

MCMOC series

OVAL MICRO-CYLINDER

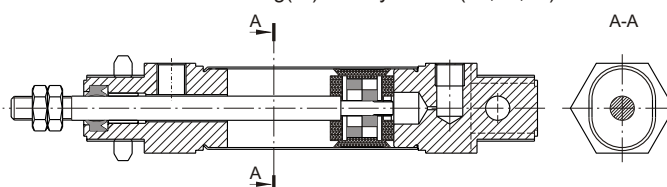


Features:

- An innovating range from size 8 to 25(8,10,12,16,20,25), with a wide choice of magnetic sensors, reed or solid state.
- The flat oval design matching piston shape prevents no-rotating rod (self guidance).
- Dimensions for cylinder are compatible with ISO standard.
- Mounting are identical for round and oval cylinders with ISO 6432 (Piston as standard goes automatically with magnet).

Options

- Hole - rod with cylinders double end rod
- Pneumatic cushioning(A) with cylinders (16,20,25)



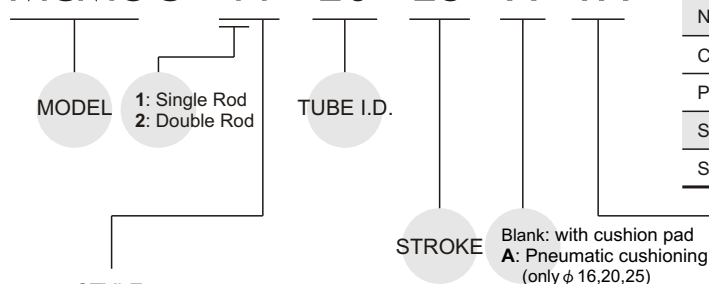
Material

Oval tube	Stainless steel
End cover	Anodized aluminium
Piston rod	Stainless steel
Piston	Composit polyurethan
Piston rod bearing	Bronze & PTFE
Seals	Polyurethan
Spring	Bronze & PTFE
Magnet	Ferrite
Spacer spring	Brass & Acetal resin

Model		MCMOC				
Acting type	Double acting / Single acting					
Tube I.D. (mm)	8	10	12	16	20	25
Port size Rc(PT)	M5 × 0.8			G 1/8		
Medium	Filter air 50 μm lubricated or not					
Operating pressure kgf/cm ²	Double acting	1~10	0.8~10	0.8~10		
	Single Push acting	2.0~10	2.3~10	2.1~10	1.5~10	
	Pull	3~10	2.5~10	2~10		
Stocking temperature °C	-10~70°C (No freezing)					
Speed m/sec	0.6			0.7		
Tolerance of stroke mm	0~+1.5					
Work temperature °C	-10~60°C					
Non-rotating accuracy	±3.5°		±2.5°			
Cushioning of end stroke	Elastic by polyurethan internal stop built into piston					
Pneumatic cushioning	No		Yes (option)			
Sensor switch	RCS					
Sensor switch holder	BK-81					

Order example:

MCMOC – 11 – 20 – 25 – A – FA



STYLE:













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		Dual rod / Male thread
2 3		Single action / Dual rod male thread
2 5		Dual rod / Male thread hole-rod
2 6		Single action / Dual rod / Male thread hole-rod

MOUNTING TYPE:






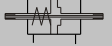

	FA
	FB
	SDB
	LB

Forces for oval cylinder

(unit: kg)

Tube I.D.	Rod ϕ	Function	Area mm ²	Pressure kgf/cm ²					
				2	3	4	5	6	7
8	4	 Push	63	0.63	1.13	1.77	2.52	3.15	3.78
		 Pull	51	0.42	0.93	1.44	1.95	2.46	2.97
		Double Push action	63	1.26	1.89	2.52	3.15	3.78	4.41
		Pull	51	10.2	1.53	2.04	2.55	3.06	3.57
10	4	 Push	100	1.25	2.37	3.63	4.12	5	6.12
		 Pull	88	0.91	1.79	2.67	3.55	4.43	5.31
		Double Push action	100	2.00	3.00	4.00	5.00	6.00	7.00
		Pull	88	1.76	2.64	3.52	4.40	5.28	6.16
12	6	 Push	150	2.44	4.08	5.40	6.88	8.37	10.12
		 Pull	123	1.61	2.84	4.07	5.30	6.53	7.76
		Double Push action	150	3.00	4.50	6.00	7.50	9.00	10.5
		Pull	123	2.46	3.69	4.92	6.15	7.38	8.61
16	6	 Push	200	3.50	5.00	7.40	8.20	9.10	12.00
		 Pull	173	1.51	3.25	4.95	6.75	8.45	10.15
		Double Push action	200	4.00	6.00	8.00	10.00	12.00	14.00
		Pull	173	3.46	5.20	6.90	8.70	10.40	12.10
20	8	 Push	380	4.63	8.78	12.93	15.98	19.52	24.15
		 Pull	330	3.70	5.88	10.30	13.6	16.9	20.20
		Double Push action	380	7.60	11.4	15.2	19.00	22.80	26.60
		Pull	330	6.60	9.90	13.20	16.5	19.80	23.10
25	10	 Push	430	6.40	11.70	16.20	21.50	26.30	31.20
		 Pull	352	3.52	4.14	7.66	11.18	14.70	18.22
		Double Push action	430	8.60	12.90	17.20	21.50	25.80	30.10
		Pull	352	7.04	10.56	14.08	17.60	21.12	24.64

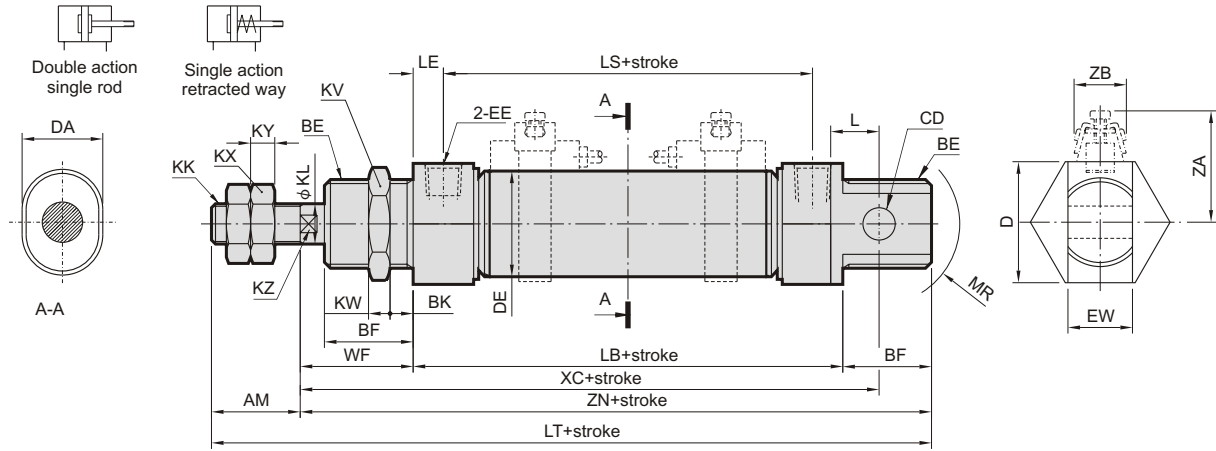
Strokes

Function							
Tube I.D.			Hole-rod			Hole-rod	
8	5, 10, 15, 20, 25, 30, 40, 50, 80, 100		25, 50, 80, 100	10, 25, 50		25, 50	
10	5, 10, 15, 20, 25, 30, 40, 50, 80, 100		25, 50, 80, 100	10, 25, 50		25, 50	10, 25, 50
12	5, 10, 15, 20, 25, 30, 40, 50, 80, 100, 160		25, 50, 80, 100	10, 25		25	10, 25, 50
16	5, 10, 15, 20, 25, 30, 40, 50, 80, 100, 160, 200		25, 50, 80, 100, 160	10, 25, 50		25, 50	10, 25, 50
20	5, 10, 15, 20, 25, 30, 40, 50, 80, 100, 160, 200, 300		25, 50, 80, 100, 160, 200	10, 25, 50		25, 50	10, 25, 50
25	5, 10, 15, 20, 25, 30, 40, 50, 80, 100, 160, 200, 300, 400, 500, 650		25, 50, 80, 100, 160, 200	10, 25, 50		25, 50	10, 25, 50

Note: Special strokes are available on request

MCMOC $\phi 8 \sim \phi 25$

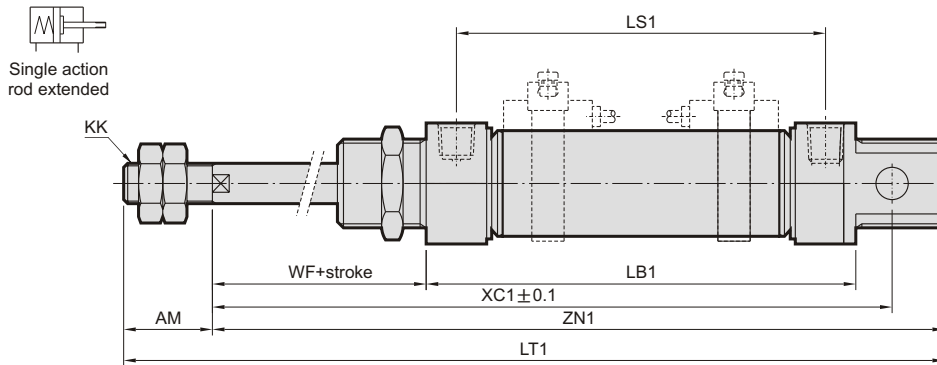
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Code Tube I.D.	AM	BE	BF	BK	CD (H9)	D	DA	DE	EE	EW (d13)	KL	KK	KV	KW	KX	KY	KZ
8	12	M12×1.25	13	7	4	14	8.3	11.8	M5	8	4	M4	19	6	7	2	-
10	12	M12×1.25	13	7	4	14	10.3	14.3	M5	8	4	M4	19	6	7	2	-
12	16	M16×1.5	17	8	6	20	12.3	17.3	M5	12	6	M6	23	8	10	3	5
16	16	M16×1.5	17	8	6	20	14.3	19.8	M5	12	6	M6	23	8	10	3	5
20	20	M22×1.5	20	9	8	27	20.5	25.5	G 1/8	16	8	M8	32	11	13	4	7
25	22	M22×1.5	22	11	8	27	22.5	26.5	G 1/8	16	10	M10×1.25	32	11	17	5	9

Code Tube I.D.	L	LB	LE	LS	LT	MR	WF ± 1.2	XC ± 1	ZA	ZB	ZC	ZN
8	6	45	6	33	86	18	16	64	26	16.5	20	73
10	6	45	6	33	86	18	16	64	27	16.5	20	73
12	9	46	6	34	102	22	22	75	28	16.5	20	85
16	9	53	6	41	107	22	22	82	30	16.5	20	92
20	12	67	8	51	132	25	24	95	33	16.5	20	112
25	12	72	8	56	143	25	28	104	34	16.5	20	121

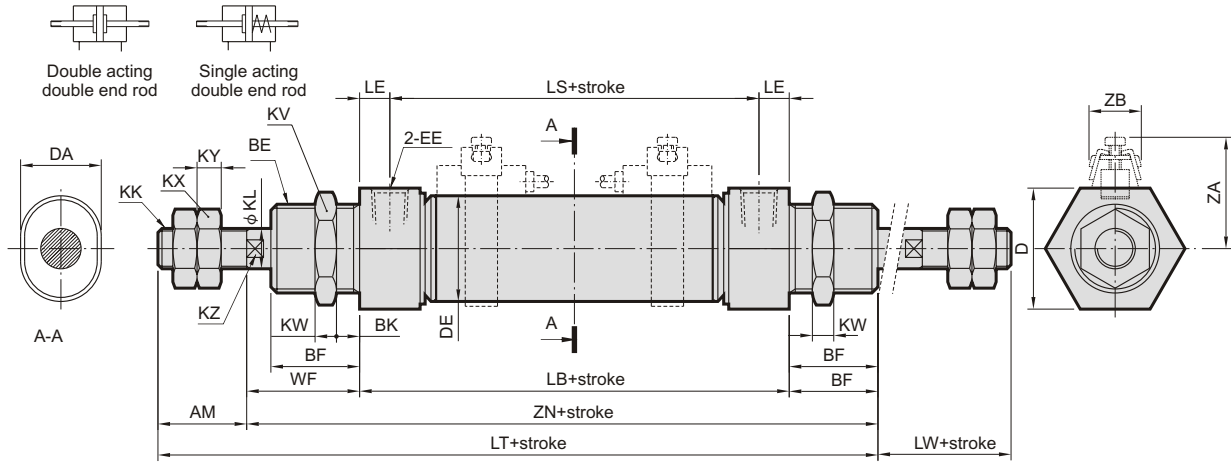
※ Dimension ISO 6432



Code Tube I.D.	LB1			LS1			XC1			ZN1			LT1		
	10	25	50	10	25	50	10	25	50	10	25	50	10	25	50
8	65	95	145	53	83	133	94	139	214	16.5	103	148	223	116	236
10	65	95	145	53	83	133	94	139	214	16.5	103	148	223	116	236
12	66	96	146	54	84	134	105	150	225	16.5	115	160	235	132	252
16	73	103	153	61	91	141	112	157	232	16.5	120	167	242	137	257
20	87	117	167	71	101	151	125	170	245	16.5	142	167	262	162	282
25	92	122	172	76	106	156	134	179	254	16.5	151	196	281	173	293

MCMOC $\phi 8 \sim \phi 25$

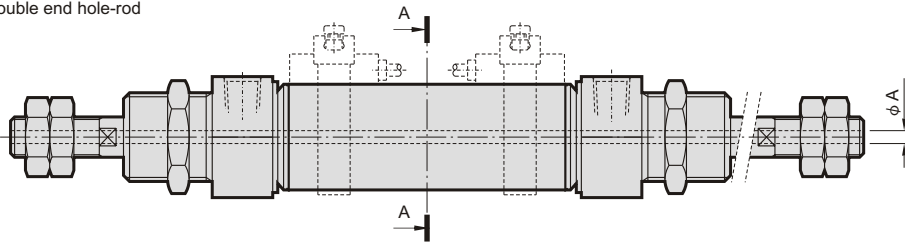
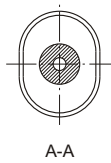
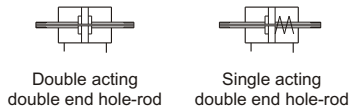
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Code Tube I.D.	AM	BE	BF	BK	D	DA	DE	EE	KL	KK	KV	KW	KX	KY	KZ
8	12	M12×1.25	13	7	14	8.3	11.8	M5	4	M4	19	6	7	2	-
10	12	M12×1.25	13	7	14	10.3	14.3	M5	4	M4	19	6	7	2	-
12	16	M16×1.5	17	8	20	12.3	17.3	M5	6	M6	23	8	10	3	5
16	16	M16×1.5	17	8	20	14.3	19.8	M5	6	M6	23	8	10	3	5
20	20	M22×1.5	20	9	27	20.5	25.5	G 1/8	8	M8	32	11	13	4	7
25	22	M22×1.5	22	11	27	22.5	26.5	G 1/8	10	M10×1.25	32	11	17	5	9

Code Tube I.D.	LB	LE	LS	LT	LW	WF ± 1.2	ZA	ZB	ZC	ZN
8	45	6	33	86	15	16	26	16.5	20	73
10	45	6	33	86	15	16	27	16.5	20	73
12	46	6	34	102	22	22	28	16.5	20	85
16	53	6	41	107	20	22	30	16.5	20	92
20	67	8	51	132	23	24	33	16.5	20	112
25	72	8	56	143	29	28	34	16.5	20	121

※ Dimension ISO 6432



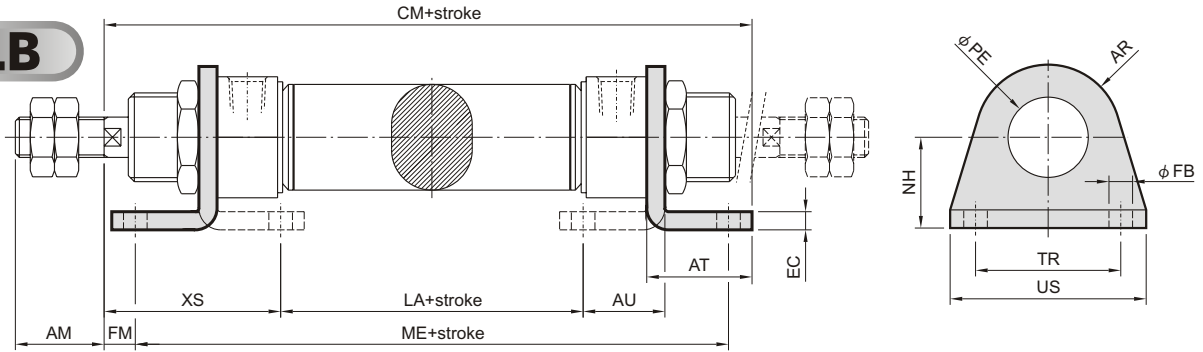
Code Tube I.D.	LB1 +0.15 +0
8	1
10	1
12	1.2
16	1.2
20	3.2
25	3.2

MCMOC $\phi 8 \sim \phi 25$

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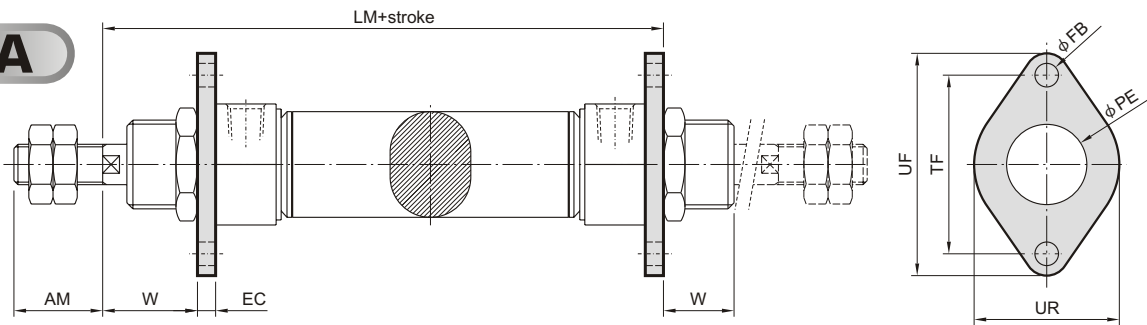


LB



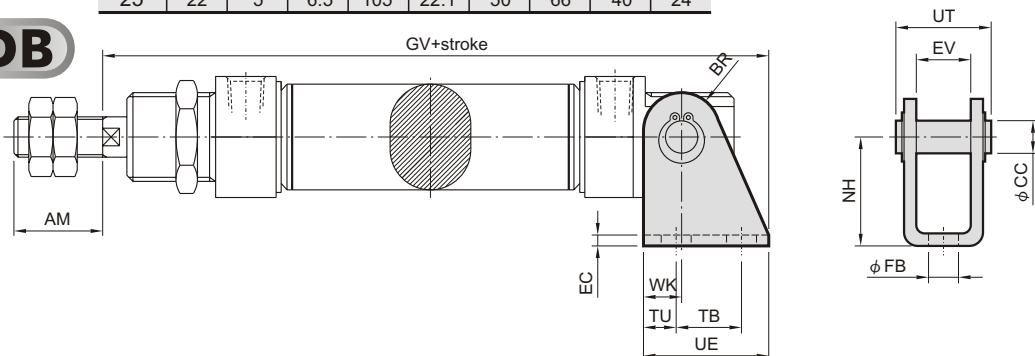
Code Tube I.D.	AM	AR	AT	AU	CM	EC	FB	FM	LA	ME	NH	PE	TR	US	XS
8	12	10	16	10.5	76	4.5	4.5	5	30	67	16	12.1	25	35	23.5
10	12	10	16	10.5	76	4.5	4.5	5	30	67	16	12.1	25	35	23.5
12	16	12	21	13	89	5.5	5.5	9	27	74	20	16.1	32	42	32
16	16	12	21	13	101	5.5	5.5	9.5	34	80.5	20	16.1	32	42	32.5
20	20	20	29	17	117	6.5	6.5	8.5	43.5	101.5	25	22.1	40	54	36.5
25	22	20	29	17	131.5	6.5	6.5	12.5	48.5	108	25	22.1	40	54	40

FA



Code Tube I.D.	AM	EC	FB	LM	PE	TF	UF	UR	W
8	12	3	4.5	64	12.1	30	40	25	13
10	12	3	4.5	64	12.1	30	40	25	13
12	16	4	5.5	72	16.1	40	53	30	18
16	16	4	5.5	79	16.1	40	53	30	18
20	20	5	6.5	96	22.1	50	66	40	20
25	22	5	6.5	105	22.1	50	66	40	24

SDB



Code Tube I.D.	AM	BR	CC	EC	EV	FB	GV	NH	TB	TU	UE	UT	WK
8	12	5	4	2.5	8.1	4.5	82	24	12.5	6.5	23	17	5
10	12	5	4	2.5	8.1	4.5	82	24	12.5	6.5	23	17	5
12	16	7	6	3	12.1	5.5	93	27	15	5	25	23	8
16	16	7	6	3	12.1	5.5	100	27	15	5	25	23	8
20	20	10	8	4	16.1	6.5	117	30	20	6	32.5	30	10
25	22	10	8	4	16.1	6.5	126.5	30	20	6	32.5	30	10