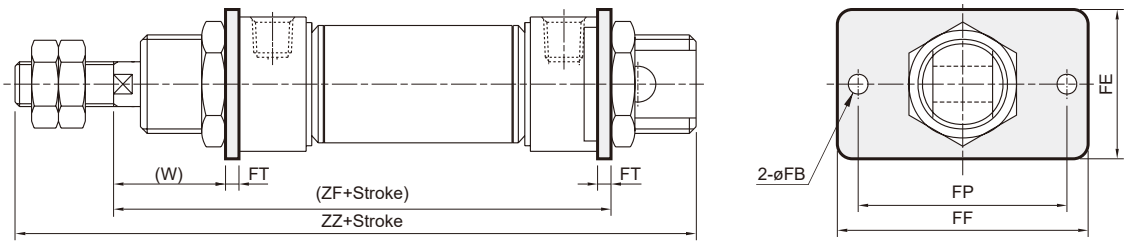
Code / Stroke / Tube I.D.	LL			XC			ZC		
	1~50	51~100	101~150	1~50	51~100	101~150	1~50	51~100	101~150
16	54.5	70	85.5	82	97.5	113	94.5	110	125.5
20	68	118	143	95	145	170	112	162	187
25	67	115.5	140.5	104	152.5	177.5	117	165.5	190.5

FA / FB

ø12, ø16

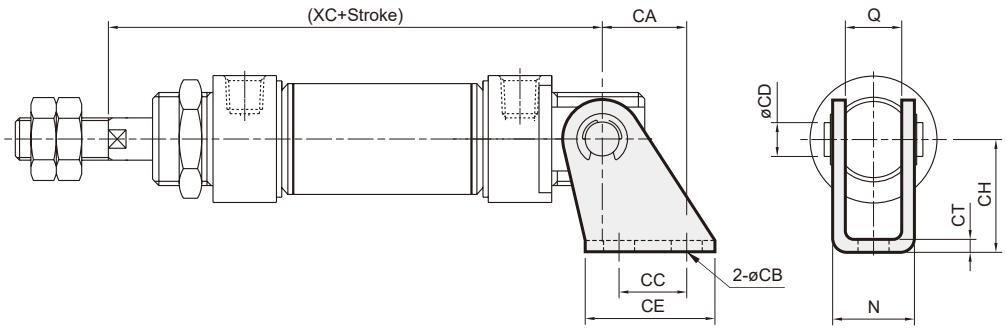


ø8, ø10, ø20, ø25



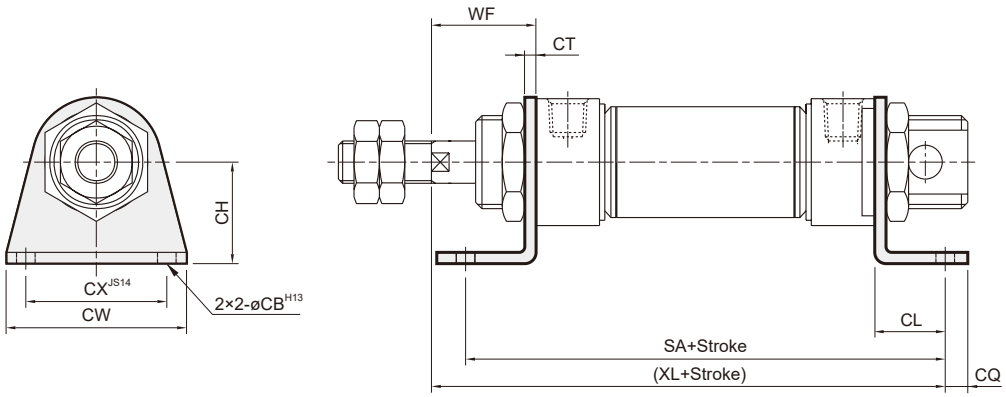
Code / Tube I.D.	FB	FE	FF	FP	FT	W	ZF	ZZ
8	4.5	22	40	30	3.2	12.8	65.2	86
10	4.5	22	40	30	3.2	12.8	65.2	86
12	5.5	26	52	40	3.2	18.8	75.2	105
16	5.5	26	52	40	3.2	18.8	79.7	110.5
20	6.6	38	64	50	4.5	19.5	96.5	132
25	6.6	38	64	50	4.5	23.5	99.5	139

SDB



Code / Tube I.D.	CA	CB	CC	CD	CE	CH	CT	N	Q	XC
8	11	4.5	12.5	4	20	24	2.5	13.1	8.1	64
10	11	4.5	12.5	4	20	24	2.5	13.1	8.1	64
12	13	5.5	15	6	25	27	3.2	18.5	12.1	75
16	13	5.5	15	6	25	27	3.2	18.5	12.1	82
20	16	6.6	20	8	32	30	3.2	22.5	16.1	95
25	16	6.6	20	8	32	30	3.2	22.5	16.1	104

LB

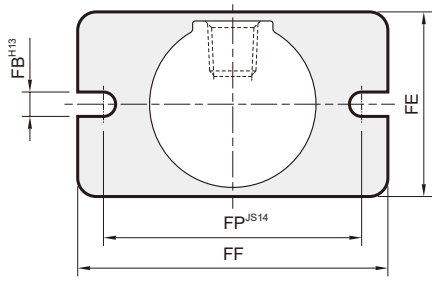


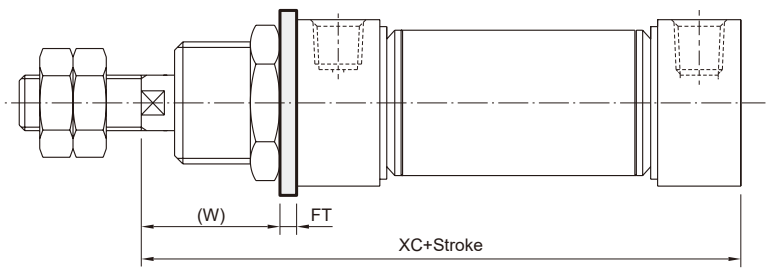
Code / Tube I.D.	CB	CH	CL	CQ	CT	CW	CX	SA	XL	WF
8	4.5	16	11	5	3.2	35	25	68	73	28
10	4.5	16	11	5	3.2	35	25	68	73	28
12	5.5	20	14	6	4	42	32	78	86	38
16	5.5	20	14	6	4	42	32	82.5	90.5	38
20	6.6	25	15	8	3.2	54	40	98	107	44
25	6.6	25	15	8	3.2	54	40	97	110	50

FA N Non-pivot type

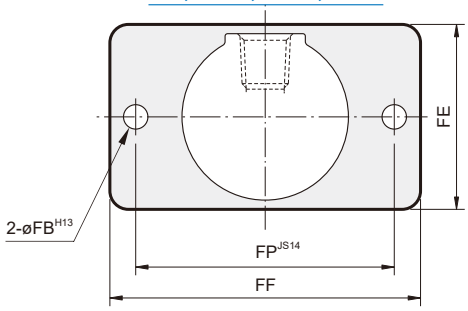
Code / Tube I.D.	FB	FE	FF	FP	FT	W	XC
8	4.5	22	40	30	3.2	12.8	62
10	4.5	22	40	30	3.2	12.8	62
12	5.5	26	52	40	3.2	18.8	72
16	5.5	26	52	40	3.2	18.8	76.5
20	6.6	38	64	50	4.5	19.5	92
25	6.6	38	64	50	4.5	23.5	96

ø12, ø16

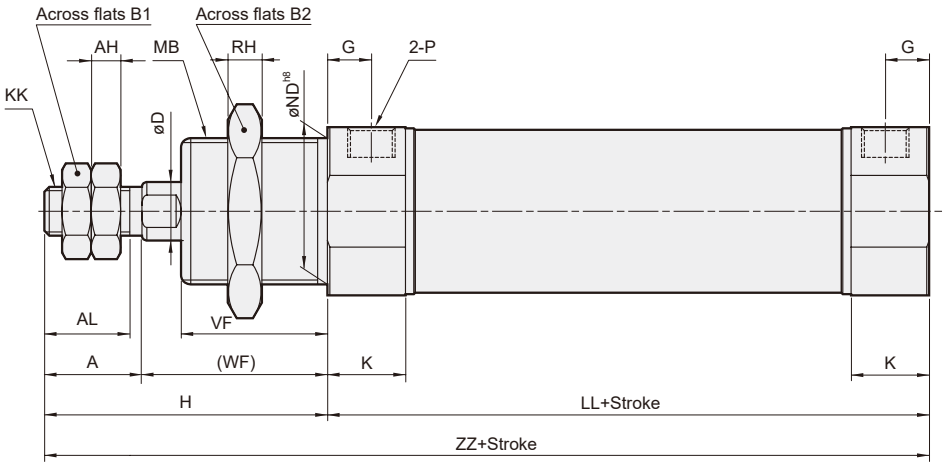




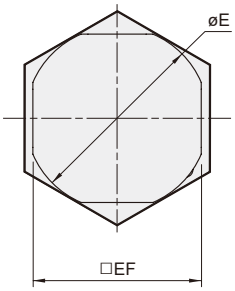
ø8, ø10, ø20, ø25



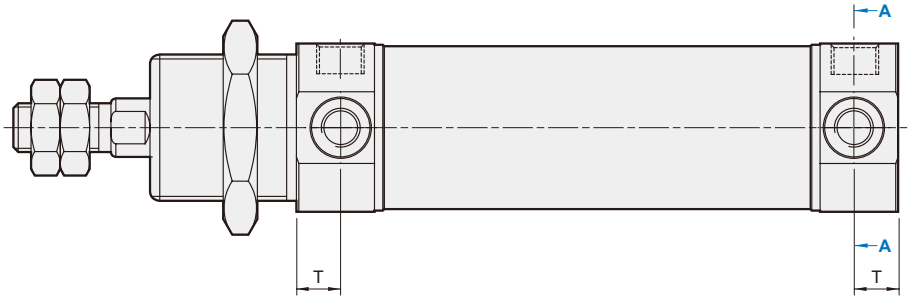
11

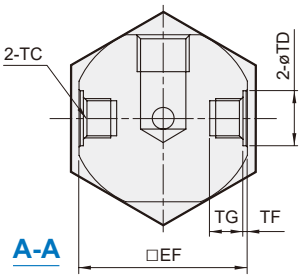


N
Non-pivot type

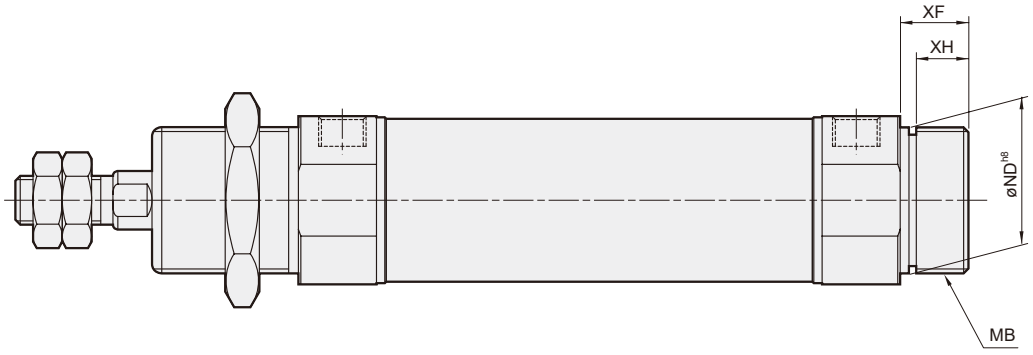


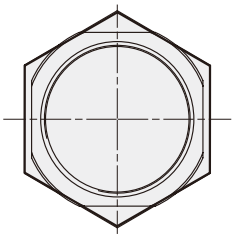
R H
Rod / Head trunnion type



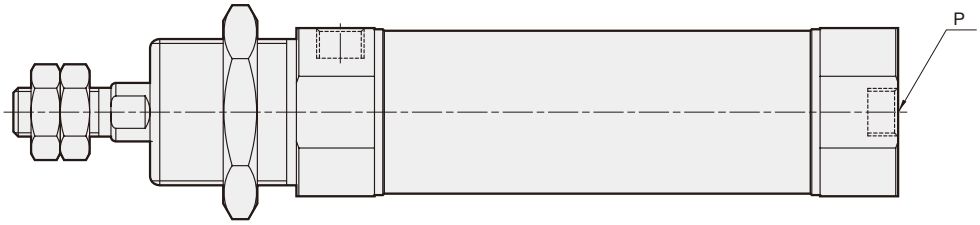


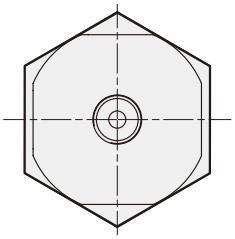
F
Head foot type





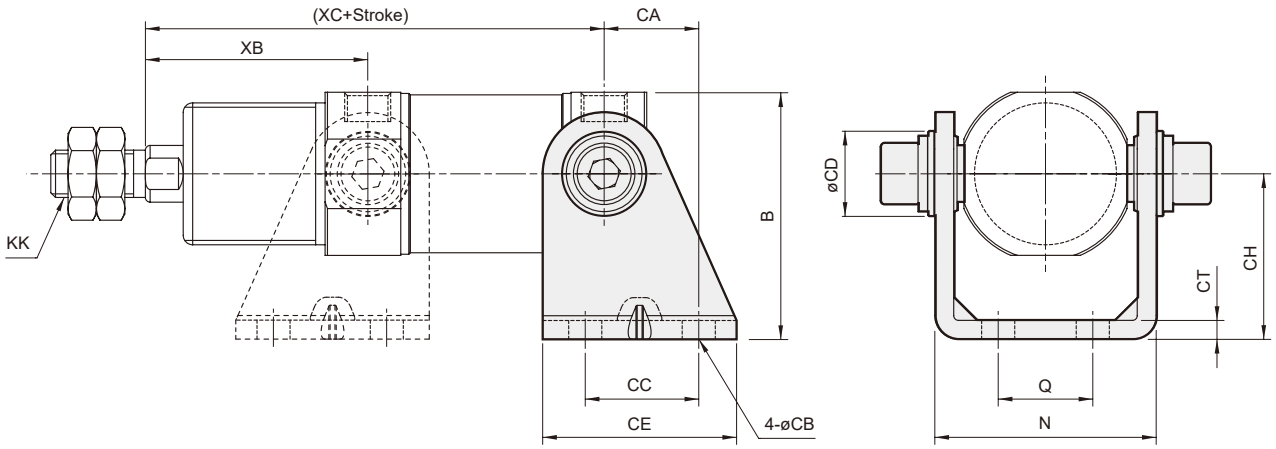
C
Axis port





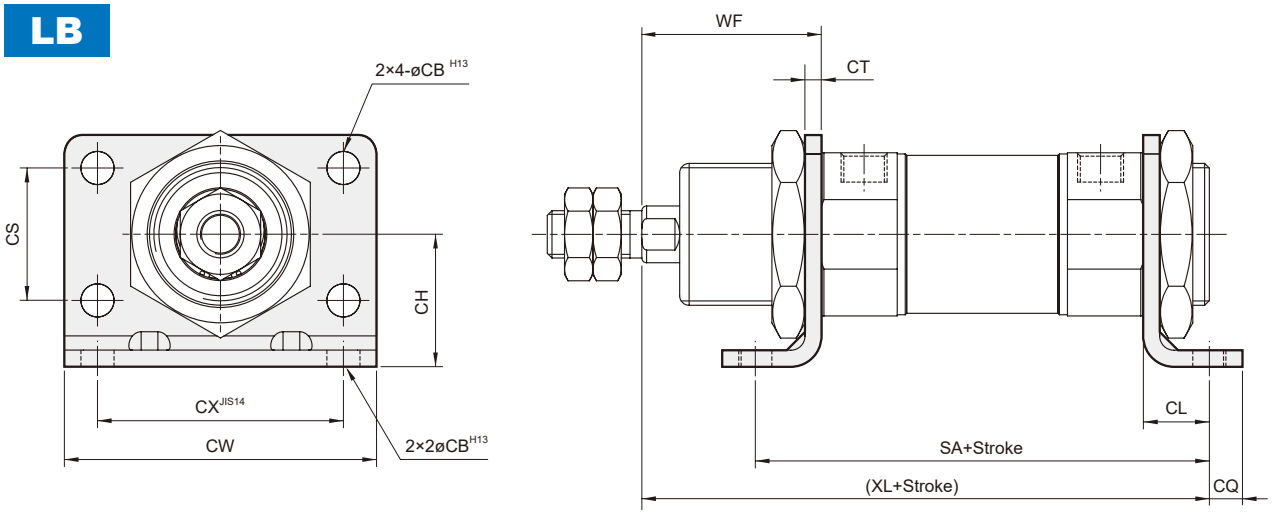
Code / Tube I.D.	A	AH	AL	B1	B2	D	E	EF	G	H	KK	K	LL	MB	ND	P	RH	T	TC	TD	VF	WF	XF	XH	ZZ
32	20	6	17	17	38	12	37.5	34.5	9	58	M10×1.5	16	68	M30×1.5	30	G1/8	7	9	M8×1.0×6.5 dp	12	30	38	14	10.7	126
40	24	7	21	19	46	14	46.5	42.5	12	69	M12×1.75	22	89	M38×1.5	38	G1/4	8	12	M10×1.0×8 dp	14	35	45	16	12.2	158

SDB



Code / Tube I.D.	B	CA	CB	CC	CD	CE	CH	CT	KK	N	Q	XC	XB
32	52.3	20	7	24	18	41	35	4	M10×1.5	46.8	20	97	49.5
40	61.3	27	9	30	22	52	40	4	M12×1.75	58.2	28	122	60

LB



Code / Tube I.D.	CB	CH	CL	CQ	CT	CW	CX	CS	KK	SA	SC	SX	WF	XL
32	7	28	14	7	3.5	66	52	28	M10×1.5	96	47	48.5	38	120
40	9	33	20	10	3.5	80	60	30	M12×1.75	129	56	62.5	45	154

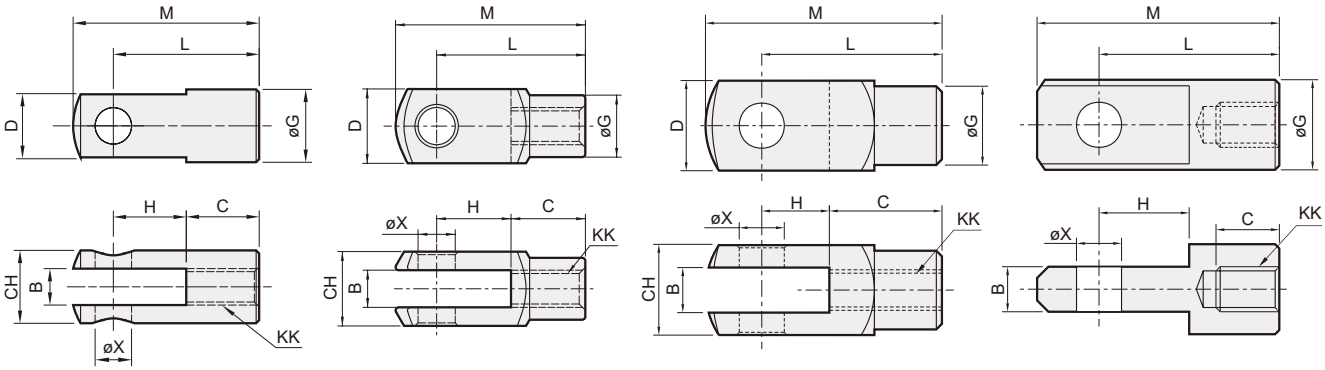
Y connector

ø8~ø16
Not suitable for (S) floating pin

ø16*
For (S) floating pin

ø20~ø40

I connector

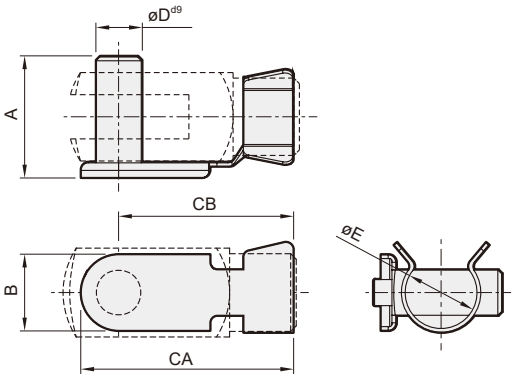


Code / Tube I.D.	B		C		CH		D		G		H		L		M		X
	Y	I	Y	I	Y	I	Y	I	Y	I	Y	I	Y	I	Y	I	
8,10	4 +0.4 +0.1	–	8	–	8	–	8	–	–	–	8	–	16	–	20.75	–	4 +0.1 +0.01
12,16	6 +0.4 +0.1	6 -0.2 -0.3	12	8	12	–	–	–	12	12	12	10	24	21	31	28	6 +0.1 +0.01
16*	6 +0.4 +0.1	–	12	–	12	–	12	–	10	–	12	–	24	–	31	–	6 +0.03 0
20	8 +0.5 +0.15	8 -0.1 -0.2	16	14	16	–	16	–	14	16	16	12	32	32	42	42	8 +0.1 +0.01
25,32	10 +0.5 +0.15	10 -0.1 -0.2	20	17	19	–	19	–	18	20	20	15	40	40	52	52	10 +0.1 +0.01
40	12 +0.5 +0.15	12 -0.1 -0.2	24	21	22	–	22	–	20	24	24	18	48	48	62	62	12 +0.1 +0.01

Code / Tube I.D.	KK (MCMA)		KK (MCMI)	
	Y	I	Y	I
8,10	M4×0.7	–	M4×0.7	–
12,16,16*	M6×1.0			
20	M8×1.25			
25	M10×1.25			
32	M10×1.25		M10×1.5	
40	M12×1.25		M12×1.75	

PIN

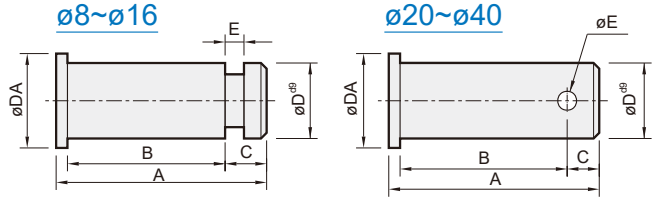
S ø16*~ø40



for floating pin

Code / Tube I.D.	A	B	CA	CB	D d9	E
16*	16	10	28	23	ø6 -0.03 -0.06	9.5
20	22	12	37	31	ø8 -0.04 -0.08	13.5
25,32	26	14	45	38	ø10 -0.04 -0.08	17
40	31	16	54	46	ø12 -0.05 -0.09	19

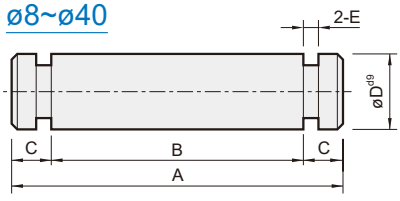
P ø8~ø16 / ø20~ø40



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	ø2.5	2.5×16L
25,32	30	25	3.5	10 -0.04 -0.08	14	ø3.2	3.2×20L
40	37	30	5	12 -0.05 -0.09	16	ø3.2	3.2×20L

P ø8~ø40



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