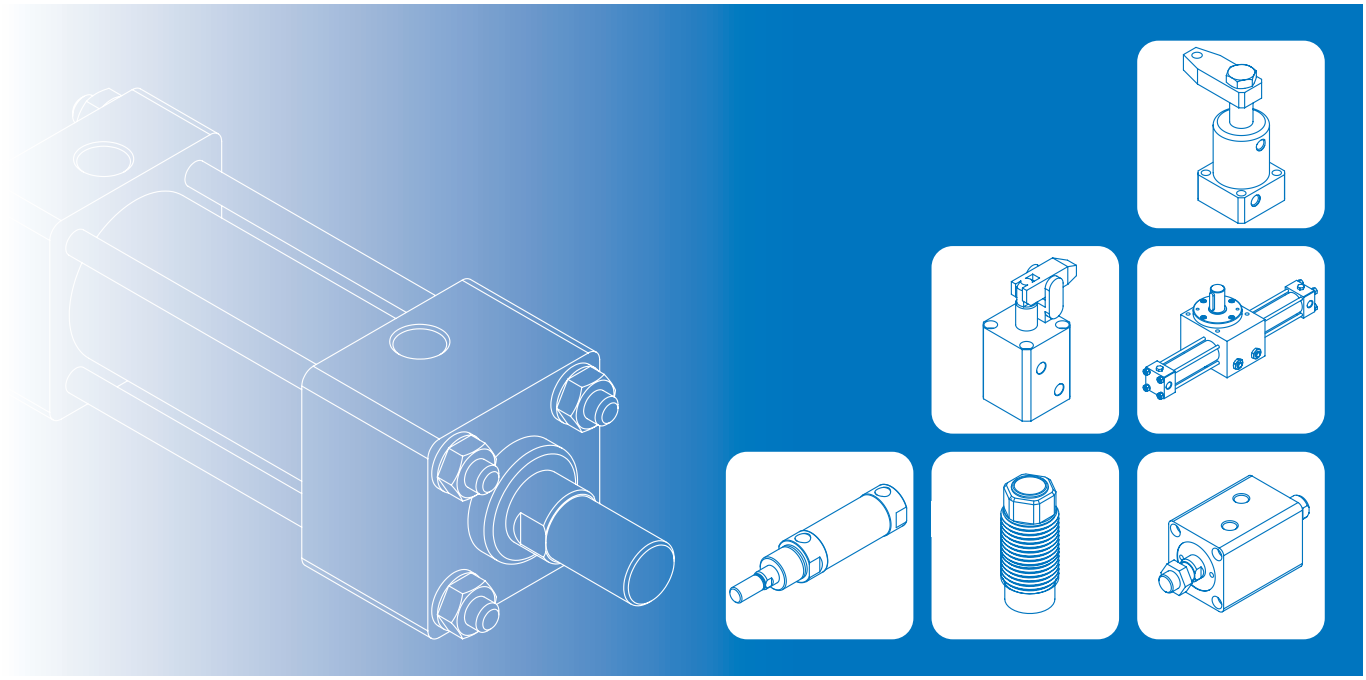
HYDRAULIC CYLINDER



Double Acting Cylinder

MDH* MDHB / MDHD / MDHN 2

Double Acting Cylinder-with Magnet

MDM* MDMB / MDMD / MDMN 2

Compact Hydraulic Cylinder

MHC* MHCB / MHCQ 15

Compact Hydraulic with Piston Sensing Cylinder

MHCB-M / MHCB-MZ 32

Manifold type Hydraulic Cylinder

MHCB* MHCBR / MHCBF / MHCBS 35

Hydraulic with Piston Sensing Cylinder

MDO* MDOC / MDOA / MDOD / MDON 44

Hydraulic Rotary Actuator

MRPH 51

Hydraulic Lever-type Cylinder

MHCK MHCK / MHCK-F 54

Hydraulic - Swing Clamp Cylinder

MTH* MTHS / MTHD 56

MHS* MHS / MHSD 63

MHTS* MHTS / MHTSD 63

High oil pressure Swing clamping Cylinder

MF* MFS / MFT 66

MD* MDS / MDT 66

Threaded-body Cylinder

MTC MTC-**A/B 69

Hydraulic Work Support

MSP MSP-**A/B 70

MDH*/ MDM* series

HYDRAULIC CYLINDER

Caution for safety
(Read before installing)

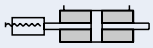


Specification

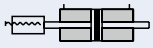
Model	MDHB, MDHD, MDHN	
Tube I.D. (mm)	40, 50, 63	80, 100, 125, 150
Standard stroke (mm)	50, 100, 150, 200, 250, 300, 350, 400, 450, 500	
The range of stroke	Max.1500 mm	Max.1900 mm
Medium	Filtered oil	
Material of cylinder barrel	Carbon steel STKM 13C	
Max. operating pressure	14 MPa	
Ambient temperature	-10~+60°C (No freezing)	

Model	MDMB, MDMD, MDMN		
Tube I.D. (mm)	40, 50	63	80, 100
Standard stroke (mm)	50, 100, 150, 200, 250, 300, 350, 400, 450, 500		
Medium	Filtered oil		
Material of cylinder barrel	SUS304 Stainless steel		
Max. operating pressure	7 MPa		
Proof pressure	10.5 MPa		
Speed range (mm/sec)	0.5~300 mm/sec		
Ambient temperature	-10~+60°C (No freezing)		
Sensor switch	LN01P	LN02P	LN03P

Double acting

MDHB	Standard type	
MDHD	Double rod type	
MDHN-A/B	Adjustable forward stroke cylinder	

Double acting (with magnet)

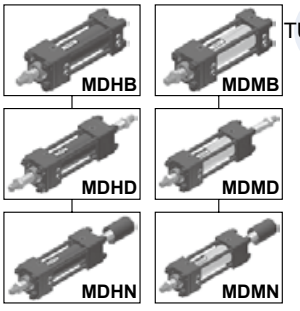
MDMB	Standard type	
MDMD	Double rod type	
MDMN-A/B	Adjustable forward stroke cylinder	

* The series of hydraulic cylinder can be with cushion.

Order example

1 — MDHB — 50 — N — 100 — □ — A — LB — Y

STANDARD / **WITH MAGNET**



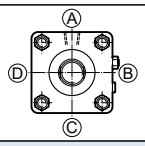
TUBE I.D.

STROKE

CUSHION
N: No cushion
R: Rod end with cushion (One side)
H: End end with cushion (One side)
B: Both end with cushion (Both sides)

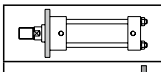
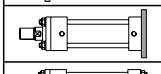
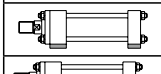
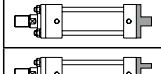
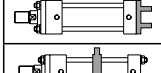
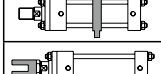
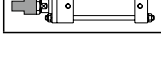
ADJUSTABLE STROKE
Blank: Standard type
A: Adjustable 25mm
B: Adjustable 50mm
(Only for **MD*N** type)

PORT & CUSHION ADJ. LOCATION

Blank: Standard type Ⓐ Port location Ⓑ Cushion adjustment location	

* Change port & cushion adj. location. (Made to order)
Ex. Port location Ⓑ Ⓒ Cushion adjustment location

MOUNTING TYPE

	FA
	FB
	LA
	LB
	CA
	CB
	TC
	Y
	I

SEAL MATERIAL

Symbol	Seal material	Kind of fluid				
		Petroleum - based fluid	Water - glycol fluid	Phosphate - ester fluid	Water in oil fluid	Oil in water fluid
1	NBR Nitrile rubber	○	○	×	○	○
2	PU Polyurethane rubber	○	×	×	△	△
3	VITON Fluoro elastomer	○	×	○	○	○

Note. ○ allowable ×unallowable △ consult us

Standard stroke

MDHB, MDHD, MDHN

Unit: mm

Tube I.D.	50	100	150	200	250	300	350	400	450	500
ø40	●	●	●	●	●	●	–	–	–	–
ø50	●	●	●	●	●	●	–	–	–	–
ø63	●	●	●	●	●	●	●	●	●	●
ø80	●	●	●	●	●	●	●	●	●	●
ø100	●	●	●	●	●	●	●	●	●	●
ø125	●	●	●	●	●	●	●	●	●	●
ø150	●	●	●	●	●	●	●	●	●	●

Note. May to order of unstandard stroke.

MDMB, MDMD, MDMN

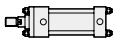
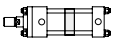
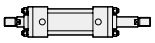
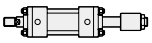
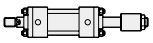
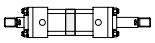
Unit: mm

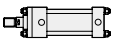
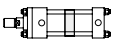
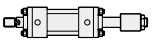
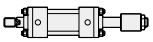
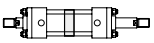
Tube I.D.	50	100	150	200	250	300	350	400	450	500
ø40	●	●	●	●	●	●	–	–	–	–
ø50	●	●	●	●	●	●	–	–	–	–
ø63	●	●	●	●	●	●	●	●	●	●
ø80	●	●	●	●	●	●	●	●	●	●
ø100	●	●	●	●	●	●	●	●	●	●

Note. May to order of unstandard stroke.

Weight

Unit: kg

Model	Basic weight **MDHB**	Stroke 25 mm **MDHB**	Basic weight **MDHD**	Basic weight **MDHN-A**	Basic weight **MDHN-B**	Stroke 25 mm **MDHD/MDHN**
Tube I.D.						
ø40	3.7	0.155	4.8	5.5	5.8	0.21
ø50	6.2	0.244	8.0	9.1	9.6	0.34
ø63	8.9	0.421	11.2	12.8	13.4	0.60
ø80	14.6	0.546	17.3	19.5	20.3	0.80
ø100	24.2	0.895	28.2	31.3	32.3	1.28
ø125	40.9	1.462	49.4	53.2	54.4	2.01
ø150	64.5	2.337	80.5	87.6	89.4	3.31

Model	Basic weight **MDMB**	Stroke 25 mm **MDMB**	Basic weight **MDMD**	Basic weight **MDMN-A**	Basic weight **MDMN-B**	Stroke 25 mm **MDMD/MDMN**
Tube I.D.						
ø40	3.66	0.14	4.8	5.5	5.8	0.21
ø50	6.15	0.22	8.0	9.1	9.5	0.32
ø63	8.70	0.34	11.0	12.6	13.2	0.53
ø80	14.60	0.54	17.3	19.5	20.3	0.80
ø100	23.80	0.75	27.8	30.9	32.0	1.14

Model	FA	FB	LA	LB	CA	CB+Pin	TC	Y+Pin	I	Nut (Rod)
Tube I.D.										
ø40	0.3	0.6	0.5	0.6	0.6	0.7	0.6	0.6	0.6	0.02
ø50	0.8	1.2	0.9	0.8	1.0	1.1	1.0	0.9	0.9	0.04
ø63	1.3	1.8	1.0	1.4	1.8	2.1	1.2	1.5	1.2	0.08
ø80	1.4	2.7	1.6	1.8	3.0	3.6	2.1	1.8	1.8	0.08
ø100	2.2	4.8	1.9	3.0	5.1	6.6	3.8	4.2	3.3	0.18
ø125	3.6	8.1	3.6	6.0	10.2	12.9	6.2	6.9	6.0	0.22
ø150	6.2	13.5	5.1	8.4	16.2	20.4	10.9	10.8	9.6	0.57

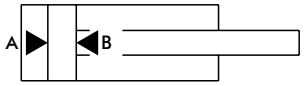
Stroke tolerance

Unit: mm

stroke	~100	101~250	251~630	631~1000	1001~1600	1601~2000
Tolerance	+0.8	+1.0	+1.25	+1.4	+1.6	+1.8
	0	0	0	0	0	0

Theoretic force

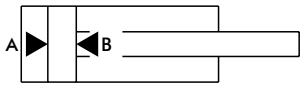
MDHB, MDHD, MDHN



Unit: KN

Tube I.D. (mm)	Rod (mm)	Area (mm^2)		Operating pressure (MPa)								
				6	7	8	9	10	11	12	13	14
ø40	ø20	A	1256	7.54	8.79	10.05	11.30	12.56	13.82	15.07	16.33	17.58
		B	942	5.65	6.59	7.54	8.48	9.42	10.36	11.30	12.25	13.19
ø50	ø25	A	1963	11.78	13.74	15.70	17.67	19.63	21.59	23.56	25.52	27.48
		B	1472	8.83	10.30	11.78	13.25	14.72	16.19	17.66	19.14	20.61
ø63	ø35	A	3116	18.70	21.81	24.93	28.06	31.18	34.28	37.39	40.51	43.62
		B	2154	12.92	15.08	17.23	19.39	21.54	23.69	25.85	28.00	30.16
ø80	ø40	A	5024	30.14	35.17	40.19	45.22	50.24	55.26	60.29	65.31	70.34
		B	3768	22.61	26.38	30.14	33.91	37.68	41.45	42.22	48.98	52.75
ø100	ø50	A	7850	47.10	54.95	62.80	70.65	78.50	86.35	94.20	102.05	109.90
		B	5887	35.32	41.21	47.10	52.98	58.87	64.76	70.64	76.53	82.42
ø125	ø60	A	12266	73.60	85.86	98.13	110.39	122.66	134.93	147.19	159.46	171.72
		B	9440	56.64	66.08	75.52	84.96	94.40	103.84	113.28	122.72	132.16
ø150	ø80	A	17662	105.97	123.63	141.30	158.96	176.62	194.28	211.94	229.61	247.27
		B	12638	75.83	88.47	101.10	113.74	126.38	139.02	151.66	164.29	176.93

MDMB, MDMD, MDMN



Unit: N

Tube I.D. (mm)	Rod (mm)	Area (mm^2)		Operating pressure (MPa)								
				2	3	4	5	6	7	8	9	10
ø40	ø20	A	1256	2512	3768	5024	6280	7536	8792	10048	11304	12560
		B	942	1884	2826	3768	4710	5652	6594	7536	8478	9420
ø50	ø25	A	1963	3926	5889	7852	9815	11778	13741	15704	17667	19630
		B	1472	2944	4416	5888	7360	8832	10304	11776	13248	14720
ø63	ø35	A	3116	6232	9348	12464	15580	18696	21812	24928	28062	31180
		B	2154	4308	6462	8616	10770	12924	15078	17232	19386	21540
ø80	ø40	A	5024	10048	15072	20096	25120	30144	35168	40192	45216	50240
		B	3768	7536	11304	15072	18840	22608	26376	30144	33912	3768
ø100	ø50	A	7850	15700	23550	31400	39250	47100	54950	62800	70650	78500
		B	5887	11774	17661	23548	29435	35322	41209	47196	52983	58870

The method of calculation (Hydraulic cylinders' force)

$$F = P \times A - f$$

F :	Cylinders' force	(N)
P :	Operating pressure	(MPa)
A :	Piston area	(mm^2)
f :	Friction drag	(N)

How to order the seal kit

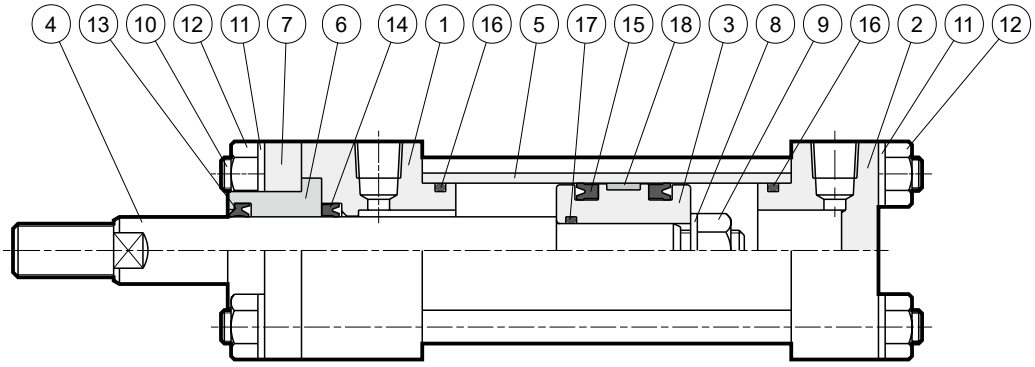
MDHBSK ☐

Tube I.D.	Seal kit
40	MDHBSK40 - Including No.13,14,15,16,17,18
50	MDHBSK50 - Including No.13,14,15,16,17,18
63	MDHBSK63 - Including No.13,14,15,16,17,18
80	MDHBSK80 - Including No.13,14,15,16,17,18
100	MDHBSK100 - Including No.13,14,15,16,17,18
125	MDHBSK125 - Including No.13,14,15,16,17,18
150	MDHBSK150 - Including No.13,14,15,16,17,18

MDHDSK ☐

Tube I.D.	Seal kit
40	MDHDSK40 - Including No.10,11,12,13,14,15
50	MDHDSK50 - Including No.10,11,12,13,14,15
63	MDHDSK63 - Including No.10,11,12,13,14,15
80	MDHDSK80 - Including No.10,11,12,13,14,15
100	MDHDSK100 - Including No.10,11,12,13,14,15
125	MDHDSK125 - Including No.10,11,12,13,14,15
150	MDHDSK150 - Including No.10,11,12,13,14,15

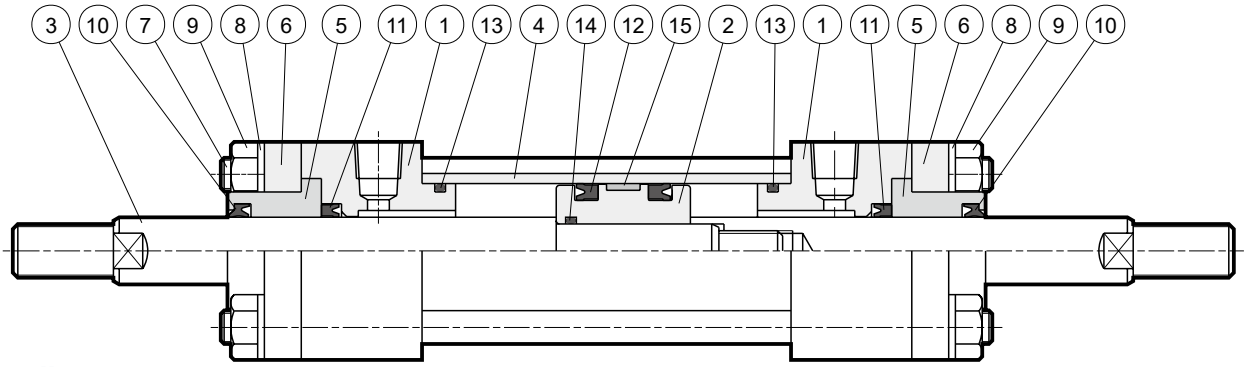
MDHB



Parts list

No.	Part name	Q'y	No.	Part name	Q'y	No.	Part name	Q'y
1	Rod cover	1	7	End plate	1	13	Dust wiper	1
2	Head cover	1	8	Spring washer	1	14	Rod packing	1
3	Piston	1	9	Piston nut	1	15	Piston packing	2
4	Piston rod	1	10	Tie bolt	4	16	Cylinder gasket	2
5	Cylinder tube	1	11	Spring washer	8	17	Piston gasket	1
6	Rod bush	1	12	Nut	8	18	Wearing ring	1

MDHD



Parts list

No.	Part name	Q'y	No.	Part name	Q'y	No.	Part name	Q'y
1	Rod cover	2	6	End plate	2	11	Rod packing	2
2	Piston	1	7	Tie bolt	4	12	Piston packing	2
3	Piston rod	1	8	Spring washer	8	13	Cylinder gasket	2
4	Cylinder tube	1	9	Nut	8	14	Piston gasket	1
5	Rod bush	2	10	Dust wiper	2	15	Wearing ring	1

How to order the seal kit

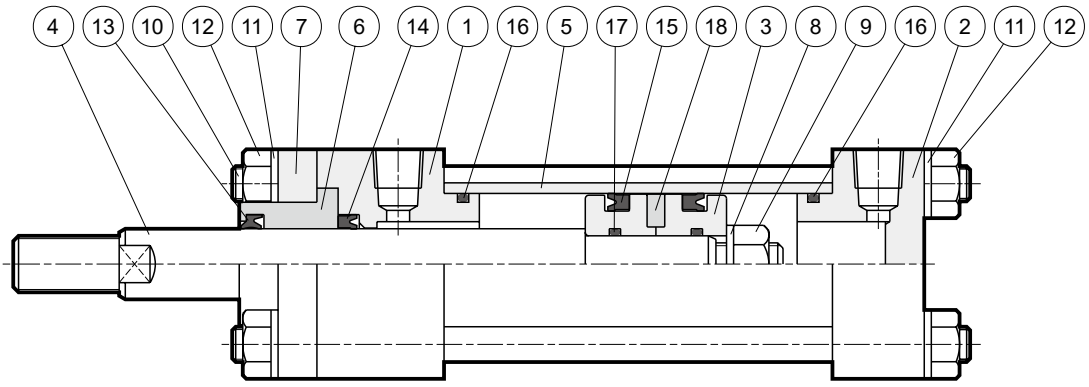
MDMBSK □

Tube I.D.	Seal kit
40	MDMBSK40 - Including No.13,14,15,16,17
50	MDMBSK50 - Including No.13,14,15,16,17
63	MDMBSK63 - Including No.13,14,15,16,17
80	MDMBSK80 - Including No.13,14,15,16,17
100	MDMBSK100 - Including No.13,14,15,16,17

MDMDSK □

Tube I.D.	Seal kit
40	MDMDSK40 - Including No.10,11,12,13,14
50	MDMDSK50 - Including No.10,11,12,13,14
63	MDMDSK63 - Including No.10,11,12,13,14
80	MDMDSK80 - Including No.10,11,12,13,14
100	MDMDSK100 - Including No.10,11,12,13,14

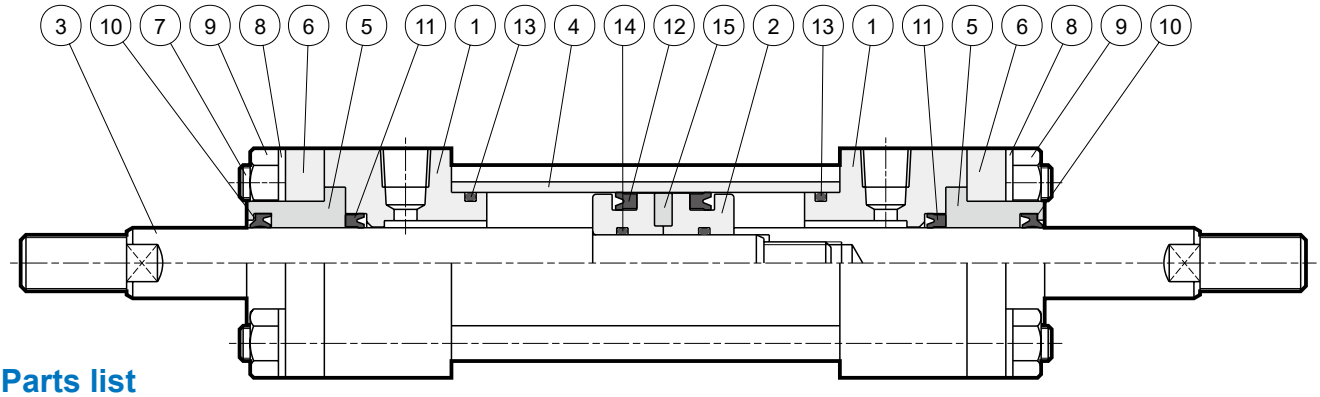
MDMB



Parts list

No.	Part name	Q'y	No.	Part name	Q'y	No.	Part name	Q'y
1	Rod cover	1	7	End plate	1	13	Dust wiper	1
2	Head cover	1	8	Spring washer	1	14	Rod packing	1
3	Piston	1	9	Nut	1	15	Piston packing	2
4	Piston rod	1	10	Tie bolt	4	16	Cylinder gasket	2
5	Cylinder tube	1	11	Spring washer	8	17	Piston gasket	1
6	Rod bush	1	12	Nut	8	18	Magnet	1

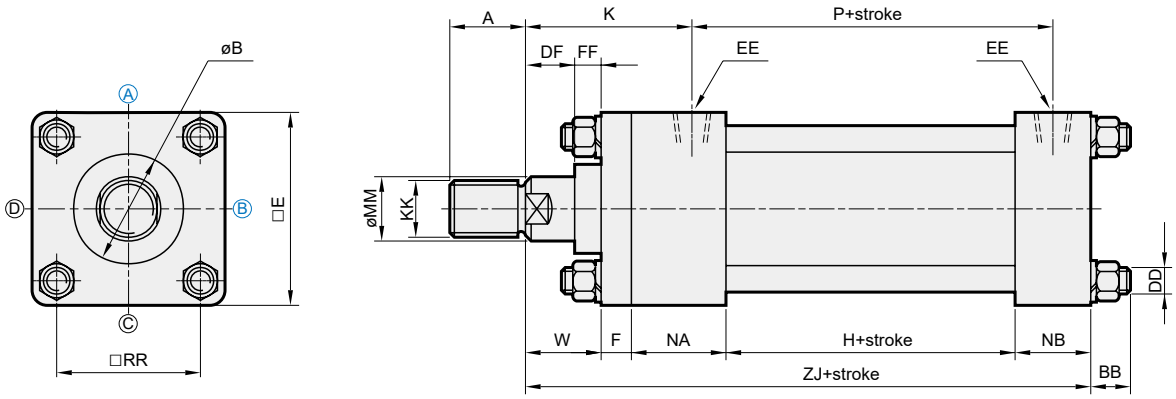
MDMD



Parts list

No.	Part name	Q'y	No.	Part name	Q'y	No.	Part name	Q'y
1	Rod cover	2	6	End plate	2	11	Rod packing	2
2	Piston	1	7	Tie bolt	4	12	Piston packing	2
3	Piston rod	1	8	Spring washer	8	13	Cylinder gasket	2
4	Cylinder tube	1	9	Nut	8	14	Piston gasket	1
5	Rod bush	2	10	Dust wiper	2	15	Magnet	1

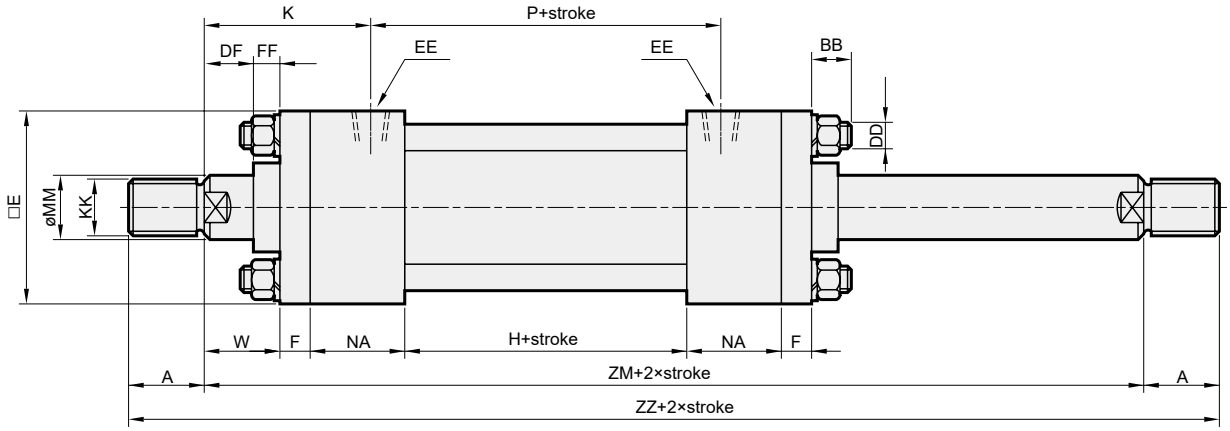
MDHB / MDMB Standard type



Note. Ⓐ Port location
Ⓑ Cushion adjustment location

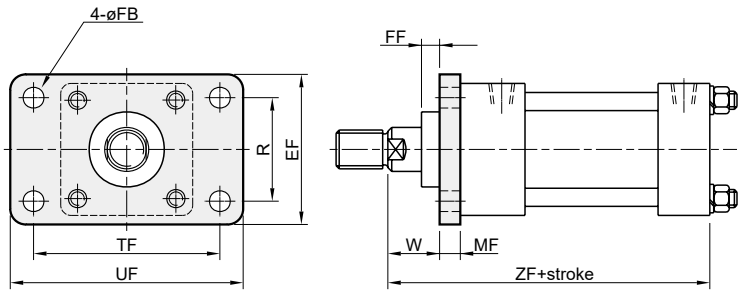
Code / Tube I.D.	A	B	BB	DD	DF	E	EE	F	FF	H	K	KK	MM	NA	NB	P	RR	W	ZJ
ø40	30	35	16	M10×1.25	14	65	Rc1/4	11	11	60	60	M16×1.5	20	36	26	84	45	25	158
ø50	35	40	16	M10×1.25	16	75	Rc3/8	13	9	60	66	M22×1.5	25	42	34	88	52	25	174
ø63	40	50	18	M12×1.5	21	90	Rc3/8	15	9	65	73	M30×1.5	35	42	34	93	63	30	186
ø80	45	55	18	M16×1.5	23	110	Rc1/2	18	7	65	79	M30×1.5	40	46	39	95	80	30	198
ø100	50	65	25	M18×1.5	33	135	Rc1/2	20	7	74	95	M40×2.0	50	50	40	104	102	40	224
ø125	60	75	30	M22×1.5	38	165	Rc3/4	25	7	74	109	M48×2.0	60	58	47	112	122	45	249
ø150	70	95	30	M26×1.5	43	195	Rc3/4	30	7	90	119	M72×2.0	80	58	48	128	148	50	276

MDHD / MDMD Double rod type



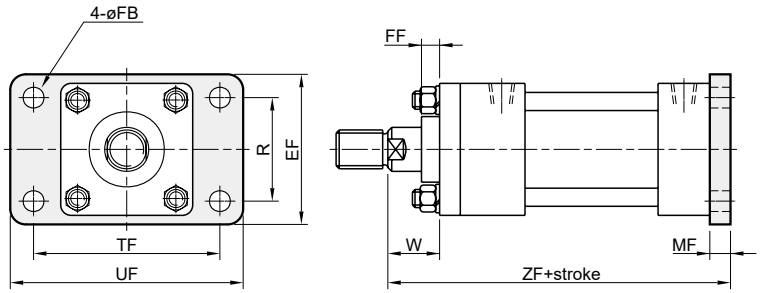
Code / Tube I.D.	A	B	BB	DD	DF	E	EE	F	FF	H	K	KK	MM	NA	P	RR	W	ZM	ZZ
ø40	30	35	16	M10×1.25	14	65	Rc1/4	11	11	60	60	M16×1.5	20	36	84	45	25	204	264
ø50	35	40	16	M10×1.25	16	75	Rc3/8	13	9	60	66	M22×1.5	25	42	88	52	25	220	290
ø63	40	50	18	M12×1.5	21	90	Rc3/8	15	9	65	73	M30×1.5	35	42	93	63	30	239	319
ø80	45	55	18	M16×1.5	23	110	Rc1/2	18	7	65	79	M30×1.5	40	46	95	80	30	253	343
ø100	50	65	25	M18×1.5	33	135	Rc1/2	20	7	74	95	M40×2.0	50	50	104	102	40	294	394
ø125	60	75	30	M22×1.5	38	165	Rc3/4	25	7	74	109	M48×2.0	60	58	112	122	45	330	450
ø150	70	95	30	M26×1.5	43	195	Rc3/4	30	7	90	119	M72×2.0	80	58	128	148	50	366	506

FA Front flange



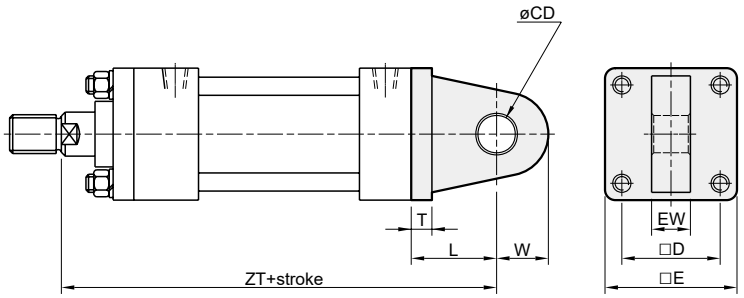
Code / Tube I.D.	EF	FB	FF	MF	R	TF	UF	W	ZF
ø40	69	11	11	11	46	95	118	25	158
ø50	85	11	9	13	58	115	145	25	174
ø63	98	14	9	15	65	132	165	30	186
ø80	118	18	7	18	87	155	190	30	198
ø100	150	22	7	20	109	190	230	40	224
ø125	175	24	7	25	130	224	272	45	249
ø150	210	28	7	30	155	270	320	50	276

FB Rear flange



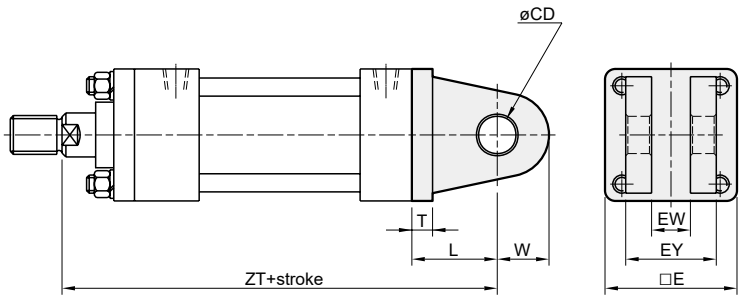
Code / Tube I.D.	EF	FB	FF	MF	R	TF	UF	W	ZF
ø40	69	11	11	11	46	95	118	25	169
ø50	85	11	9	13	58	115	145	25	187
ø63	98	14	9	15	65	132	165	30	201
ø80	118	18	7	18	87	155	190	30	216
ø100	150	22	7	20	109	190	230	40	244
ø125	175	24	7	25	130	224	272	45	274
ø150	210	28	7	30	155	270	320	50	306

CA Male pivot



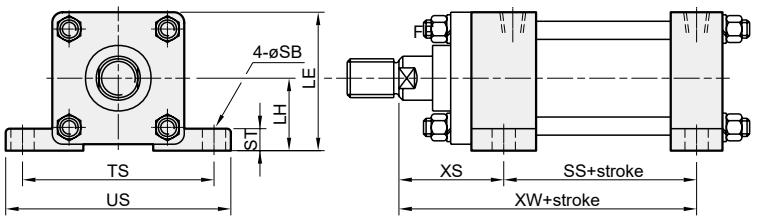
Code / Tube I.D.	CD	D	E	EW	L	T	W	ZT
ø40	16	45	65	20	38	11	16	196
ø50	20	52	75	25	45	13	20	219
ø63	25	63	90	30	54	15	25	240
ø80	30	80	110	35	71	18	30	269
ø100	40	102	135	40	86	20	40	310
ø125	50	122	165	50	110	25	50	359
ø150	60	148	195	60	109	30	60	385

CB Female pivot



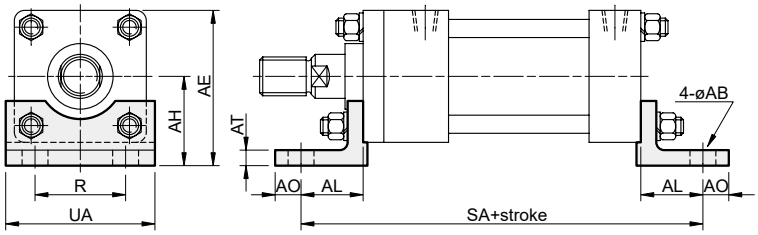
Code / Tube I.D.	CD	E	EW	EY	L	T	W	ZT
ø40	16	65	20	50	38	11	16	196
ø50	20	75	25	57	45	13	20	219
ø63	25	90	30	70	54	15	25	240
ø80	30	110	35	80	71	18	30	269
ø100	40	135	40	100	86	20	40	310
ø125	50	165	50	126	110	25	50	359
ø150	60	195	60	160	109	30	60	385

LA Side lugs



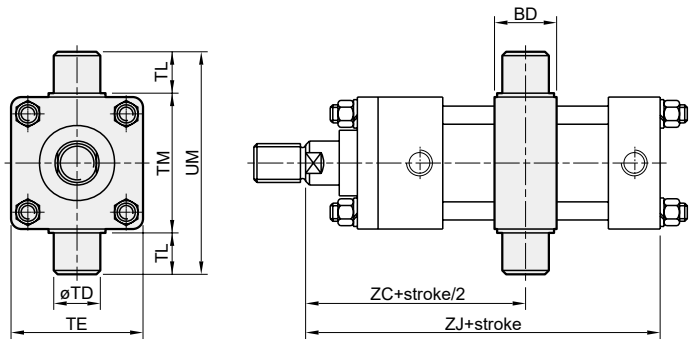
Code / Tube I.D.	LE	LH	SB	SS	ST	TS	XS	XW	US
ø40	70	37.5	11	91	14	95	54	145	118
ø50	82.5	45	11	98	17	115	59	157	145
ø63	95	50	14	103	19	132	66	169	165
ø80	115	60	18	107.5	25	155	71	178.5	190
ø100	138.5	71	22	119	27	190	85	204	230
ø125	167.5	85	24	126.5	32	224	99	225.5	272
ø150	203.5	106	28	143	37	270	109	252	320

LB Foot mouting



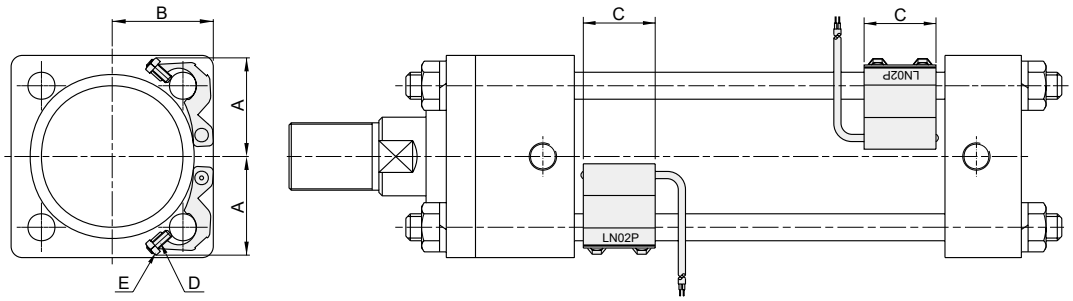
Code / Tube I.D.	AB	AE	AH	AL	AO	AT	R	SA	UA
ø40	11	75.5	43	32.5	13	8	46	198	69
ø50	11	87.5	50	32.5	15	8	58	214	85
ø63	14	105	60	37	18	10	65	230	98
ø80	18	127	72	49	20	12	87	266	118
ø100	22	152.5	85	58	23	12	109	300	150
ø125	24	187.5	105	68.5	29	15	130	341	175
ø150	28	220.5	123	74.5	30	18	155	375	210

TC Intermediate pivot



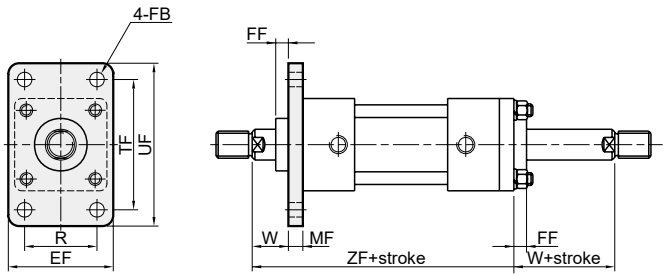
Code / Tube I.D.	BD	TE	TD	TL	TM	UM	ZC	ZJ
ø40	28	65	20	20	69	109	102	158
ø50	33	75	25	25	85	135	110	174
ø63	38	90	30	30	98	158	119.5	186
ø80	38	110	30	30	118	178	126.5	198
ø100	48	135	40	40	145	225	147	224
ø125	58	165	50	50	175	275	165	249
ø150	73	195	60	63	205	331	183	276

Installation of sensor switchs



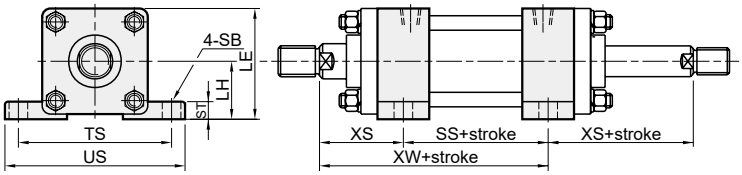
Code / Tube I.D.	Sensor switch	A	B	C	D	E
ø40	LN01P	33.7	33	32	M4×12L	M4
ø50	LN01P	36.6	37	32	M4×12L	M4
ø63	LN02P	44	45	32	M4×12L	M4
ø80	LN03P	54	56	32	M4×12L	M4
ø100	LN03P	65	67	32	M4×12L	M4

FA Front flange



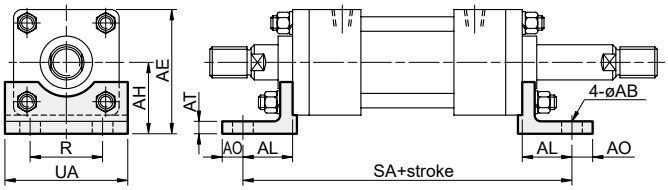
Code / Tube I.D.	EF	FB	FF	MF	R	TF	UF	W	ZF
ø40	69	11	11	11	46	95	118	25	179
ø50	85	11	9	13	58	115	145	25	195
ø63	98	14	9	15	65	132	165	30	209
ø80	118	18	7	18	87	155	190	30	223
ø100	150	22	7	20	109	190	230	40	254
ø125	175	24	7	25	130	224	272	45	285
ø150	210	28	7	30	155	270	320	50	316

LA Side lugs



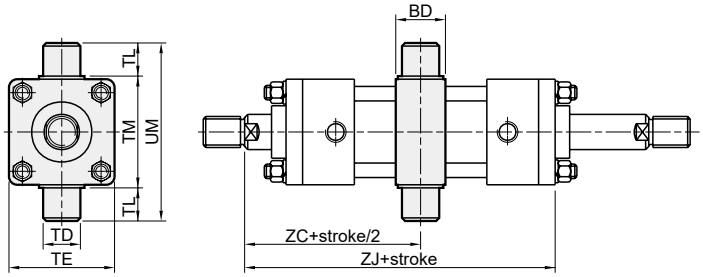
Code / Tube I.D.	LE	LH	SB	SS	ST	TS	XS	XW	US
ø40	70	37.5	11	96	14	95	54	150	118
ø50	82.5	45	11	102	17	115	59	161	145
ø63	95	50	14	107	19	132	66	173	165
ø80	115	60	18	111	25	155	71	182	190
ø100	138.5	71	22	124	27	190	85	209	230
ø125	167.5	85	24	132	32	224	99	231	272
ø150	203.5	106	28	148	37	270	109	257	320

LB Foot mouting



Code / Tube I.D.	AB	AE	AH	AL	AO	AT	R	SA	UA
ø40	11	75.5	43	32.5	13	8	46	219	69
ø50	11	87.5	50	32.5	15	8	58	235	85
ø63	14	105	60	37	18	10	65	253	98
ø80	18	127	72	49	20	12	87	291	118
ø100	22	152.5	85	58	23	12	109	330	150
ø125	24	187.5	105	68.5	29	15	130	377	175
ø150	28	220.5	123	74.5	30	18	155	415	210

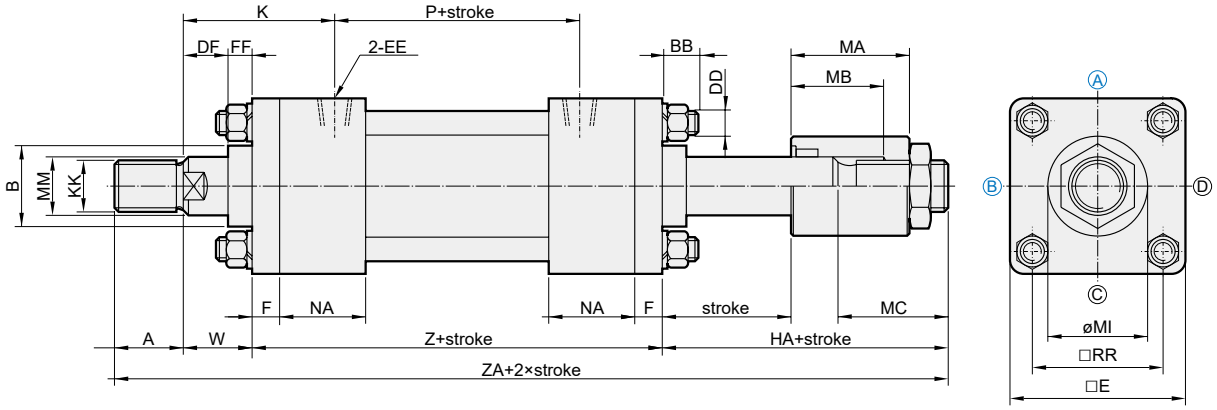
TC Intermediate pivot



Code / Tube I.D.	BD	TE	TD	TL	TM	UM	ZC	ZJ
ø40	28	65	20	20	69	109	102	179
ø50	33	75	25	25	85	135	110	195
ø63	38	90	30	30	98	158	119.5	209
ø80	38	110	30	30	118	178	126.5	223
ø100	48	135	40	40	145	225	147	254
ø125	58	165	50	50	175	275	165	285
ø150	73	195	60	63	205	331	183	316

MDHN / MDMN (A : adjustable stroke 25 mm)

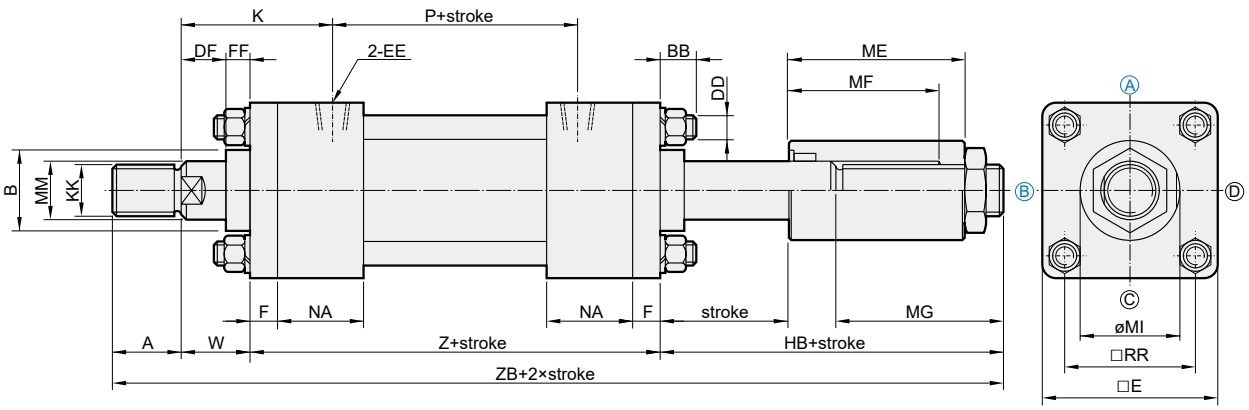
Note. Ⓐ Port location
Ⓑ Cushion adjustment location



Code / Tube I.D.	A	B	BB	DD	DF	E	EE	F	FF	HA	K	KK	MA	MB	MC	MI	MM	NA	P	RR	W	Z	ZA
ø40	30	35	14	M10×1.25	14	65	Rc1/4	11	11	71	59	M16×1.5	60	45	51	42	20	36	86	45	25	154	280
ø50	35	40	14	M10×1.25	16	75	Rc3/8	13	9	77	65	M22×1.5	63	45	57	50	25	42	90	52	25	170	307
ø63	40	50	16	M12×1.5	21	90	Rc3/8	15	9	81	72	M30×1.5	65	45	61	60	35	42	95	63	30	179	330
ø80	45	55	19	M16×1.5	23	110	Rc1/2	18	7	81	76	M30×1.5	65	45	61	70	40	46	101	80	30	193	349
ø100	50	65	25	M18×1.5	33	135	Rc1/2	20	7	88	92	M40×2.0	70	45	68	80	50	50	110	102	40	214	392
ø125	60	75	30	M22×1.5	38	165	Rc3/4	25	7	97	108	M48×2.0	76	46	73	85	60	58	114	122	45	240	442
ø150	70	95	30	M26×1.5	43	195	Rc3/4	30	7	112	118	M72×2.0	86	46	92	110	80	58	130	148	50	266	498

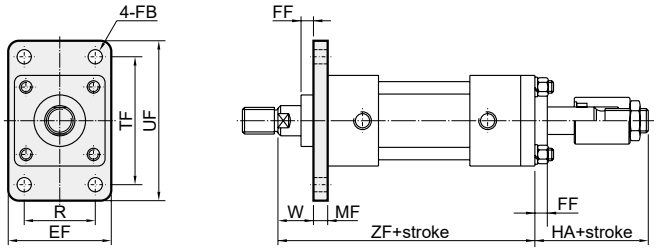
MDHN / MDMN (B : adjustable stroke 50 mm)

Note. Ⓐ Port location
Ⓑ Cushion adjustment location



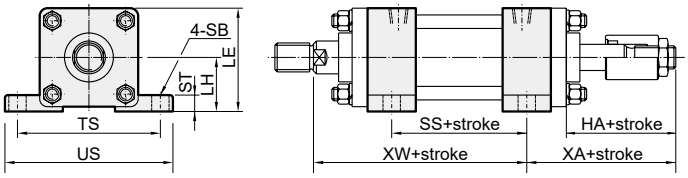
Code / Tube I.D.	A	B	BB	DD	DF	E	EE	F	FF	HB	K	KK	ME	MF	MG	MI	MM	NA	P	RR	W	Z	ZB
ø40	30	35	14	M10×1.25	14	65	Rc1/4	11	11	96	59	M16×1.5	85	70	76	42	20	36	86	45	25	154	305
ø50	35	40	14	M10×1.25	16	75	Rc3/8	13	9	102	65	M22×1.5	88	70	82	50	25	42	90	52	25	170	332
ø63	40	50	16	M12×1.5	21	90	Rc3/8	15	9	106	72	M30×1.5	90	70	86	60	35	42	95	63	30	179	355
ø80	45	55	19	M16×1.5	23	110	Rc1/2	18	7	106	76	M30×1.5	90	70	86	70	40	46	101	80	30	193	374
ø100	50	65	25	M18×1.5	33	135	Rc1/2	20	7	113	92	M40×2.0	95	70	93	80	50	50	110	102	40	214	417
ø125	60	75	30	M22×1.5	38	165	Rc3/4	25	7	122	108	M48×2.0	101	71	98	85	60	58	114	122	45	240	467
ø150	70	95	30	M26×1.5	43	195	Rc3/4	30	7	137	118	M72×2.0	111	71	117	110	80	58	130	148	50	266	523

FA (A : adjustable stroke 25 mm)



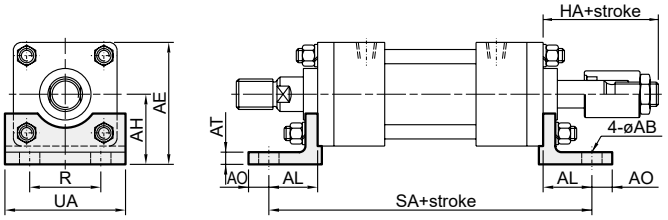
Code / Tube I.D.	EF	FB	FF	HA	MF	R	TF	UF	W	ZF
ø40	69	11	11	71	11	46	95	118	25	179
ø50	85	11	9	77	13	58	115	145	25	195
ø63	98	14	9	81	15	65	132	165	30	209
ø80	118	18	7	81	18	87	155	190	30	223
ø100	150	22	7	88	20	109	190	230	40	254
ø125	175	24	7	97	25	130	224	272	45	285
ø150	210	28	7	112	30	155	270	320	50	316

LA (A : adjustable stroke 25 mm)



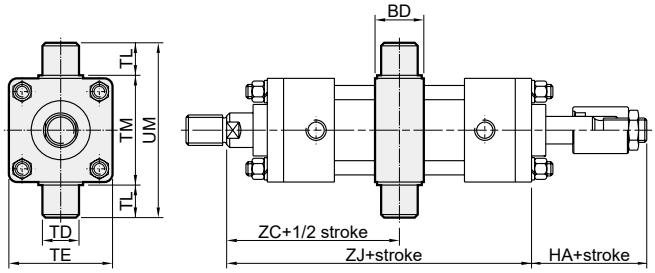
Code / Tube I.D.	LE	LH	HA	SB	SS	ST	TS	XA	XW	US
ø40	70	37.5	71	11	96	14	95	100	150	118
ø50	82.5	45	77	11	102	17	115	111	161	145
ø63	95	50	81	14	107	19	132	117	173	165
ø80	115	60	81	18	111	25	155	122	182	190
ø100	138.5	71	88	22	124	27	190	133	209	230
ø125	167.5	85	97	24	132	32	224	151	231	272
ø150	203.5	106	112	28	148	37	270	171	257	320

LB (A : adjustable stroke 25 mm)



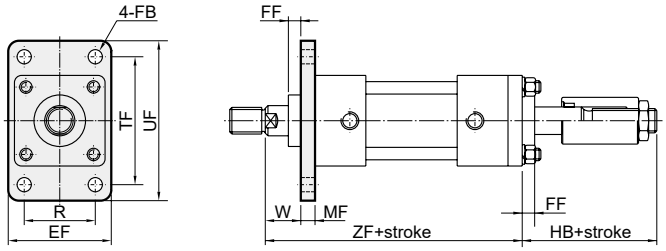
Code / Tube I.D.	AB	AE	AH	AL	AO	AT	HA	R	SA	UA
ø40	11	75.5	43	32.5	13	8	71	46	219	69
ø50	11	87.5	50	32.5	15	8	77	58	235	85
ø63	14	105	60	37	18	10	81	65	253	98
ø80	18	127	72	49	20	12	81	87	291	118
ø100	22	152.5	85	58	23	12	88	109	330	150
ø125	24	187.5	105	68.5	29	15	97	130	377	175
ø150	28	220.5	123	74.5	30	18	112	155	415	210

TC (A : adjustable stroke 25 mm)



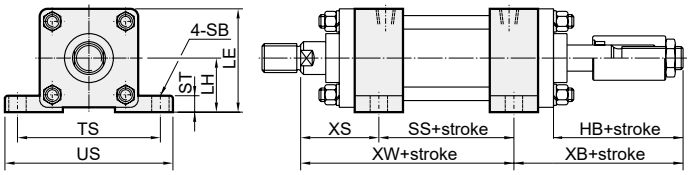
Code / Tube I.D.	BD	HA	TE	TD	TL	TM	UM	ZC	ZJ
ø40	28	71	65	20	20	69	109	102	179
ø50	33	77	75	25	25	85	135	110	195
ø63	38	81	90	30	30	98	158	119.5	209
ø80	38	81	110	30	30	118	178	126.5	223
ø100	48	88	135	40	40	145	225	147	254
ø125	58	97	165	50	50	175	275	165	285
ø150	73	112	195	60	63	205	331	183	316

FA (B : adjustable stroke 50 mm)



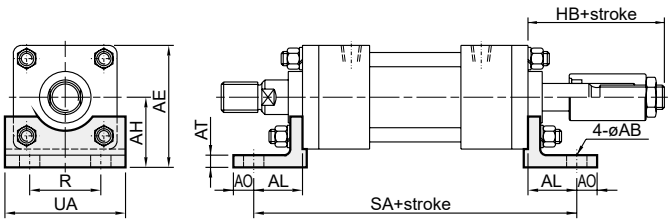
Code / Tube I.D.	EF	FB	FF	HB	MF	R	TF	UF	W	ZF
ø40	69	11	11	96	11	46	95	118	25	179
ø50	85	11	9	102	13	58	115	145	25	195
ø63	98	14	9	106	15	65	132	165	30	209
ø80	118	18	7	106	18	87	155	190	30	223
ø100	150	22	7	113	20	109	190	230	40	254
ø125	175	24	7	122	25	130	224	272	45	285
ø150	210	28	7	137	30	155	270	320	50	316

LA (B : adjustable stroke 50 mm)



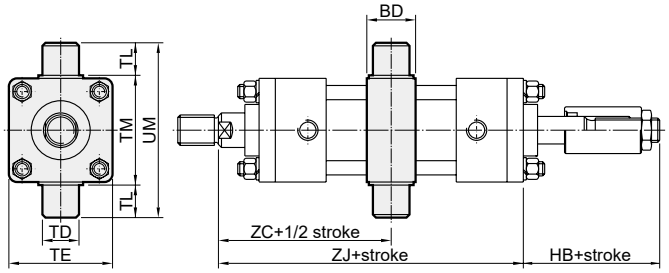
Code / Tube I.D.	LE	LH	HB	SB	SS	ST	TS	XB	XW	US
ø40	70	37.5	96	11	96	14	95	125	150	118
ø50	82.5	45	102	11	102	17	115	136	161	145
ø63	95	50	106	14	107	19	132	142	173	165
ø80	115	60	106	18	111	25	155	147	182	190
ø100	138.5	71	113	22	124	27	190	158	209	230
ø125	167.5	85	122	24	132	32	224	176	231	272
ø150	203.5	106	137	28	148	37	270	196	257	320

LB (B : adjustable stroke 50 mm)



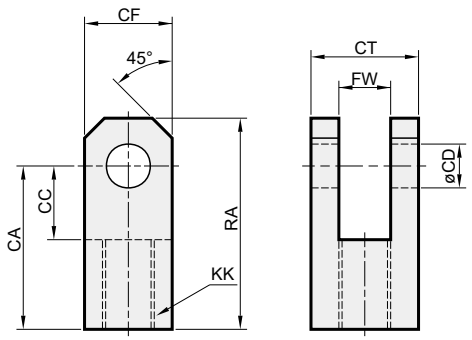
Code / Tube I.D.	AB	AE	AH	AL	AO	AT	HB	R	SA	UA
ø40	11	75.5	43	32.5	13	8	96	46	219	69
ø50	11	87.5	50	32.5	15	8	102	58	235	85
ø63	14	105	60	37	18	10	106	65	253	98
ø80	18	127	72	49	20	12	106	87	291	118
ø100	22	152.5	85	58	23	12	113	109	330	150
ø125	24	187.5	105	68.5	29	15	122	130	377	175
ø150	28	220.5	123	74.5	30	18	137	155	415	210

TC (B : adjustable stroke 50 mm)



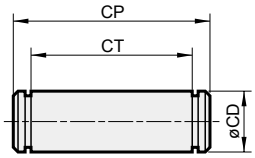
Code / Tube I.D.	BD	HB	TE	TD	TL	TM	UM	ZC	ZJ
ø40	28	96	65	20	20	69	109	102	179
ø50	33	102	75	25	25	85	135	110	195
ø63	38	106	90	30	30	98	158	119.5	209
ø80	38	106	110	30	30	118	178	126.5	223
ø100	48	113	135	40	40	145	225	147	254
ø125	58	122	165	50	50	175	275	165	285
ø150	73	137	195	60	63	205	331	183	316

Y connector



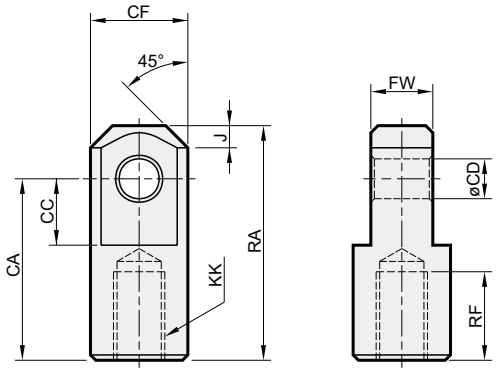
Model	Tube I.D.	CA	CC	CD	CF	CT	FW	KK	RF
Y-M16×1.5	ø40	50	26	16	35	45	20	M16×1.5	24
Y-M22×1.5	ø50	60	30	20	40	50	25	M22×1.5	30
Y-M30×1.5	ø63	80	40	25	50	60	30	M30×1.5	40
Y-M30×1.5	ø80	80	40	30	60	65	35	M30×1.5	40
Y-M40×2.0	ø100	90	50	40	80	90	40	M40×2.0	40
Y-M48×2.0	ø125	110	60	50	100	100	50	M48×2.0	50
Y-M72×2.0	ø150	130	70	60	120	120	60	M72×2.0	60

Pin



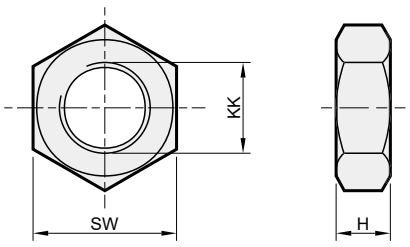
Model	Tube I.D.	CD	CP		CT	
		Y / CB-PIN	**Y**-PIN	**CB**-PIN	**Y**-PIN	**CB**-PIN
P1659	ø40	16	59	64	46	51
P2066	ø50	20	66	73	51	58
P2576	ø63	25	76	86	61	71
P3081	ø80	30	81	96	66	81
P40114	ø100	40	114	124	91	101
P50124	ø125	50	124	150	101	127
P60156	ø150	60	156	196	121	161

I connector



Model	Tube I.D.	CA	CC	CD	CF	FW	J	KK	RA	RF
I-M16×1.5	ø40	55	30	16	40	20	8	M16×1.5	75	20
I-M22×1.5	ø50	65	35	20	50	25	10	M22×1.5	90	25
I-M30×1.5	ø63	80	40	25	55	30	12.5	M30×1.5	110	35
I-M30×1.5	ø80	90	45	30	60	35	15	M30×1.5	125	35
I-M40×2.0	ø100	105	55	40	80	40	20	M40×2.0	145	40
I-M48×2.0	ø125	120	65	50	100	50	30	M48×2.0	170	50
I-M72×2.0	ø150	140	75	60	120	60	30	M72×2.0	200	55

Mounting nut

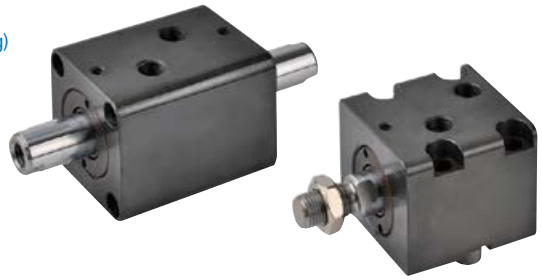


Model	Tube I.D.	H	KK	SW
N-M16×1.5	ø40	8	M16×1.5	24
N-M22×1.5	ø50	11	M22×1.5	32
N-M30×1.5	ø63	13	M30×1.5	41
N-M30×1.5	ø80	13	M30×1.5	41
N-M40×2.0	ø100	15	M40×2.0	57
N-M48×2.0	ø125	15	M48×2.0	65
N-M72×2.0	ø150	20	M72×2.0	100

MHCB / MHCQ series

COMPACT **HYDRAULIC CYLINDER**

Caution for safety
(Read before installing)

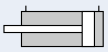
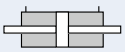
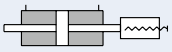


Features

- Compact body design keeps overall length to a minimum.
- Cylinder barrel internally honed to ensure smooth and consistent piston movement.
- High quality materials are used throughout construction.

Specification

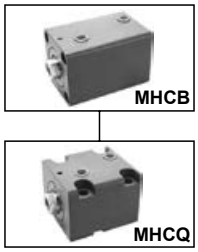
Model	MHCB / MHCQ						
Tube I.D. (mm)	20	25	32	40	50	63	80
The range of stroke (mm)	30		60	80	90	100	
Medium	Filtered oil						
Material	Carbon steel						
Max. operating pressure	14 MPa						
Ambient temperature	-10~+60°C (No freezing)						

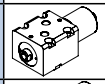
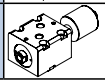
MHCB **MHCQ**	Front mounting (Single rod type) Side mounting (Single rod type)	
MHCB-D **MHCQ-D**	Front mounting (Double rod type) Side mounting (Double rod type)	
MHC*-DA **MHC*-DB**	Adjustable forward 25/50mm stroke cylinder (Double rod type)	

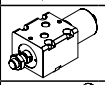
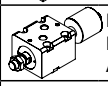
Order example

MHCB — 50 — 30 — ZDA

MODEL | TUBE I.D. | STROKE | ROD END TYPE **D**: Double rod



Blank		Single rod / Female thread	
Z		Single rod / Male thread	
D		Double rod / Female thread	
DA		Double rod / Female thread / Adjustable stroke 25mm	
DB		Double rod / Female thread/ Adjustable stroke 50mm	

ZD		Double rod / Male thread
ZDA		Double rod / Male thread / Adjustable stroke 25mm
ZDB		Double rod / Male thread / Adjustable stroke 50mm
LD		Double rod / One female thread, One male thread
RD (*)		Double rod / One male thread, One female thread

* Only for **MHCQ** model.

Standard stroke

● Standard products ○ Made to order

Model	Stroke / Tube I.D.	5	10	15	20	25	30	35	40	45	50	60	70	80	90	100
MHCB MHCB-Z	ø20	○	●	○	●	○	●	○	●	—	—	—	—	—	—	—
	ø25	○	●	○	●	○	●	○	●	○	●	—	—	—	—	—
	ø32	●	●	●	●	●	●	○	●	○	●	●	—	—	—	—
	ø40	●	●	●	●	●	●	○	●	○	●	●	●	●	—	—
	ø50	●	●	●	●	●	●	○	●	○	●	●	●	●	●	—
	ø63	●	●	●	●	●	●	○	●	○	●	●	●	●	●	●
	ø80	●	●	●	●	●	●	○	●	○	●	●	●	●	●	●
MHCB-D MHCB-ZD MHCB-LD	ø32	○	●	○	●	○	●	○	●	○	●	—	—	—	—	—
	ø40	○	●	○	●	○	●	○	●	○	●	—	—	—	—	—
	ø50	○	●	○	●	○	●	○	●	○	●	—	—	—	—	—
	ø63	○	●	○	●	○	●	○	●	○	●	—	—	—	—	—
	ø80	○	●	○	●	○	●	○	●	○	●	—	—	—	—	—
MHCB-DA MHCB-ZDA MHCB-DB MHCB-ZDB	ø32	○	●	○	●	○	●	○	●	○	●	—	—	—	—	—
	ø40	○	●	○	●	○	●	○	●	○	●	—	—	—	—	—
	ø50	○	●	○	●	○	●	○	●	○	●	—	—	—	—	—
	ø63	○	●	○	●	○	●	○	●	○	●	—	—	—	—	—
	ø80	○	●	○	●	○	●	○	●	○	●	—	—	—	—	—

Model	Stroke / Tube I.D.	5	10	15	20	25	30	35	40	45	50	60	70	80	90	100
MHCQ MHCQ-Z	ø32	○	●	○	●	○	●	○	●	○	●	—	—	—	—	—
	ø40	○	●	○	●	○	●	○	●	○	●	—	—	—	—	—
	ø50	○	●	○	●	○	●	○	●	○	●	—	—	—	—	—
	ø63	○	●	○	●	○	●	○	●	○	●	—	—	—	—	—
MHCQ-D MHCQ-ZD MHCQ-RD MHCQ-LD	ø32	○	●	○	●	○	●	○	●	○	●	—	—	—	—	—
	ø40	○	●	○	●	○	●	○	●	○	●	—	—	—	—	—
	ø50	○	●	○	●	○	●	○	●	○	●	—	—	—	—	—
	ø63	○	●	○	●	○	●	○	●	○	●	—	—	—	—	—
MHCQ-DA MHCQ-ZDA MHCQ-DB MHCQ-ZDB	ø32	○	●	○	●	○	●	○	●	○	●	—	—	—	—	—
	ø40	○	●	○	●	○	●	○	●	○	●	—	—	—	—	—
	ø50	○	●	○	●	○	●	○	●	○	●	—	—	—	—	—
	ø63	○	●	○	●	○	●	○	●	○	●	—	—	—	—	—

Theoretic force

Unit: KN

Tube I.D. (mm)	Rod (mm)	Area (mm^2)		Operating pressure (MPa)								
				6	7	8	9	10	11	12	13	14
ø20	ø12	A	314	1.88	2.20	2.51	2.83	3.14	3.46	3.77	4.08	4.40
		B	201	1.21	1.41	1.61	1.81	2.01	2.21	2.41	2.61	2.81
ø25	ø14	A	491	2.95	3.44	3.93	4.42	4.91	5.40	5.89	6.38	6.87
		B	337	2.02	2.36	2.70	3.03	3.37	3.71	4.04	4.38	4.72
ø32	ø20	A	804	4.83	5.63	6.43	7.24	8.04	8.85	9.65	10.46	11.26
		B	490	2.94	3.43	3.92	4.41	4.90	5.39	5.88	6.37	6.86
ø40	ø25	A	1257	7.54	8.80	10.05	11.31	12.57	13.82	15.08	16.34	17.59
		B	766	4.59	5.36	6.13	6.89	7.66	8.42	9.19	9.95	10.72
ø50	ø30	A	1963	11.78	13.74	15.71	17.67	19.63	21.60	23.56	25.53	27.49
		B	1257	7.54	8.80	10.05	11.31	12.57	13.82	15.08	16.34	17.59
ø63	ø35	A	3117	18.70	21.82	24.94	28.06	31.17	34.29	37.41	40.52	43.64
		B	2155	12.93	15.09	17.24	19.40	21.55	23.71	25.86	28.02	30.17
ø80	ø45	A	5027	30.16	35.19	40.21	45.24	50.27	55.29	60.32	65.35	70.37
		B	3436	20.62	24.05	27.49	30.93	34.36	37.80	41.23	44.67	48.11

The method of calculation

(Hydraulic cylinders' force)

$$F = P \times A - f$$

F:	Cylinders' force	(N)
P:	Operating pressure	(MPa)
A:	Piston area	(mm^2)
f :	Friction drag	(N)

How to order the seal kit

MHC□SK □

B
Q

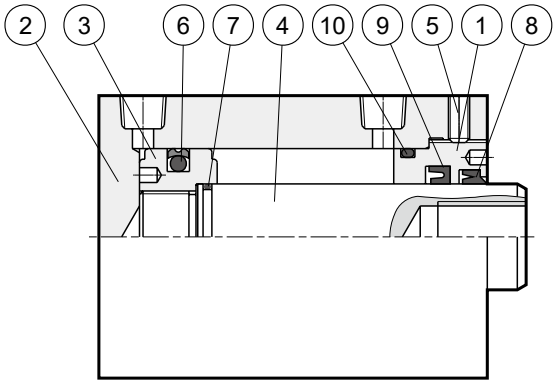
Tube I.D.	Seal kit
20	MHCB20 - Including No.6,7,8,9,10
25	MHCB25 - Including No.6,7,8,9,10
32	MHCB32,MHCQ32 - Including No.6,7,8,9,10
40	MHCB40,MHCQ40 - Including No.6,7,8,9,10
50	MHCB50,MHCQ50 - Including No.6,7,8,9,10
63	MHCB63,MHCQ63 - Including No.6,7,8,9,10
80	MHCB80 - Including No.6,7,8,9,10

MHC□SK □ D

B
Q

Tube I.D.	Seal kit
32	MHCB32D,MHCQ32D - Including No.6,7,8,9,10
40	MHCB40D,MHCQ40D - Including No.6,7,8,9,10
50	MHCB50D,MHCQ50D - Including No.6,7,8,9,10
63	MHCB63D,MHCQ63D - Including No.6,7,8,9,10
80	MHCB80D - Including No.6,7,8,9,10

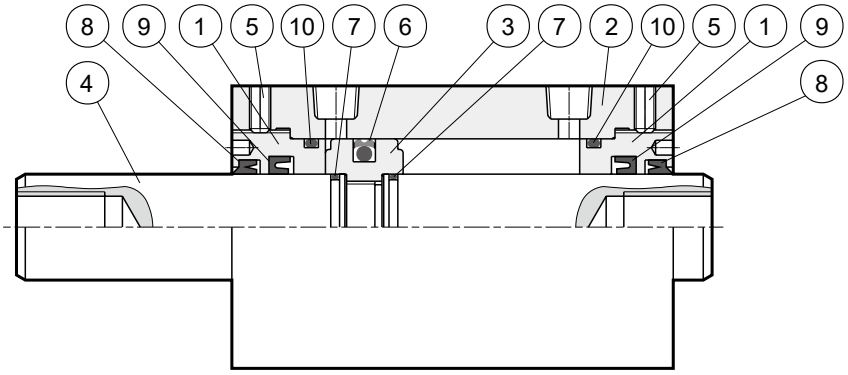
MHCB
MHCQ



Parts list

No.	Part name	Q'y	No.	Part name	Q'y	No.	Part name	Q'y
1	Rod cover	1	5	Set screw	1	9	Rod packing	1
2	Cylinder tube	1	6	Piston packing	1	10	Cylinder gasket	1
3	Piston	1	7	Piston gasket	1	11		
4	Piston rod	1	8	Dust wiper	1	12		

MHCB-D
MHCQ-D



Parts list

No.	Part name	Q'y	No.	Part name	Q'y	No.	Part name	Q'y
1	Rod cover	2	5	Set screw	2	9	Rod packing	2
2	Cylinder tube	1	6	Piston packing	1	10	Cylinder gasket	2
3	Piston	1	7	Piston gasket	2	11		
4	Piston rod	1	8	Dust wiper	2	12		

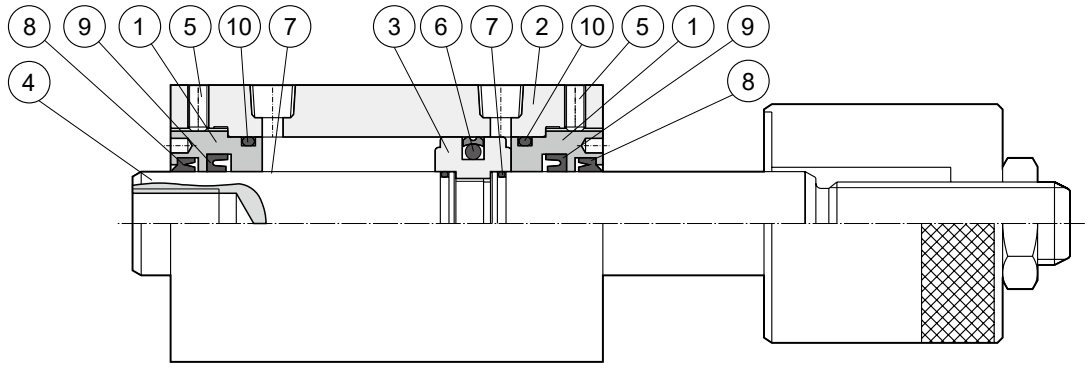
How to order the seal kit

MHC□SK□D

B
Q

Tube I.D.	Seal kit
32	MHCBSK32D,MHCQSK32D - Including No.6,7,8,9,10
40	MHCBSK40D,MHCQSK40D - Including No.6,7,8,9,10
50	MHCBSK50D,MHCQSK50D - Including No.6,7,8,9,10
63	MHCBSK63D,MHCQSK63D - Including No.6,7,8,9,10
80	MHCBSK80D - Including No.6,7,8,9,10

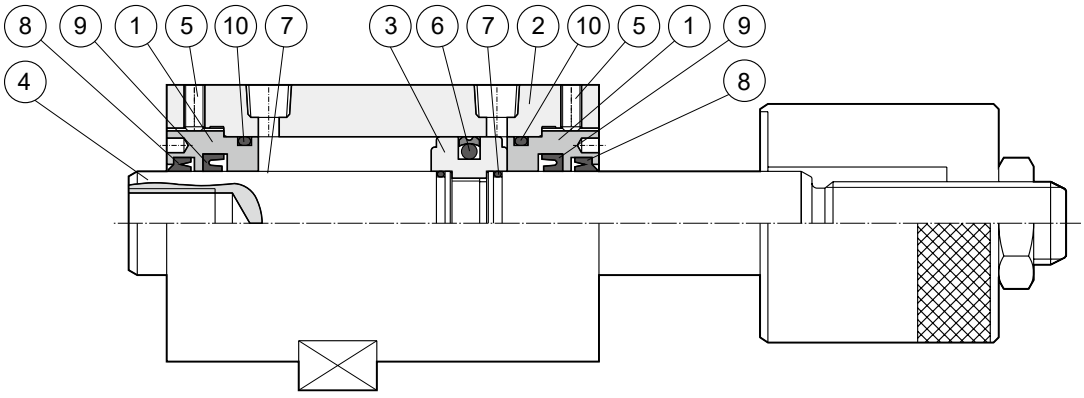
MHCB-DA MHCB-DB



Parts list

No.	Part name	Q'y	No.	Part name	Q'y	No.	Part name	Q'y
1	Rod cover	1	5	Set screw	1	9	Rod packing	1
2	Cylinder tube	1	6	Piston packing	1	10	Cylinder gasket	1
3	Piston	1	7	Piston gasket	1	11		
4	Piston rod	1	8	Dust wiper	1	12		

MHCQ-DA MHCQ-DB



Parts list

No.	Part name	Q'y	No.	Part name	Q'y	No.	Part name	Q'y
1	Rod cover	2	5	Set screw	2	9	Rod packing	2
2	Cylinder tube	1	6	Piston packing	1	10	Cylinder gasket	2
3	Piston	1	7	Piston gasket	2	11		
4	Piston rod	1	8	Dust wiper	2	12		

Weight

Cylinder weight (Including the mounting nut)

Tube I.D. / Model / Stroke	ø20		ø25		ø32				ø40				ø50				ø63				ø80	
	MHCB		MHCB		MHCB		MHCQ		MHCB		MHCQ		MHCB		MHCQ		MHCB		MHCQ		MHCB	
	N	Z	N	Z	N	Z	N	Z	N	Z	N	Z	N	Z	N	Z	N	Z	N	Z	N	Z
5	0.64	0.69	0.88	0.93	1.61	1.71	1.72	1.82	2.00	2.20	2.21	2.41	2.78	3.03	3.27	3.52	4.24	4.69	5.28	5.73	7.46	8.31
10	0.63	0.68	0.87	0.92	1.73	1.83	1.71	1.81	2.15	2.35	2.19	2.39	2.96	3.21	3.24	3.49	4.48	4.93	5.22	5.67	7.80	8.65
15	0.75	0.80	1.02	1.07	1.85	1.95	1.98	2.08	2.30	2.50	2.55	2.75	3.14	3.39	3.71	3.96	4.72	5.17	5.90	6.35	8.14	8.99
20	0.74	0.79	1.01	1.06	1.97	2.07	1.97	2.07	2.45	2.65	2.53	2.73	3.32	3.57	3.68	3.93	4.96	5.41	5.84	6.29	8.48	9.33
25	0.86	0.91	1.16	1.21	2.09	2.19	2.24	2.34	2.60	2.80	2.89	3.09	3.50	3.75	4.15	4.40	5.20	5.65	6.52	6.97	8.82	9.67
30	0.85	0.90	1.15	1.20	2.21	2.31	2.23	2.33	2.75	2.95	2.87	3.07	3.68	3.93	4.12	4.37	5.44	5.89	6.46	6.91	9.16	10.01
35	0.97	1.02	1.30	1.35	2.46	2.56	2.50	2.60	3.07	3.27	3.23	3.43	4.07	4.32	4.59	4.84	5.98	6.43	7.14	7.59	9.93	10.78
40	0.96	1.01	1.29	1.34	2.45	2.55	2.49	2.59	3.05	3.25	3.21	3.41	4.04	4.29	4.56	4.81	5.92	6.37	7.08	7.53	9.84	10.69
45	–	–	1.44	1.49	2.70	2.80	2.76	2.86	3.37	3.57	3.57	3.77	4.43	4.68	5.03	5.28	6.46	6.91	7.76	8.21	10.61	11.46
50	–	–	1.43	1.48	2.69	2.79	2.75	2.85	3.35	3.55	3.55	3.75	4.40	4.65	5.00	5.25	6.40	6.85	7.70	8.15	10.52	11.37
60	–	–	–	–	2.93	3.03	3.01	3.11	3.65	3.85	3.89	4.09	4.76	5.01	5.44	5.69	6.88	7.33	8.32	8.77	11.20	12.05
70	–	–	–	–	3.17	3.27	3.27	3.37	3.95	4.15	4.23	4.43	5.12	5.37	5.88	6.13	7.36	7.81	8.94	9.39	11.88	12.73
80	–	–	–	–	3.41	3.51	3.53	3.63	4.25	4.45	4.57	4.77	5.48	5.73	6.32	6.57	7.84	8.29	9.56	10.01	12.56	13.41
90	–	–	–	–	3.65	3.75	3.79	3.89	4.55	4.75	4.91	5.11	5.84	6.09	6.76	7.01	8.32	8.77	10.18	10.63	13.24	14.09
100	–	–	–	–	3.89	3.99	4.05	4.15	4.85	5.05	5.25	5.45	6.20	6.45	7.20	7.45	8.80	9.25	10.80	11.25	13.92	14.77

* N (Female thread); Z (Male thread)

Tube I.D. / Model / Stroke	ø32						ø40						ø50						ø63						ø80		
	MHCB-D			MHCQ-D			MHCB-D			MHCQ-D			MHCB-D			MHCQ-D			MHCB-D			MHCQ-D			MHCB-D		
	N	Z	L	N	Z	L,R	N	Z	L	N	Z	L,R	N	Z	L	N	Z	L,R	N	Z	L	N	Z	L,R	N	Z	L
5	1.89	2.06	1.97	1.90	2.07	1.99	2.37	2.71	2.54	2.45	2.79	2.62	3.22	3.65	3.44	3.63	4.05	3.84	4.85	5.61	5.23	5.59	6.35	5.98	10.18	11.63	10.90
10	1.89	2.06	1.97	1.90	2.07	1.99	2.37	2.71	2.54	2.45	2.79	2.62	3.22	3.65	3.43	3.62	4.05	3.84	4.83	5.59	5.21	5.58	6.34	5.96	10.15	11.60	10.88
15	2.11	2.28	2.20	2.14	2.31	2.23	2.66	3.00	2.83	2.77	3.11	2.94	3.58	4.00	3.79	4.05	4.47	4.26	5.32	6.08	5.70	6.18	6.95	6.57	10.87	12.31	11.59
20	2.11	2.28	2.20	2.14	2.31	2.23	2.66	3.00	2.83	2.77	3.11	2.94	3.57	4.00	3.79	4.04	4.47	4.26	5.30	6.07	5.68	6.17	6.93	6.55	10.84	12.28	11.58
25	2.34	2.51	2.42	2.38	2.55	2.47	2.94	3.28	3.11	3.09	3.43	3.26	3.93	4.36	4.14	4.47	4.90	4.68	5.79	6.56	6.17	6.78	7.54	7.16	11.55	12.99	12.27
30	2.34	2.51	2.42	2.39	2.56	2.47	2.95	3.29	3.12	3.10	3.44	3.27	3.93	4.35	4.14	4.47	4.89	4.68	5.77	6.54	6.15	6.76	7.52	7.14	11.52	12.97	12.25
35	2.56	2.73	2.65	2.63	2.80	2.71	3.23	3.57	3.40	3.42	3.76	3.59	4.28	4.71	4.50	4.89	5.32	5.10	6.26	7.03	6.64	7.37	8.13	7.75	12.23	13.68	12.96
40	2.56	2.73	2.65	2.63	2.80	2.71	3.23	3.57	3.40	3.42	3.76	3.59	4.28	4.71	4.49	4.89	5.31	5.10	6.24	7.01	6.63	7.35	8.11	7.73	12.21	13.65	12.93
45	2.79	2.96	2.87	2.87	3.04	2.95	3.52	3.86	3.69	3.74	4.08	3.91	4.64	5.06	4.85	5.31	5.74	5.52	6.73	7.50	7.12	7.96	8.72	8.34	12.92	14.35	13.64
50	2.79	2.96	2.87	2.87	3.04	2.96	3.52	3.86	3.69	3.74	4.08	3.91	4.63	5.06	4.85	5.31	5.73	5.52	6.72	7.48	7.10	7.94	8.71	8.32	12.89	14.34	13.61

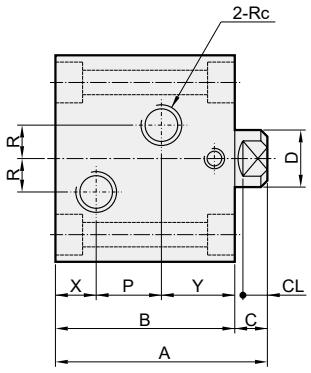
* N (Bilateral Female thread); Z (Bilateral Male thread); L, R (Unilateral Female thread)

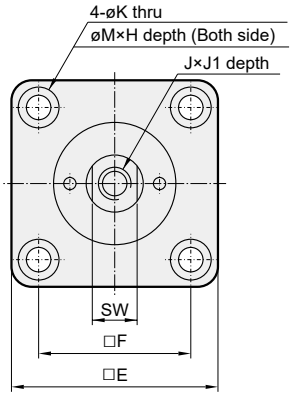
Mounting weight

Unit: kg

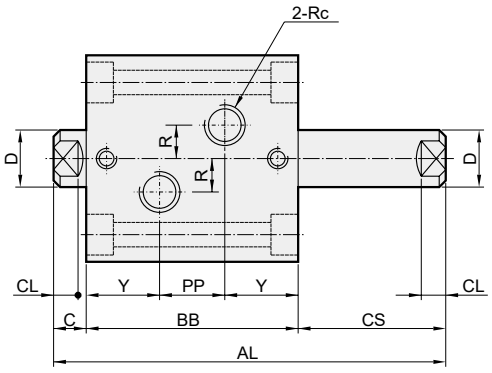
Tube I.D. (mm)	Adjustable Nut		Nut (Rod)
	A Adjustable Stroke 25mm	**B** Adjustable Stroke 50mm	
ø32	0.6	0.9	0.02
ø40	1.0	1.45	0.04
ø50	1.15	1.7	0.08
ø63	2.15	3	0.08
ø80	3.4	4.2	0.18

MHCB



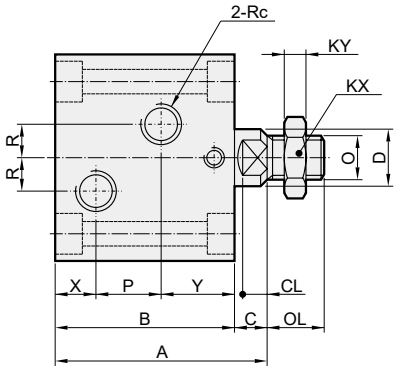


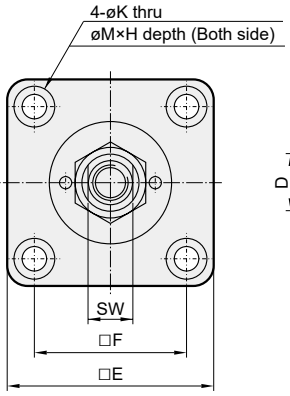
MHCB-D



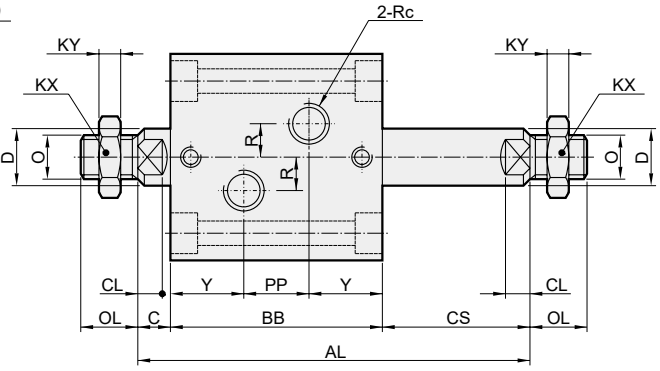
CS=C+stroke

MHCB-Z



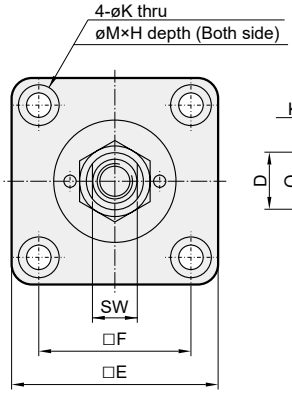


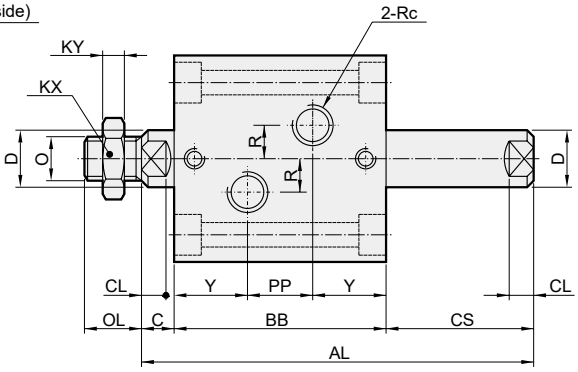
MHCB-ZD

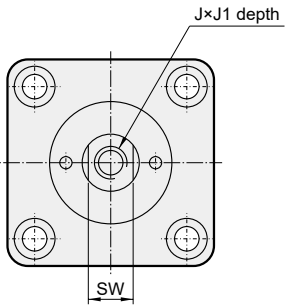


CS=C+stroke

MHCB-LD







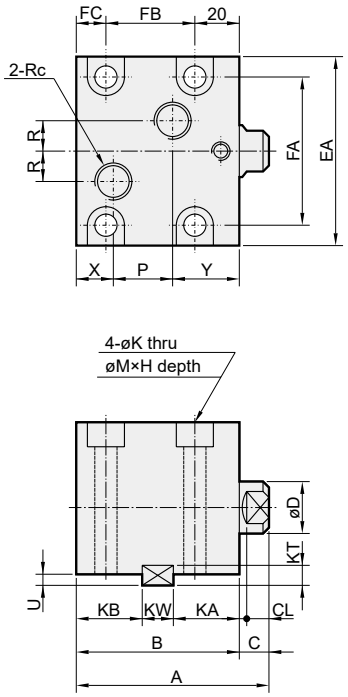
CS=C+stroke

Tube I.D.	Model	MHCB / MHCB-Z														
	Stroke	5	10	15	20	25	30	35	40	45	50	60	70	80	90	100
ø20	A	61	61	71	71	81	81	91	91	-	-	-	-	-	-	-
	B	53	53	63	63	73	73	83	83	-	-	-	-	-	-	-
	P	20	20	30	30	40	40	50	50	-	-	-	-	-	-	-
ø25	A	63	63	73	73	83	83	93	93	103	103	-	-	-	-	-
	B	55	55	65	65	75	75	85	85	95	95	-	-	-	-	-
	P	22	22	32	32	42	42	52	52	62	62	-	-	-	-	-
ø32	A	69	74	79	84	89	94	104	104	114	114	124	-	-	-	-
	B	59	64	69	74	79	84	94	94	104	104	114	-	-	-	-
	P	19	24	29	34	39	44	54	54	64	64	74	-	-	-	-
ø40	A	70	75	80	85	90	95	105	105	115	115	125	135	145	-	-
	B	60	65	70	75	80	85	95	95	105	105	115	125	135	-	-
	P	20	25	30	35	40	45	55	55	65	65	75	85	95	-	-
ø50	A	76	81	86	91	96	101	111	111	121	121	131	141	151	161	-
	B	65	70	75	80	85	90	100	100	110	110	120	130	140	150	-
	P	23	28	33	38	43	48	58	58	68	68	78	88	98	108	-
ø63	A	85	90	95	100	105	110	120	120	130	130	140	150	160	170	180
	B	72	77	82	87	92	97	107	107	117	117	127	137	147	157	167
	P	25	30	35	40	45	50	60	60	70	70	80	90	100	110	120
ø80	A	100	105	110	115	120	125	135	135	145	145	155	165	175	185	195
	B	83	88	93	98	103	108	118	118	128	128	138	148	158	168	178
	P	32	37	42	47	52	57	67	67	77	77	87	97	107	117	127

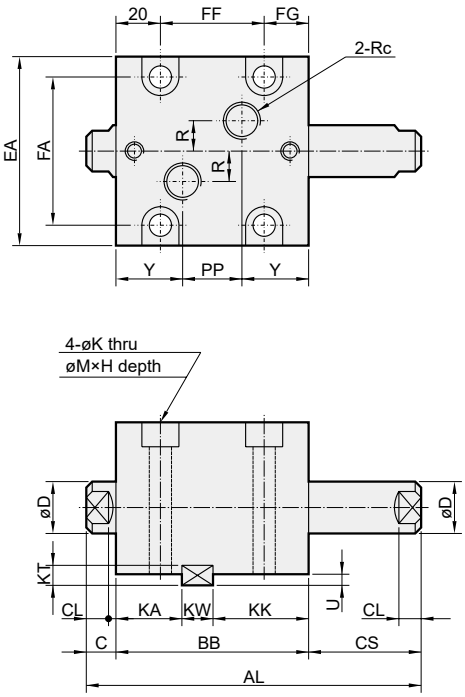
Tube I.D.	Model	MHCB-D / MHCB-ZD / MHCB-LD														
	Stroke	5	10	15	20	25	30	35	40	45	50	60	70	80	90	100
ø32	AL	104	109	124	129	144	149	164	169	184	189	-	-	-	-	-
	BB	79	79	89	89	99	99	109	109	119	119	-	-	-	-	-
	CS	15	20	25	30	35	40	45	50	55	60	-	-	-	-	-
	PP	23	23	33	33	43	43	53	53	63	63	-	-	-	-	-
ø40	AL	105	110	125	130	145	150	165	170	185	190	-	-	-	-	-
	BB	80	80	90	90	100	100	110	110	120	120	-	-	-	-	-
	CS	15	20	25	30	35	40	45	50	55	60	-	-	-	-	-
	PP	24	24	34	34	44	44	54	54	64	64	-	-	-	-	-
ø50	AL	112	117	132	137	152	157	172	177	192	197	-	-	-	-	-
	BB	85	85	95	95	105	105	115	115	125	125	-	-	-	-	-
	CS	16	21	26	31	36	41	46	51	56	61	-	-	-	-	-
	PP	26	26	36	36	46	46	56	56	66	66	-	-	-	-	-
ø63	AL	123	128	143	148	163	168	183	188	203	208	-	-	-	-	-
	BB	92	92	102	102	112	112	122	122	132	132	-	-	-	-	-
	CS	18	23	28	33	38	43	48	53	58	63	-	-	-	-	-
	PP	30	30	40	40	50	50	60	60	70	70	-	-	-	-	-
ø80	AL	142	147	162	167	182	187	202	207	222	227	-	-	-	-	-
	BB	103	103	113	113	123	123	133	133	143	143	-	-	-	-	-
	CS	22	27	32	37	42	47	52	57	62	67	-	-	-	-	-
	PP	37	37	47	47	57	57	67	67	77	77	-	-	-	-	-

Code / Tube I.D.	C	CL	D	E	F	H	J	J1	K	KX	KY	M	O	OL	Rc	R	SW	X	Y
ø20	8	6	12	42	30	5.5	M8×1.25	12	5.6	17	6	9	M10×1.25	20	Rc1/8	5	10	10	23
ø25	8	6	14	48	36	5.5	M10×1.5	15	5.6	19	7	9	M12×1.25	22	Rc1/8	5	12	10	23
ø32	10	7	20	62	47	6.5	M12×1.75	15	6.6	24	8	11	M16×1.5	25	Rc1/4	10	17	12	28
ø40	10	7	25	70	52	9	M16×2.0	20	9	32	11	14	M22×1.5	30	Rc1/4	10	22	12	28
ø50	11	8	30	80	58	11	M20×2.5	25	11	35	14	18	M26×1.5	35	Rc1/4	10	27	12.5	29.5
ø63	13	10	35	94	69	13	M27×3.0	35	13	41	13	20	M30×1.5	40	Rc3/8	10	32	16	31
ø80	17	14	45	114	86	15	M30×3.5	35	15	50	10	22	M39×1.5	45	Rc3/8	15	41	18	33

MHCQ

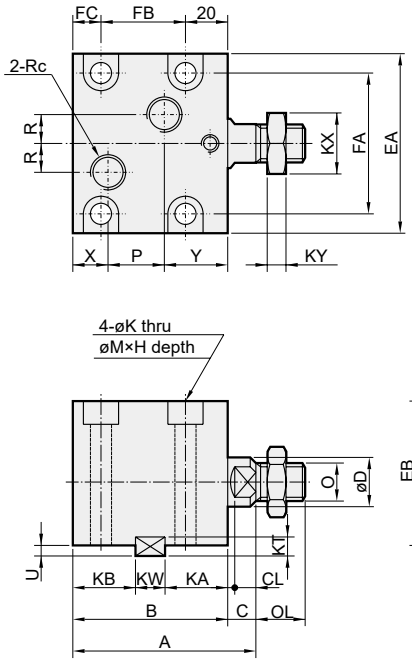


MHCQ-D

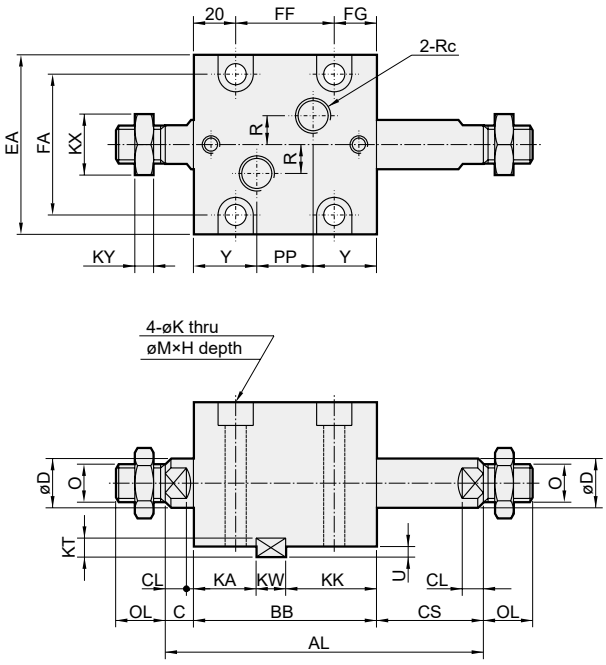


CS=C+stroke

MHCQ-Z



MHCQ-ZD



CS=C+stroke

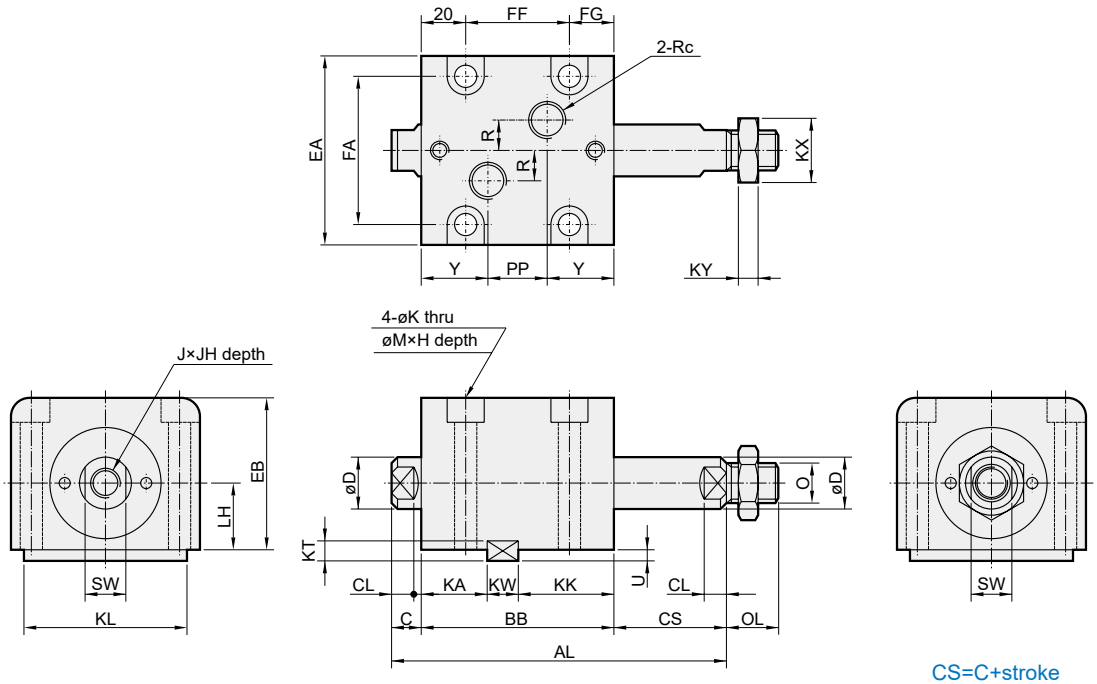
Tube I.D.	Model	MHCQ / MHCQ-Z									
	Stroke	5	10	15	20	25	30	35	40	45	50
ø32	A	74	74	84	84	94	94	104	104	114	114
	B	64	64	74	74	84	84	94	94	104	104
	FB	34	34	44	44	54	54	64	64	74	74
	KB	24	24	34	34	44	44	54	54	64	64
	P	24	24	34	34	44	44	54	54	64	64
ø40	A	75	75	85	85	95	95	105	105	115	115
	B	65	65	75	75	85	85	95	95	105	105
	FB	33	33	43	43	53	53	63	63	73	73
	KB	25	25	35	35	45	45	55	55	65	65
	P	25	25	35	35	45	45	55	55	65	65
ø50	A	81	81	91	91	101	101	111	111	121	121
	B	70	70	80	80	90	90	100	100	110	110
	FB	37	37	47	47	57	57	67	67	77	77
	KB	27	27	37	37	47	47	57	57	67	67
	P	28	28	38	38	48	48	58	58	68	68
ø63	A	90	90	100	100	110	110	120	120	130	130
	B	77	77	87	87	97	97	107	107	117	117
	FB	42	42	52	52	62	62	72	72	82	82
	KB	30	30	40	40	50	50	60	60	70	70
	P	30	30	40	40	50	50	60	60	70	70

Tube I.D.	Model	MHCQ-D / MHCQ-ZD									
	Stroke	5	10	15	20	25	30	35	40	45	50
ø32	AL	104	109	124	129	144	149	164	169	184	189
	BB	79	79	89	89	99	99	109	109	119	119
	CS	15	20	25	30	35	40	45	50	55	60
	FF	42	42	52	52	62	62	72	72	82	82
	KK	39	39	49	49	59	59	69	69	79	79
	PP	23	23	33	33	43	43	53	53	63	63
ø40	AL	105	110	125	130	145	150	165	170	185	190
	BB	80	80	90	90	100	100	110	110	120	120
	CS	15	20	25	30	35	40	45	50	55	60
	FF	42	42	52	52	62	62	72	72	82	82
	KK	40	40	50	50	60	60	70	70	80	80
	PP	24	24	34	34	44	44	54	54	64	64
ø50	AL	112	117	132	137	152	157	172	177	192	197
	BB	85	85	95	95	105	105	115	115	125	125
	CS	16	21	26	31	36	41	46	51	56	61
	FF	45	45	55	55	65	65	75	75	85	85
	KK	42	42	52	52	62	62	72	72	82	82
	PP	26	26	36	36	46	46	56	56	66	66
ø63	AL	123	128	143	148	163	168	183	188	203	208
	BB	92	92	102	102	112	112	122	122	132	132
	CS	18	23	28	33	38	43	48	53	58	63
	FF	52	52	62	62	72	72	82	82	92	92
	KK	45	45	55	55	65	65	75	75	85	85
	PP	30	30	40	40	50	50	60	60	70	70

Code / Tube I.D.	C	CL	D	EA	EB	FA	FC	FG	H	J	JH	K	KA	KL
ø32	10	7	20	70	56	56	10	17	9	M12×1.75	15	9	28	63
ø40	10	7	25	80	64	62	12	18	11	M16×2.0	20	11	28	70
ø50	11	8	30	94	74	74	13	20	13	M20×2.5	25	13	29	80
ø63	13	10	35	114	89	90	15	20	15	M27×3.0	35	15	31	100

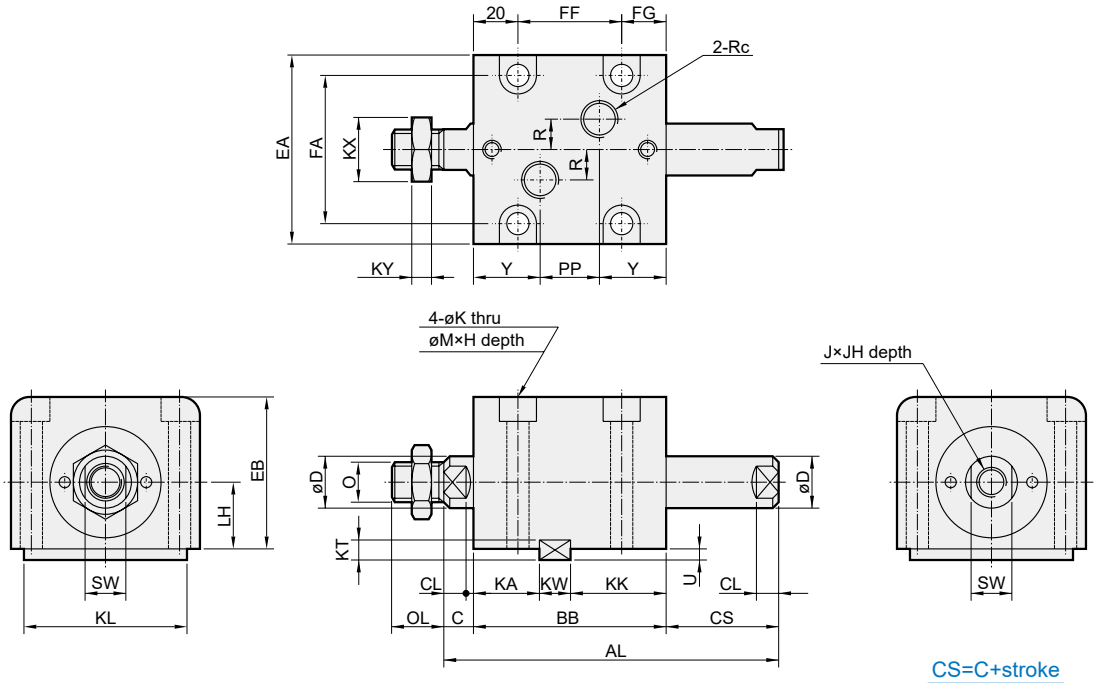
Code / Tube I.D.	KT	KW	KX	KY	LH	M	O	OL	Rc	R	SW	U	X	Y
ø32	8	12	24	8	25	14	M16×1.5	25	Rc1/4	10	17	4.5	12	28
ø40	8	12	32	11	29	18	M22×1.5	30	Rc1/4	10	22	4.5	12	28
ø50	9	14	35	14	34	20	M26×1.5	35	Rc1/4	10	27	5	12.5	29.5
ø63	10	16	41	13	42	22	M30×1.5	40	Rc3/8	10	32	5.5	16	31

MHCQ-RD



CS=C+stroke

MHCQ-LD



CS=C+stroke

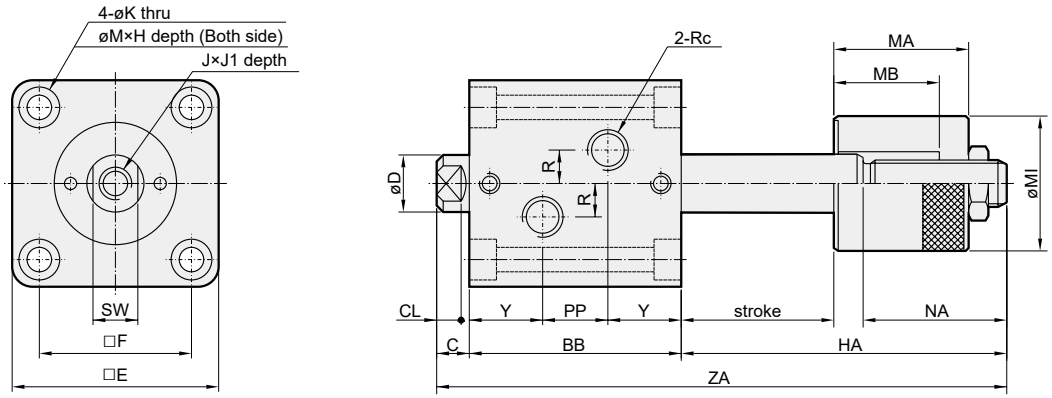
Tube I.D.	Model	MHCQ-RD / MHCQ-LD									
	Stroke	5	10	15	20	25	30	35	40	45	50
ø32	AL	104	109	124	129	144	149	164	169	184	189
	BB	79	79	89	89	99	99	109	109	119	119
	CS	15	20	25	30	35	40	45	50	55	60
	FF	42	42	52	52	62	62	72	72	82	82
	KK	39	39	49	49	59	59	69	69	79	79
	PP	23	23	33	33	43	43	53	53	63	63
ø40	AL	105	110	125	130	145	150	165	170	185	190
	BB	80	80	90	90	100	100	110	110	120	120
	CS	15	20	25	30	35	40	45	50	55	60
	FF	42	42	52	52	62	62	72	72	82	82
	KK	40	40	50	50	60	60	70	70	80	80
	PP	24	24	34	34	44	44	54	54	64	64
ø50	AL	112	117	132	137	152	157	172	177	192	197
	BB	85	85	95	95	105	105	115	115	125	125
	CS	16	21	26	31	36	41	46	51	56	61
	FF	45	45	55	55	65	65	75	75	85	85
	KK	42	42	52	52	62	62	72	72	82	82
	PP	26	26	36	36	46	46	56	56	66	66
ø63	AL	123	128	143	148	163	168	183	188	203	208
	BB	92	92	102	102	112	112	122	122	132	132
	CS	18	23	28	33	38	43	48	53	58	63
	FF	52	52	62	62	72	72	82	82	92	92
	KK	45	45	55	55	65	65	75	75	85	85
	PP	30	30	40	40	50	50	60	60	70	70

Code / Tube I.D.	C	CL	D	EA	EB	FA	FG	H	J	JH	K	KA	KL	KT
ø32	10	7	20	70	56	56	17	9	M12×1.75	15	9	28	63	8
ø40	10	7	25	80	64	62	18	11	M16×2.0	20	11	28	70	8
ø50	11	8	30	94	74	74	20	13	M20×2.5	25	13	29	80	9
ø63	13	10	35	114	89	90	20	15	M27×3.0	35	15	31	100	10

Code / Tube I.D.	KW	KX	KY	LH	M	O	OL	Rc	R	SW	U	Y
ø32	12	24	8	25	14	M16×1.5	25	Rc1/4	10	17	4.5	28
ø40	12	32	11	29	18	M22×1.5	30	Rc1/4	10	22	4.5	28
ø50	14	35	14	34	20	M26×1.5	35	Rc1/4	10	27	5	29.5
ø63	16	41	13	42	22	M30×1.5	40	Rc3/8	10	32	5.5	31

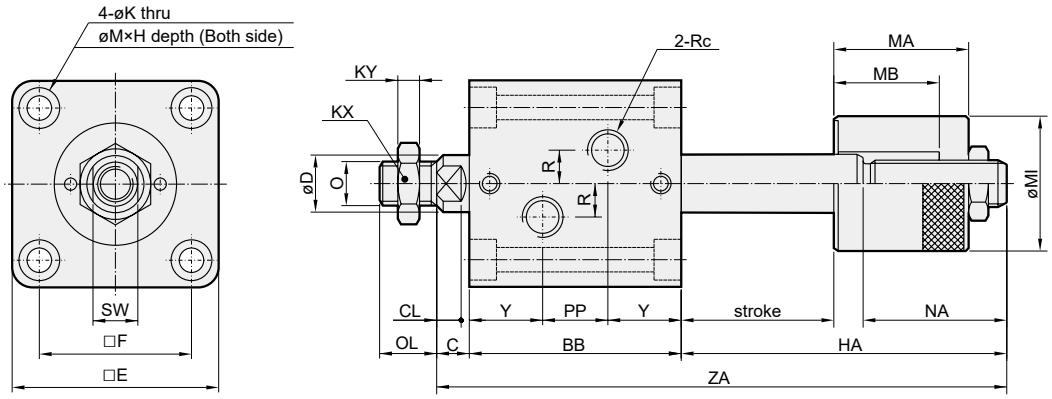
MHCB-DA

Adjustable stroke
25 mm



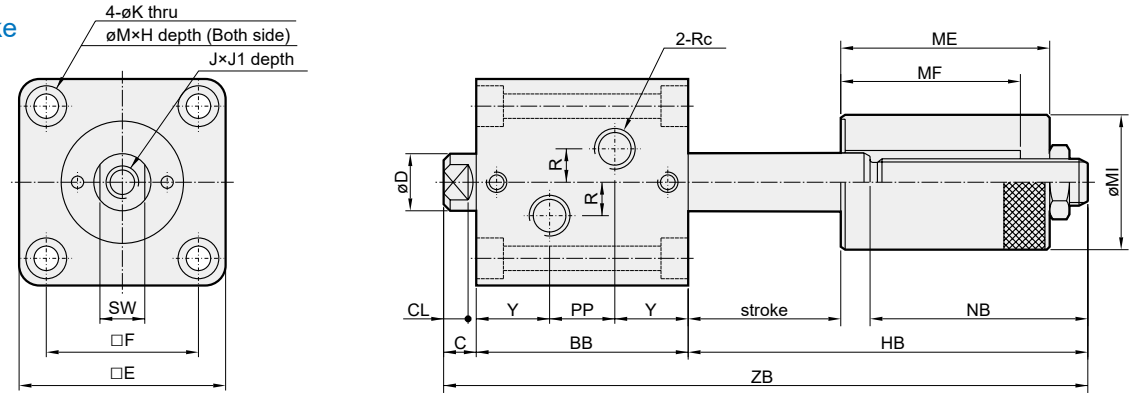
MHCB-ZDA

Adjustable stroke
25 mm



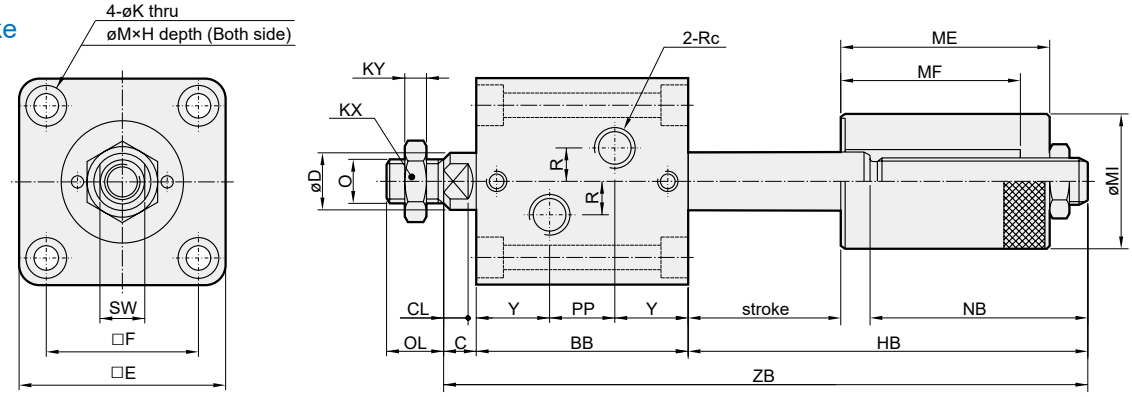
MHCB-DB

Adjustable stroke
50 mm



MHCB-ZDB

Adjustable stroke
50 mm



Tube I.D.	Model	MHCB-DA / MHCB-ZDA														
	Stroke	5	10	15	20	25	30	35	40	45	50	60	70	80	90	100
ø32	ZA	153	158	173	178	193	198	213	218	233	238	-	-	-	-	-
	BB	79	79	89	89	99	99	109	109	119	119	-	-	-	-	-
	PP	23	23	33	33	43	43	53	53	63	63	-	-	-	-	-
	HA	64	69	74	79	84	89	94	99	104	109	-	-	-	-	-
ø40	ZA	163	168	183	188	203	208	223	228	243	248	-	-	-	-	-
	BB	80	80	90	90	100	100	110	110	120	120	-	-	-	-	-
	PP	24	24	34	34	44	44	54	54	64	64	-	-	-	-	-
	HA	73	78	83	88	93	98	103	108	113	118	-	-	-	-	-
ø50	ZA	171	176	191	196	211	216	231	236	251	256	-	-	-	-	-
	BB	85	85	95	95	105	105	115	115	125	125	-	-	-	-	-
	PP	26	26	36	36	46	46	56	56	66	66	-	-	-	-	-
	HA	75	80	85	90	95	100	105	110	115	120	-	-	-	-	-
ø63	ZA	188	193	208	213	228	233	248	253	268	273	-	-	-	-	-
	BB	92	92	102	102	112	112	122	122	132	132	-	-	-	-	-
	PP	30	30	40	40	50	50	60	60	70	70	-	-	-	-	-
	HA	83	88	93	98	103	108	113	118	123	128	-	-	-	-	-
ø80	ZA	207	212	227	232	247	252	267	272	287	292	-	-	-	-	-
	BB	103	103	113	113	123	123	133	133	143	143	-	-	-	-	-
	PP	37	37	47	47	57	57	67	67	77	77	-	-	-	-	-
	HA	87	92	97	102	107	112	117	122	127	132	-	-	-	-	-

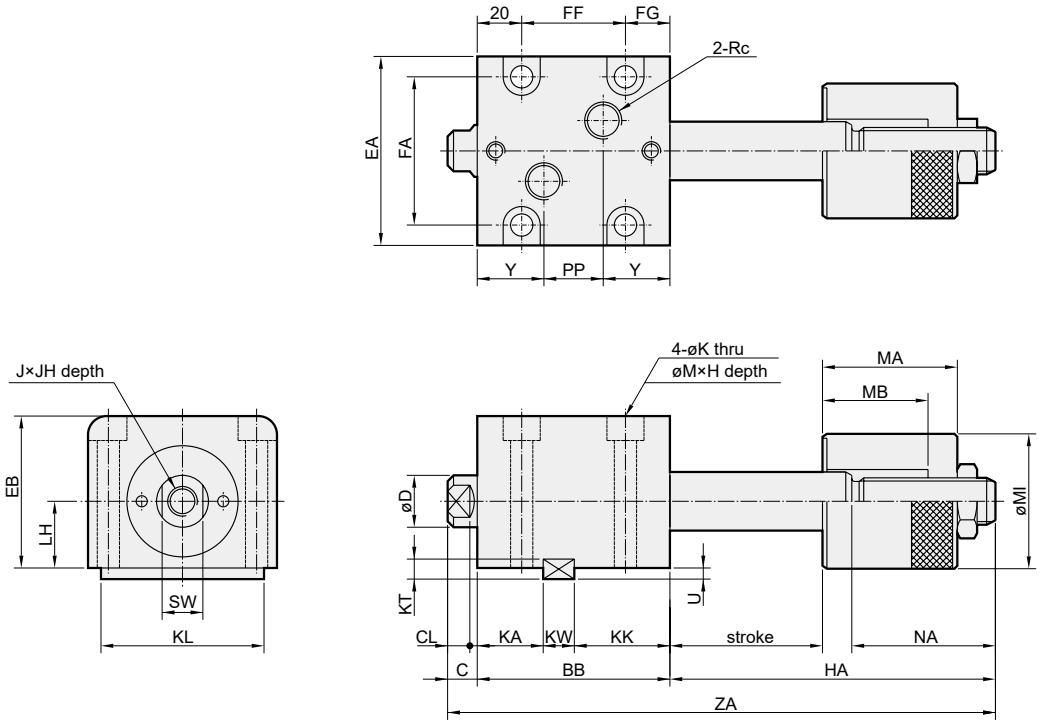
Tube I.D.	Model	MHCB-DB / MHCB-ZDB														
	Stroke	5	10	15	20	25	30	35	40	45	50	60	70	80	90	100
ø32	ZB	178	183	198	203	218	223	238	243	258	263	-	-	-	-	-
	BB	79	79	89	89	99	99	109	109	119	119	-	-	-	-	-
	PP	23	23	33	33	43	43	53	53	63	63	-	-	-	-	-
	HB	89	94	99	104	109	114	119	124	129	134	-	-	-	-	-
ø40	ZB	188	193	208	213	228	233	248	253	268	273	-	-	-	-	-
	BB	80	80	90	90	100	100	110	110	120	120	-	-	-	-	-
	PP	24	24	34	34	44	44	54	54	64	64	-	-	-	-	-
	HB	98	103	108	113	118	123	128	133	138	143	-	-	-	-	-
ø50	ZB	196	201	216	221	236	241	256	261	276	281	-	-	-	-	-
	BB	85	85	95	95	105	105	115	115	125	125	-	-	-	-	-
	PP	26	26	36	36	46	46	56	56	66	66	-	-	-	-	-
	HB	100	105	110	115	120	125	130	135	140	145	-	-	-	-	-
ø63	ZB	213	218	233	238	253	258	273	278	293	298	-	-	-	-	-
	BB	92	92	102	102	112	112	122	122	132	132	-	-	-	-	-
	PP	30	30	40	40	50	50	60	60	70	70	-	-	-	-	-
	HB	108	113	118	123	128	133	138	143	148	153	-	-	-	-	-
ø80	ZB	232	237	252	257	272	277	292	297	312	317	-	-	-	-	-
	BB	103	103	113	113	123	123	133	133	143	143	-	-	-	-	-
	PP	37	37	47	47	57	57	67	67	77	77	-	-	-	-	-
	HB	112	117	122	127	132	137	142	147	152	157	-	-	-	-	-

Code / Tube I.D.	C	CL	D	E	F	H	J	J1	K	KX	KY	M	MI	MA
ø32	10	7	20	62	47	6.5	M12×1.75	15	6.6	24	8	11	45	46
ø40	10	7	25	70	52	9	M16×2.0	20	9	32	11	14	55	54
ø50	11	8	30	80	58	11	M20×2.5	25	11	35	14	18	60	53
ø63	13	10	35	94	69	13	M27×3.0	35	13	41	13	20	75	63
ø80	17	14	45	114	86	15	M30×3.5	35	15	50	10	22	90	70

Code / Tube I.D.	MB	ME	MF	NA	NB	O	OL	Rc	R	SW	Y
ø32	36	71	61	49	74	M16×1.5	25	Rc1/4	10	17	28
ø40	36	79	61	58	83	M22×1.5	30	Rc1/4	10	22	28
ø50	37	78	62	59	84	M26×1.5	35	Rc1/4	10	27	29.5
ø63	39	88	64	65	90	M30×1.5	40	Rc3/8	10	32	31
ø80	43	95	68	65	90	M39×1.5	45	Rc3/8	15	41	33

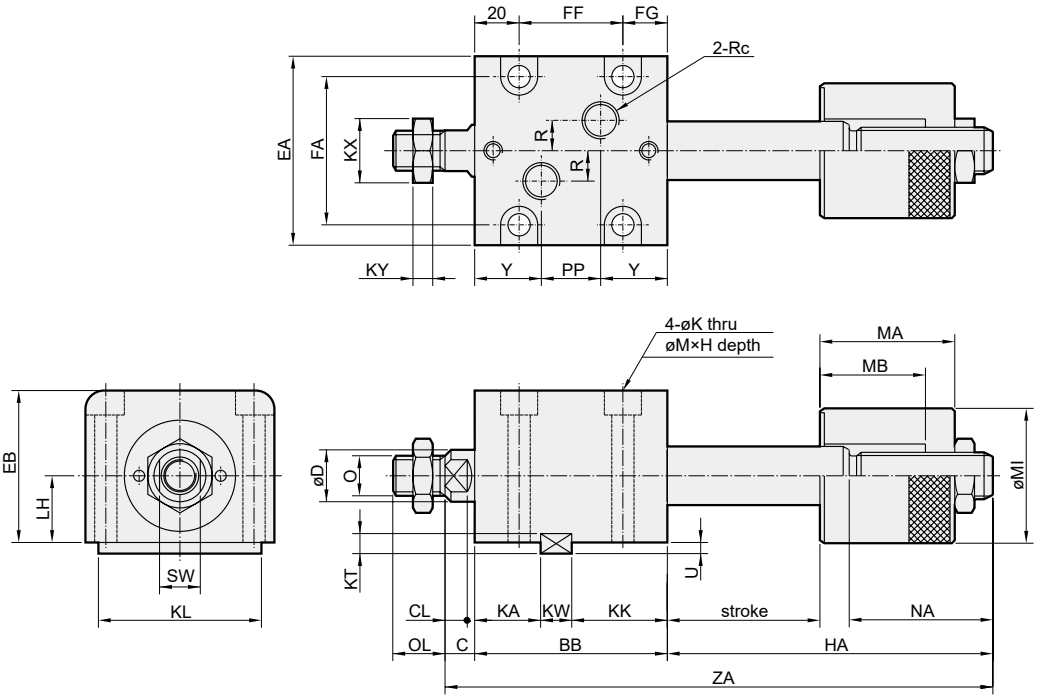
MHCQ-DA

Adjustable stroke 25 mm



MHCQ-ZDA

Adjustable stroke 25 mm



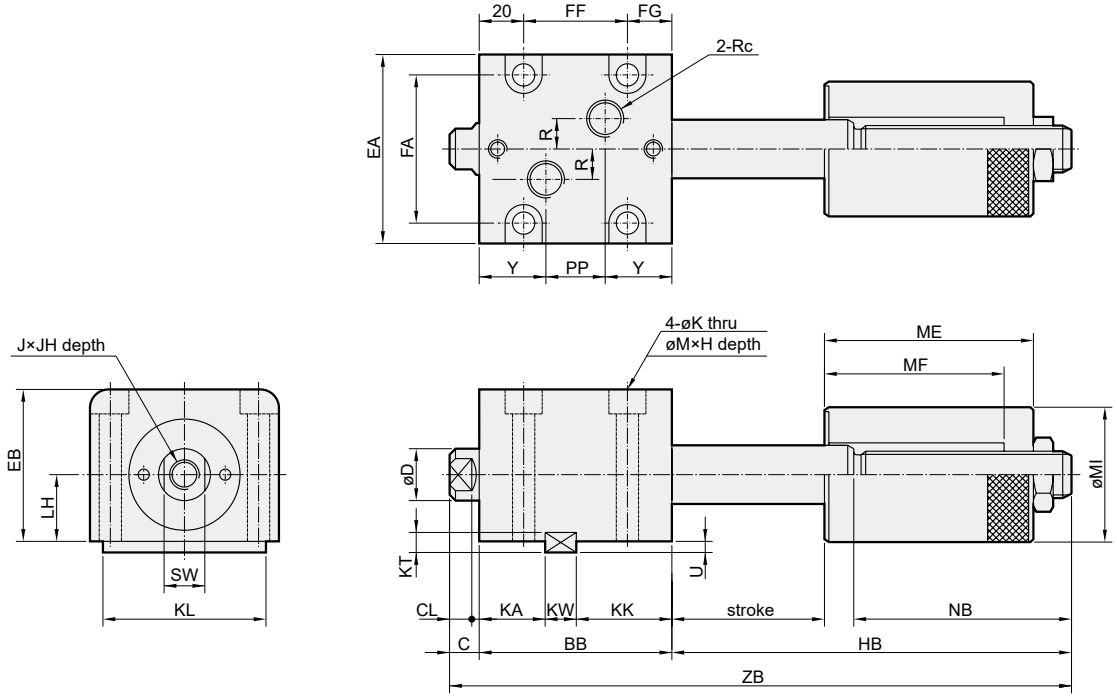
Tube I.D.	Model	MHCQ-DA / MHCQ-ZDA									
	Stroke	5	10	15	20	25	30	35	40	45	50
ø32	ZA	153	158	173	178	193	198	213	218	233	238
	BB	79	79	89	89	99	99	109	109	119	119
	FF	42	42	52	52	62	62	72	72	82	82
	KK	39	39	49	49	59	59	69	69	79	79
	PP	23	23	33	33	43	43	53	53	63	63
	HA	64	69	74	79	84	89	94	99	104	109
ø40	ZA	163	168	183	188	203	208	223	228	243	248
	BB	80	80	90	90	100	100	110	110	120	120
	FF	42	42	52	52	62	62	72	72	82	82
	KK	40	40	50	50	60	60	70	70	80	80
	PP	24	24	34	34	44	44	54	54	64	64
	HA	73	78	83	88	93	98	103	108	113	118
ø50	ZA	171	176	191	196	211	216	231	236	251	256
	BB	85	85	95	95	105	105	115	115	125	125
	FF	45	45	55	55	65	65	75	75	85	85
	KK	42	42	52	52	62	62	72	72	82	82
	PP	26	26	36	36	46	46	56	56	66	66
	HA	75	80	85	90	95	100	105	110	115	120
ø63	ZA	188	193	208	213	228	233	248	253	268	273
	BB	92	92	102	102	112	112	122	122	132	132
	FF	52	52	62	62	72	72	82	82	92	92
	KK	45	45	55	55	65	65	75	75	85	85
	PP	30	30	40	40	50	50	60	60	70	70
	HA	83	88	93	98	103	108	113	118	123	128

Code / Tube I.D.	C	CL	D	EA	EB	FA	FG	H	J	JH	K	KA	KL	KT	KW
ø32	10	7	20	70	56	56	17	9	M12×1.75	15	9	28	63	8	12
ø40	10	7	25	80	64	62	18	11	M16×2.0	20	11	28	70	8	12
ø50	11	8	30	94	74	74	20	13	M20×2.5	25	13	29	80	9	14
ø63	13	10	35	114	89	90	20	15	M27×3.0	35	15	31	100	10	16

Code / Tube I.D.	KX	KY	LH	M	MI	MA	MB	NA	O	OL	Rc	R	SW	U	Y
ø32	24	8	25	14	45	46	36	49	M16×1.5	25	Rc1/4	10	17	4.5	28
ø40	32	11	29	18	55	54	36	58	M22×1.5	30	Rc1/4	10	22	4.5	28
ø50	35	14	34	20	60	53	37	59	M26×1.5	35	Rc1/4	10	27	5	29.5
ø63	41	13	42	22	75	63	39	65	M30×1.5	40	Rc3/8	10	32	5.5	31

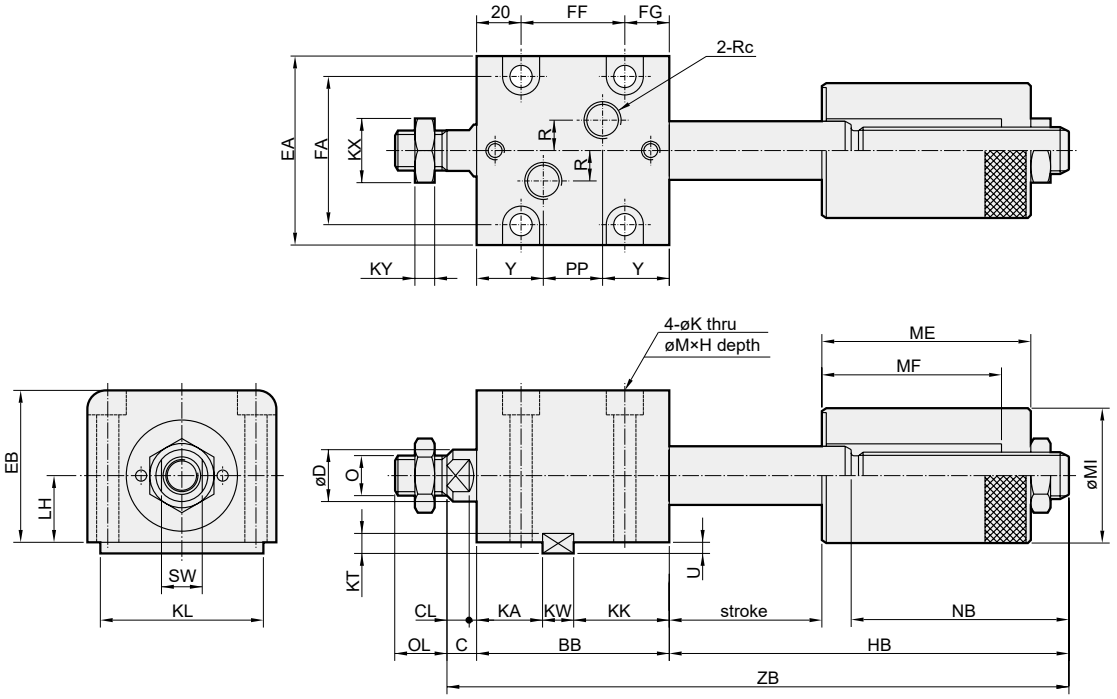
MHCQ-DB

Adjustable stroke 50 mm



MHCQ-ZDB

Adjustable stroke 50 mm



Tube I.D.	Model	MHCQ-DB / MHCQ-ZDB									
	Stroke	**5**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**
ø32	ZB	178	183	198	203	218	223	238	243	258	263
	BB	79	79	89	89	99	99	109	109	119	119
	FF	42	42	52	52	62	62	72	72	82	82
	KK	39	39	49	49	59	59	69	69	79	79
	PP	23	23	33	33	43	43	53	53	63	63
	HB	89	94	99	104	109	114	119	124	129	134
ø40	ZB	188	193	208	213	228	233	248	253	268	273
	BB	80	80	90	90	100	100	110	110	120	120
	FF	42	42	52	52	62	62	72	72	82	82
	KK	40	40	50	50	60	60	70	70	80	80
	PP	24	24	34	34	44	44	54	54	64	64
	HB	98	103	108	113	118	123	128	133	138	143
ø50	ZB	196	201	216	221	236	241	256	261	276	281
	BB	85	85	95	95	105	105	115	115	125	125
	FF	45	45	55	55	65	65	75	75	85	85
	KK	42	42	52	52	62	62	72	72	82	82
	PP	26	26	36	36	46	46	56	56	66	66
	HB	100	105	110	115	120	125	130	135	140	145
ø63	ZB	213	218	233	238	253	258	273	278	293	298
	BB	92	92	102	102	112	112	122	122	132	132
	FF	52	52	62	62	72	72	82	82	92	92
	KK	45	45	55	55	65	65	75	75	85	85
	PP	30	30	40	40	50	50	60	60	70	70
	HB	108	113	118	123	128	133	138	143	148	153

Code / Tube I.D.	C	CL	D	EA	EB	FA	FG	H	J	JH	K	KA	KL	KT	KW
ø32	10	7	20	70	56	56	17	9	M12×1.75	15	9	28	63	8	12
ø40	10	7	25	80	64	62	18	11	M16×2.0	20	11	28	70	8	12
ø50	11	8	30	94	74	74	20	13	M20×2.5	25	13	29	80	9	14
ø63	13	10	35	114	89	90	20	15	M27×3.0	35	15	31	100	10	16

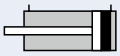
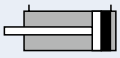
Code / Tube I.D.	KX	KY	LH	M	MI	ME	MF	NB	O	OL	Rc	R	SW	U	Y
ø32	24	8	25	14	45	71	61	74	M16×1.5	25	Rc1/4	10	17	4.5	28
ø40	32	11	29	18	55	79	61	83	M22×1.5	30	Rc1/4	10	22	4.5	28
ø50	35	14	34	20	60	78	62	84	M26×1.5	35	Rc1/4	10	27	5	29.5
ø63	41	13	42	22	75	88	64	90	M30×1.5	40	Rc3/8	10	32	5.5	31

MHCB-M series

COMPACT **HYDRAULIC** WITH PISTON SENSING **CYLINDER**

Caution for safety
(Read before installing)



MHCB..M	Front mounting	
MHCB..MZ	Front mounting (Male thread type)	

Features

- Compact body design keeps overall length to a minimum.
- Cylinder barrel internally honed to ensure smooth and consistent piston movement.
- High quality materials are used throughout construction.
- Magnetic as standard.

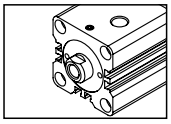
Specification

Model	MHCB-M
Tube I.D. (mm)	32, 40, 50, 63, 80
The range of stroke (mm)	50
Medium	Filtered oil
Material	Anodised aluminum alloy
Max. operating pressure	7 MPa
Ambient temperature	-10~+60°C (No freezing)
Sensor switch	LN32H

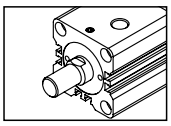
Order example

MHCB — 50 M — 30 — Z

- MHCB — MODEL
- 50 — TUBE I.D.
- M — **M**: Magnet
- 30 — STROKE
- Z — ROD END TYPE

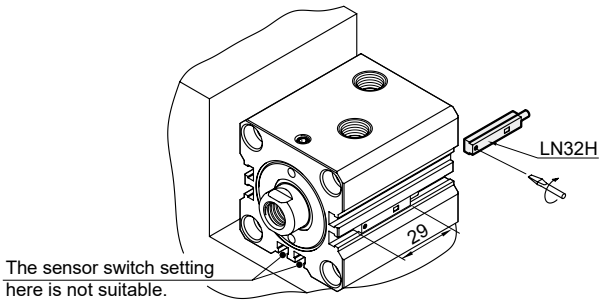


Blank: Female thread



Z: Male thread

Installation of sensor switch



◎ When setting the sensor switch, it can't be near with magnet materials (carbon steel, cast iron). The distance must be over 10mm. If it is quite near, the sensor switch will be inactive easily.

Weight * N: Female thread, Z: Male thread

Unit: kg

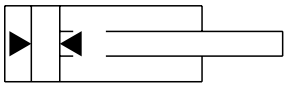
Stroke / Tube I.D.		5	10	15	20	25	30	35	40	45	50
ø32	N	0.86	0.85	0.96	0.95	1.05	1.04	1.15	1.14	1.26	1.25
	Z	0.91	0.90	1.01	1.00	1.10	1.09	1.20	1.19	1.31	1.30
ø40	N	1.21	1.19	1.35	1.33	1.47	1.45	1.60	1.58	1.73	1.71
	Z	1.33	1.31	1.47	1.45	1.59	1.57	1.72	1.70	1.85	1.83
ø50	N	1.67	1.64	1.84	1.81	2.01	1.98	2.17	2.14	2.32	2.29
	Z	1.87	1.84	2.04	2.01	2.21	2.18	2.37	2.34	2.52	2.49
ø63	N	2.65	2.59	2.86	2.80	3.07	3.01	3.30	3.24	3.49	3.43
	Z	3.00	2.94	3.21	3.15	3.42	3.36	3.65	3.59	3.84	3.78
ø80	N	4.72	4.63	5.03	4.94	5.37	5.28	5.69	5.60	6.01	5.92
	Z	5.33	5.24	5.94	5.55	5.98	5.89	6.30	6.21	6.62	6.53

Theoretic force

Unit: N

Tube I.D. (mm)	Rod (mm)	Area (mm^2)		Operating pressure (MPa)					
				2	3	4	5	6	7
ø32	ø20	A	804	1608	2413	3217	4021	4825	5630
		B	490	980	1470	1960	2450	2941	3431
ø40	ø25	A	1257	2513	3770	5027	6283	7540	8796
		B	766	1532	2297	3063	3829	4595	5360
ø50	ø30	A	1963	3927	5890	7854	9817	11781	13744
		B	1256	2513	3770	5027	6283	7540	8796
ø63	ø35	A	3117	6234	9352	12469	15586	18703	21821
		B	2155	4310	6465	8621	10776	12931	15086
ø80	ø45	A	5027	10053	15080	20106	25133	30159	35186
		B	3436	6872	10308	13744	17181	20617	24053

The method of calculation (Hydraulic cylinders' force)



$$F = P \times A - f$$

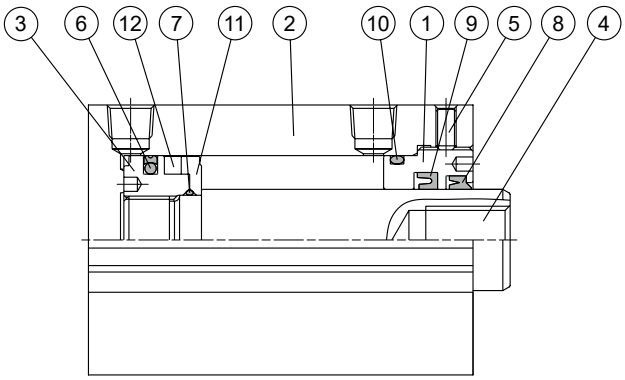
F :	Cylinders' force	(N)
P:	Operating pressure	(MPa)
A:	Piston area	(mm^2)
f :	Friction drag	(N)

How to order the seal kit

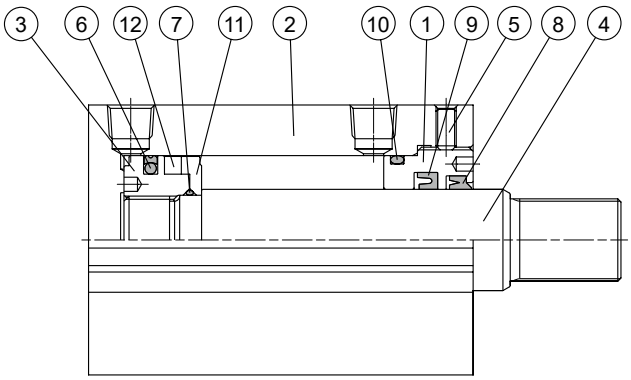
MHCB-MSK ☐

Tube I.D.	Seal kit
32	MHCB-MSK32 - Including No.6,7,8,9,10
40	MHCB-MSK40 - Including No.6,7,8,9,10
50	MHCB-MSK50 - Including No.6,7,8,9,10
63	MHCB-MSK63 - Including No.6,7,8,9,10
80	MHCB-MSK80 - Including No.6,7,8,9,10

MHCB-M



MHCB-MZ

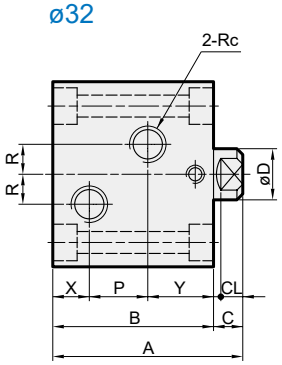


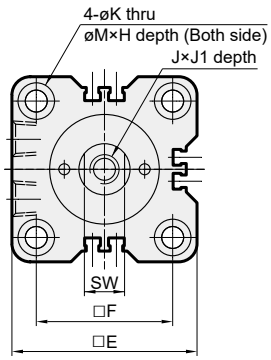
Parts list

No.	Part name	Q'y	No.	Part name	Q'y	No.	Part name	Q'y
1	Rod cover	1	5	Set screw	1	9	Rod packing	1
2	Cylinder tube	1	6	Piston packing	1	10	Cylinder gasket	1
3	Piston	1	7	Piston gasket	1	11	Washer	1
4	Piston rod	1	8	Dust wiper	1	12	Magnet	1

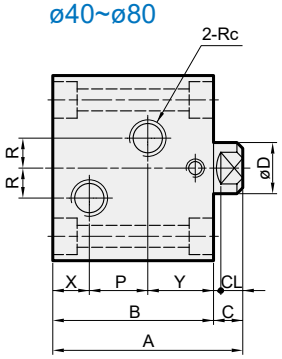
MHCB-M

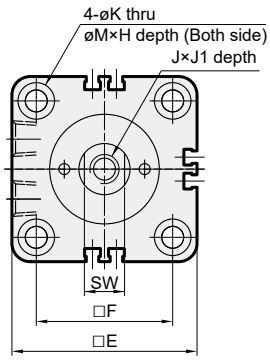
ø32





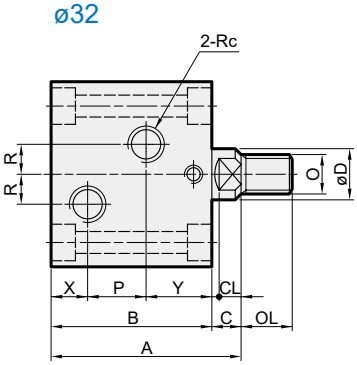
ø40~ø80

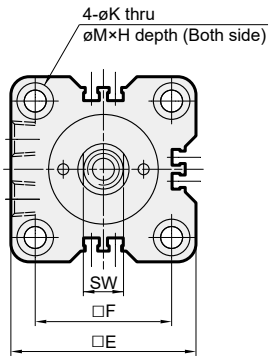




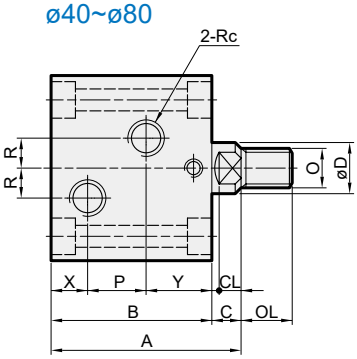
MHCB-MZ

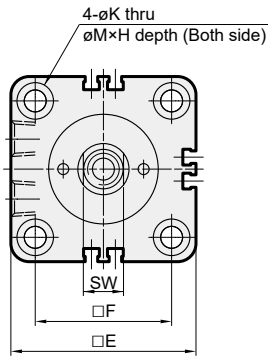
ø32





ø40~ø80





Code / Tube I.D.	C	CL	D	E	F	H	J	J1	K	M	O	OL	Rc	R	SW	X	Y
ø32	10	7	20	62	47	6.5	M12×1.75	15	6.6	11	M16×1.5	25	Rc1/4	10	17	12	28
ø40	10	7	25	70	52	9	M16×2.0	20	9	14	M22×1.5	30	Rc1/4	10	22	12	28
ø50	11	8	30	80	58	11	M20×2.5	25	11	18	M26×1.5	35	Rc1/4	10	27	12.5	29.5
ø63	13	10	35	94	69	13	M27×3.0	35	13	20	M30×1.5	40	Rc3/8	10	32	16	31
ø80	17	14	45	114	86	15	M30×3.5	35	15	22	M39×1.5	45	Rc3/8	15	41	18	33

Stroke / Tube I.D.		5	10	15	20	25	30	35	40	45	50
ø32	A	74		84		94		104		114	
	B	64		74		84		94		104	
	P	24		34		44		54		64	
ø40	A	75		85		95		105		115	
	B	65		75		85		95		105	
	P	25		35		45		55		65	
ø50	A	81		91		101		111		121	
	B	70		80		90		100		110	
	P	28		38		48		58		68	
ø63	A	90		100		110		120		130	
	B	77		87		97		107		117	
	P	30		40		50		60		70	
ø80	A	105		115		125		135		145	
	B	88		98		108		118		128	
	P	37		47		57		67		77	

MHCB* series

MANIFOLD TYPE **HYDRAULIC CYLINDER**

Caution for safety
(Read before installing)

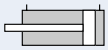
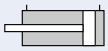
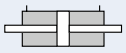
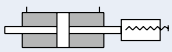


Features

- Compact body design keeps overall length to a minimum.
- Cylinder barrel internally honed to ensure smooth and consistent piston movement.
- High quality materials are used throughout construction.

Specification

Model	MHCB*						
Tube I.D. (mm)	20	25	32	40	50	63	80
The range of stroke (mm)	30		50				
Medium	Filtered oil						
Material	Carbon steel						
Max. operating pressure	14 MPa						
Ambient temperature	-10~+60°C (No freezing)						

MHCBR	Front mounting (Axial front manifold type)	
MHCBF	Front mounting (Axial back manifold type)	
MHCBS	Side mounting (Manifold type)	
MHCBS-D	Side mounting (Double rod type) (Manifold type)	
MHCBS-DA **MHCBS-DB**	Adjustable forward stroke cylinder	

Standard stroke

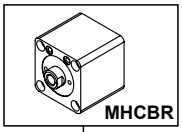
● Standard products ○ Made to order

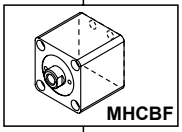
Type	Stroke / Tube I.D.	5	10	15	20	25	30	35	40	45	50
MHCBR MHCBF	ø20	○	●	○	●	○	●	-	-	-	-
	ø25	○	●	○	●	○	●	-	-	-	-
	ø32	●	●	●	●	●	●	○	●	○	●
	ø40	●	●	●	●	●	●	○	●	○	●
	ø50	●	●	●	●	●	●	○	●	○	●
	ø63	●	●	●	●	●	●	○	●	○	●
	ø80	●	●	●	●	●	●	○	●	○	●
MHCBS	ø32	○	●	○	●	○	●	○	●	○	●
	ø40	○	●	○	●	○	●	○	●	○	●
	ø50	○	●	○	●	○	●	○	●	○	●
	ø63	○	●	○	●	○	●	○	●	○	●

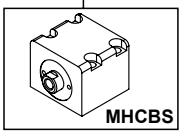
Order example

MHCBS — 50 — 30 — ZDA

MODEL

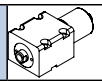
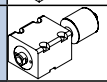
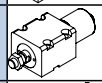
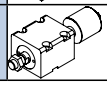






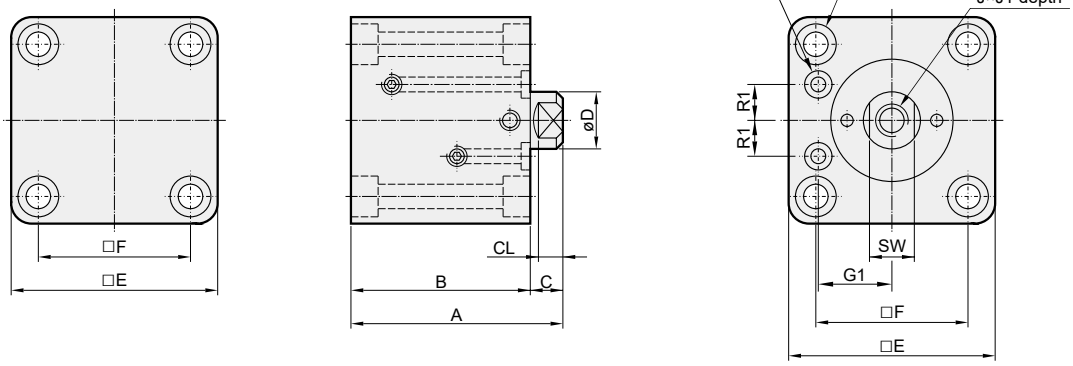
TUBE I.D. STROKE

ROD END TYPE **D**: Double rod

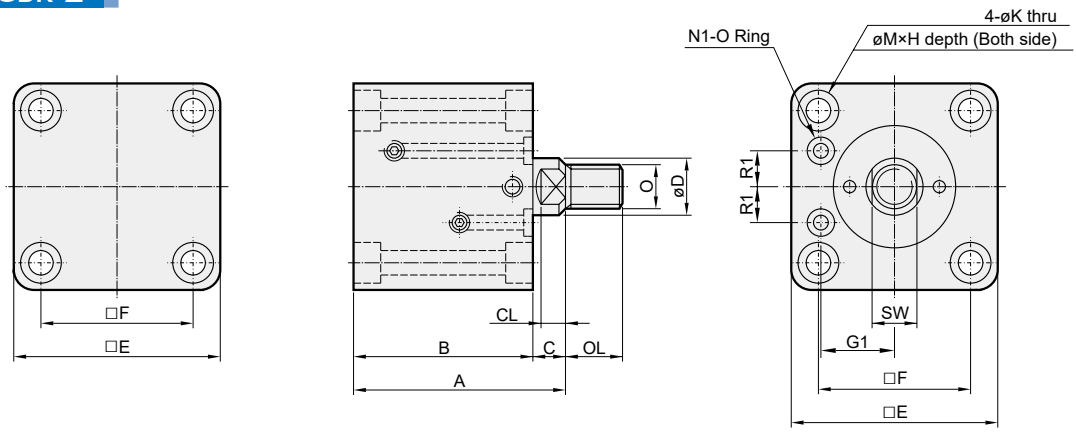
Blank		Single rod / Female thread	**DA** (*)	 Double rod / Female thread / Adjustable stroke 25 mm
Z		Single rod / Male thread	**DB** (*)	 Double rod / Female thread / Adjustable stroke 50 mm
D (*)		Double rod / Female thread	**ZDA** (*)	 Double rod / Male thread / Adjustable stroke 25 mm
ZD (*)		Double rod / Male thread	**ZDB** (*)	 Double rod / Male thread / Adjustable stroke 50 mm

* Only for **MHCBS** model.

MHCBR



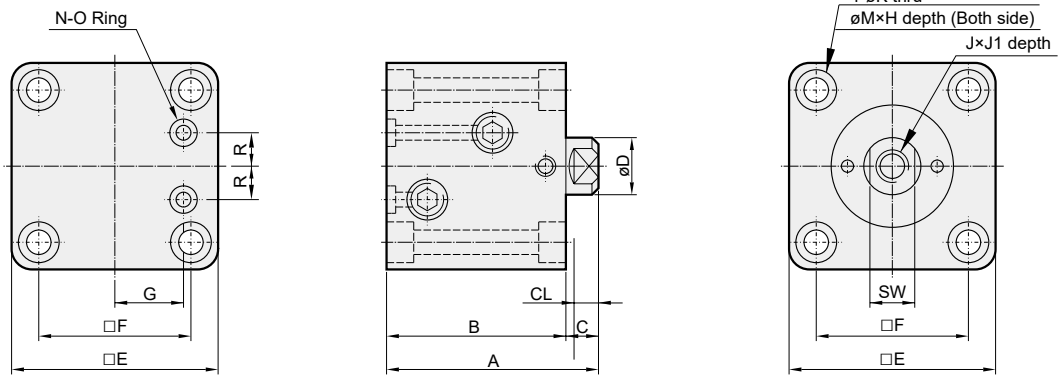
MHCBR-Z



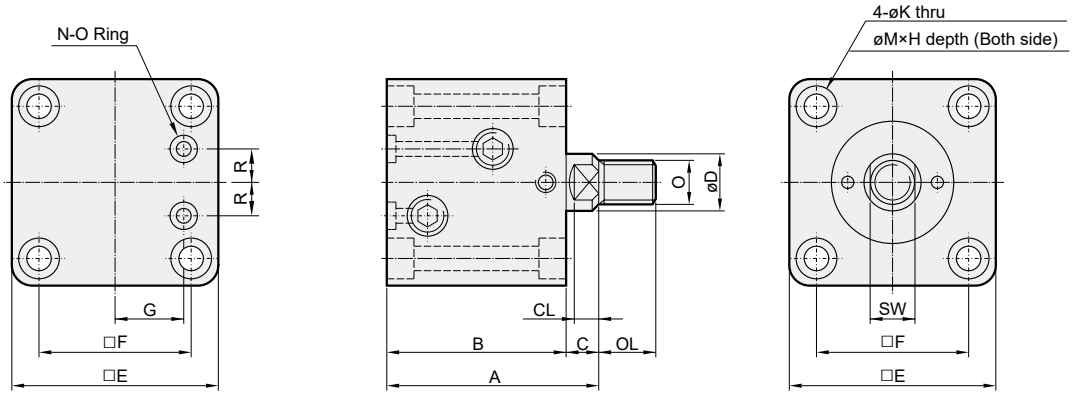
Tube I.D. (mm)	Type	MHCBR / MHCBR-Z									
	Stroke	5	10	15	20	25	30	35	40	45	50
ø20	A	61	61	71	71	81	81	-	-	-	-
	B	53	53	63	63	73	73	-	-	-	-
ø25	A	63	63	73	73	83	83	-	-	-	-
	B	55	55	65	65	75	75	-	-	-	-
ø32	A	69	74	79	84	89	94	104	104	114	114
	B	59	64	69	74	79	84	94	94	104	104
ø40	A	70	75	80	85	90	95	105	105	115	115
	B	60	65	70	75	80	85	95	95	105	105
ø50	A	76	81	86	91	96	101	111	111	121	121
	B	65	70	75	80	85	90	100	100	110	110
ø63	A	85	90	95	100	105	110	120	120	130	130
	B	72	77	82	87	92	97	107	107	117	117
ø80	A	100	105	110	115	120	125	135	135	145	145
	B	83	88	93	98	103	108	118	118	128	128

Code / Tube I.D.	C	CL	D	E	F	G1	H	J	J1	K	M	N1	O	OL	R1	SW
ø20	8	6	12	42	30	16.5	5.5	M8×1.25	12	5.6	9	P4	M10×1.25	20	6.5	10
ø25	8	6	14	48	36	19.5	5.5	M10×1.5	15	5.6	9	P4	M12×1.25	22	9	12
ø32	10	7	20	62	47	24	6.5	M12×1.75	15	6.6	11	P6	M16×1.5	25	12	17
ø40	10	7	25	70	52	27	9	M16×2.0	20	9	14	P6	M22×1.5	30	13	22
ø50	11	8	30	80	58	32	11	M20×2.5	25	11	18	P8	M26×1.5	35	13.5	27
ø63	13	10	35	94	69	38	13	M27×3.0	35	13	20	P8	M30×1.5	40	17.5	32
ø80	17	14	45	114	86	47	15	M30×3.5	35	15	22	P11	M39×1.5	45	22.5	41

MHCBF



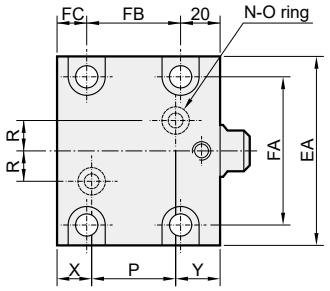
MHCBF-Z

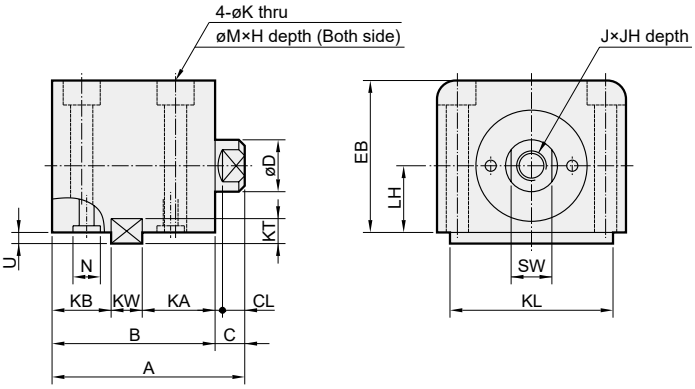


Tube I.D. (mm)	Type	MHCBF / MHCBF-Z									
	Stroke	5	10	15	20	25	30	35	40	45	50
ø20	A	61	61	71	71	81	81	-	-	-	-
	B	53	53	63	63	73	73	-	-	-	-
ø25	A	63	63	73	73	83	83	-	-	-	-
	B	55	55	65	65	75	75	-	-	-	-
ø32	A	69	74	79	84	89	94	104	104	114	114
	B	59	64	69	74	79	84	94	94	104	104
ø40	A	70	75	80	85	90	95	105	105	115	115
	B	60	65	70	75	80	85	95	95	105	105
ø50	A	76	81	86	91	96	101	111	111	121	121
	B	65	70	75	80	85	90	100	100	110	110
ø63	A	85	90	95	100	105	110	120	120	130	130
	B	72	77	82	87	92	97	107	107	117	117
ø80	A	100	105	110	115	120	125	135	135	145	145
	B	83	88	93	98	103	108	118	118	128	128

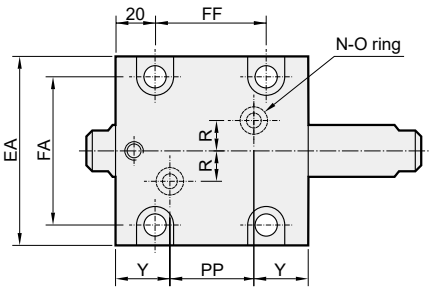
Code / Tube I.D	C	CL	D	E	F	G	H	J	J1	K	M	N	O	OL	R	SW
ø20	8	6	12	42	30	13	5.5	M8×1.25	12	5.6	9	P5	M10×1.25	20	5.5	10
ø25	8	6	14	48	36	15	5.5	M10×1.5	15	5.6	9	P7	M12×1.25	22	6.5	12
ø32	10	7	20	62	47	20	6.5	M12×1.75	15	6.6	11	P9	M16×1.5	25	10	17
ø40	10	7	25	70	52	24	9	M16×2.0	20	9	14	P9	M22×1.5	30	10	22
ø50	11	8	30	80	58	29	11	M20×2.5	25	11	18	P9	M26×1.5	35	10	27
ø63	13	10	35	94	69	35	13	M27×3.0	35	13	20	P11	M30×1.5	40	13	32
ø80	17	14	45	114	86	44	15	M30×3.5	35	15	22	P11	M39×1.5	45	15	41

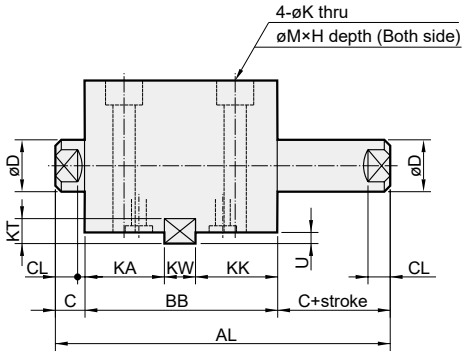
MHCBS



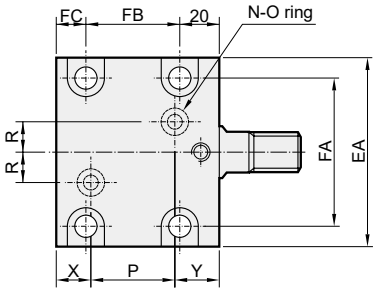


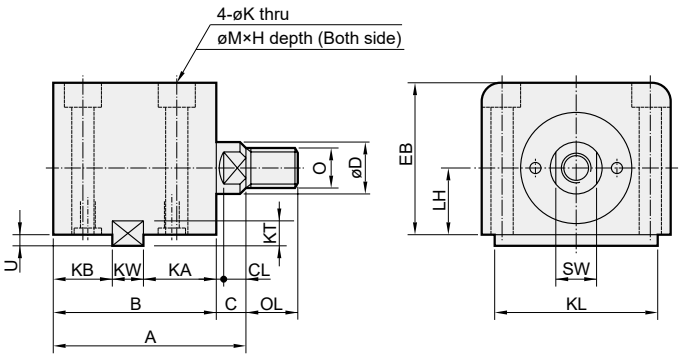
MHCBS-D



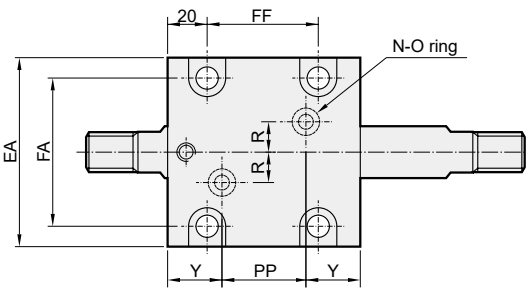


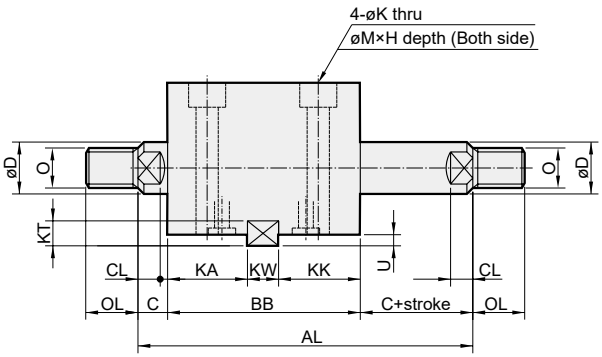
MHCBS-Z





MHCBS-ZD





Tube I.D. (mm)	Type	MHCBS / MHCBS-Z									
	Stroke	5	10	15	20	25	30	35	40	45	50
ø32	A	74	74	84	84	94	94	104	104	114	114
	B	64	64	74	74	84	84	94	94	104	104
	FB	34	34	44	44	54	54	64	64	74	74
	KB	–	–	24	24	34	34	44	44	54	54
	P	24	24	34	34	44	44	54	54	64	64
ø40	A	75	75	85	85	95	95	105	105	115	115
	B	65	65	75	75	85	85	95	95	105	105
	FB	33	33	43	43	53	53	63	63	73	73
	KB	–	–	25	25	35	35	45	45	55	55
	P	25	25	35	35	45	45	55	55	65	65
ø50	A	81	81	91	91	101	101	111	111	121	121
	B	70	70	80	80	90	90	100	100	110	110
	FB	37	37	47	47	57	57	67	67	77	77
	KB	–	–	26	26	36	36	46	46	56	56
	P	28	28	38	38	48	48	58	58	68	68
ø63	A	90	90	100	100	110	110	120	120	130	130
	B	77	77	87	87	97	97	107	107	117	117
	FB	42	42	52	52	62	62	72	72	82	82
	KB	–	–	29	29	39	39	49	49	59	59
	P	30	30	40	40	50	50	60	60	70	70

Tube I.D. (mm)	Type	MHCBS-D / MHCBS-ZD									
	Stroke	5	10	15	20	25	30	35	40	45	50
ø32	AL	104	109	124	129	144	149	164	169	184	189
	BB	79	79	89	89	99	99	109	109	119	119
	FF	42	42	52	52	62	62	72	72	82	82
	KK	–	–	39	39	49	49	59	59	69	69
	PP	23	23	33	33	43	43	53	53	63	63
ø40	AL	105	110	125	130	145	150	165	170	185	190
	BB	80	80	90	90	100	100	110	110	120	120
	FF	42	42	52	52	62	62	72	72	82	82
	KK	–	–	40	40	50	50	60	60	70	70
	PP	24	24	34	34	44	44	54	54	64	64
ø50	AL	112	117	132	137	152	157	172	177	192	197
	BB	85	85	95	95	105	105	115	115	125	125
	FF	45	45	55	55	65	65	75	75	85	85
	KK	–	–	41	41	51	51	61	61	71	71
	PP	26	26	36	36	46	46	56	56	66	66
ø63	AL	123	128	143	148	163	168	183	188	203	208
	BB	92	92	102	102	112	112	122	122	132	132
	FF	52	52	62	62	72	72	82	82	92	92
	KK	–	–	44	44	54	54	64	64	74	74
	PP	30	30	40	40	50	50	60	60	70	70

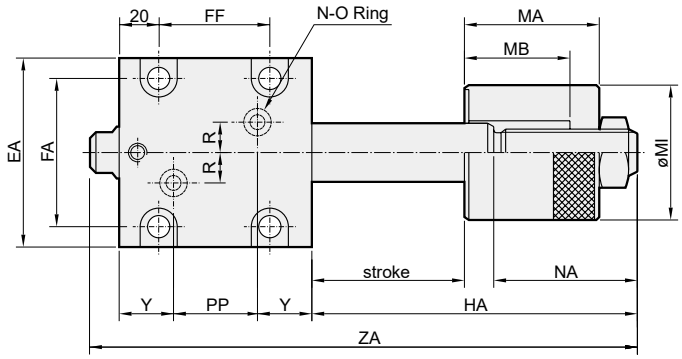
Code / Tube I.D	C	CL	D	EA	EB	FA	FC	H	J	JH	K	KA	KL	KT
ø32	10	7	20	70	56	56	10	9	M12×1.75	15	9	38	63	8
ø40	10	7	25	80	64	62	12	11	M16×2.0	20	11	38	70	8
ø50	11	8	30	94	74	74	13	13	M20×2.5	25	13	40	80	9
ø63	13	10	35	114	89	90	15	15	M27×3.0	35	15	42	100	10

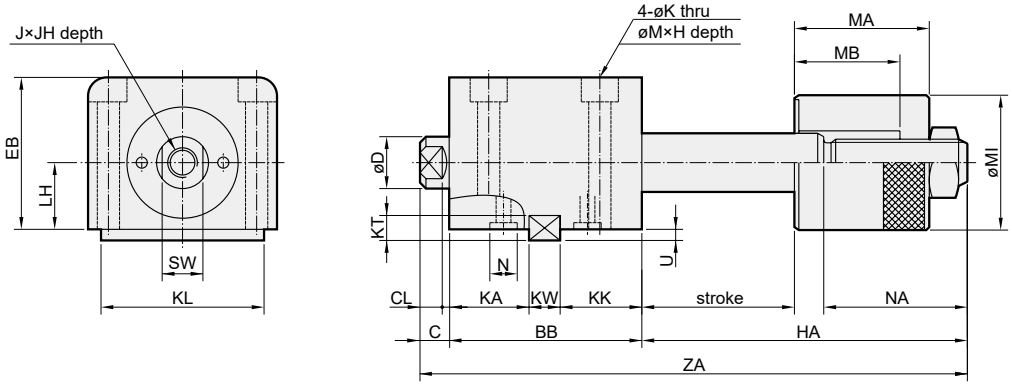
Code / Tube I.D	KW	LH	M	N	O	OL	R	SW	U	X	Y
ø32	12	25	14	P9	M16×1.5	25	10	17	4.5	12	28
ø40	12	29	18	P9	M22×1.5	30	10	22	4.5	12	28
ø50	14	34	20	P11	M26×1.5	35	10	27	5	12.5	29.5
ø63	16	42	22	P11	M30×1.5	40	10	32	5.5	16	31

* Stroke: 5, 10mm without keyway.

MHCBS-DA

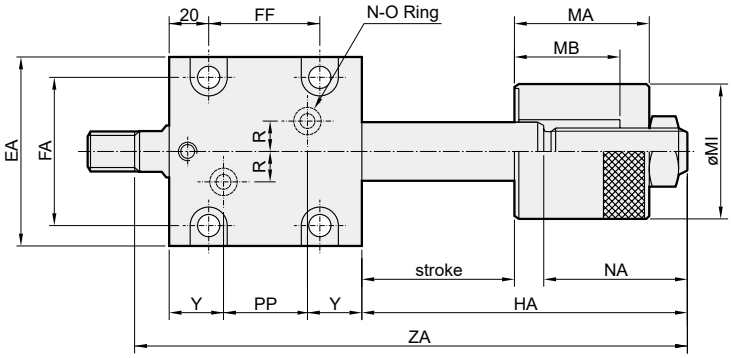
Adjustable stroke 25 mm

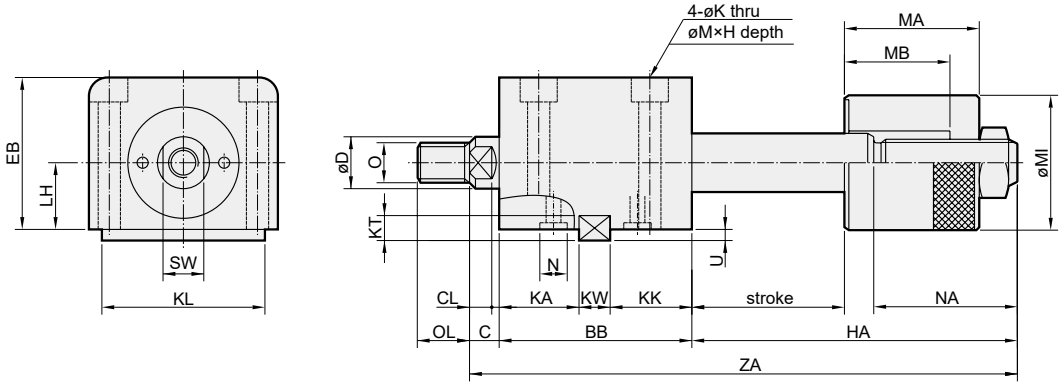




MHCBS-ZDA

Adjustable stroke 25 mm





Tube I.D. (mm)	Type	MHCBS-DA / MHCBS-ZDA									
	Stroke	5	10	15	20	25	30	35	40	45	50
ø32	ZA	153	158	173	178	193	198	213	218	233	238
	BB	79	79	89	89	99	99	109	109	119	119
	FF	42	42	52	52	62	62	72	72	82	82
	KK	–	–	39	39	49	49	59	59	69	69
	PP	23	23	33	33	43	43	53	53	63	63
	HA	64	69	74	79	84	89	94	99	104	109
ø40	ZA	163	168	183	188	203	208	223	228	243	248
	BB	80	80	90	90	100	100	110	110	120	120
	FF	42	42	52	52	62	62	72	72	82	82
	KK	–	–	40	40	50	50	60	60	70	70
	PP	24	24	34	34	44	44	54	54	64	64
	HA	73	78	83	88	93	98	103	108	113	118
ø50	ZA	171	176	191	196	211	216	231	236	251	256
	BB	85	85	95	95	105	105	115	115	125	125
	FF	45	45	55	55	65	65	75	75	85	85
	KK	–	–	41	41	51	51	61	61	71	71
	PP	26	26	36	36	46	46	56	56	66	66
	HA	75	80	85	90	95	100	105	110	115	120
ø63	ZA	188	193	208	213	228	233	248	253	268	273
	BB	92	92	102	102	112	112	122	122	132	132
	FF	52	52	62	62	72	72	82	82	92	92
	KK	–	–	44	44	54	54	64	64	74	74
	PP	30	30	40	40	50	50	60	60	70	70
	HA	83	88	93	98	103	108	113	118	123	128

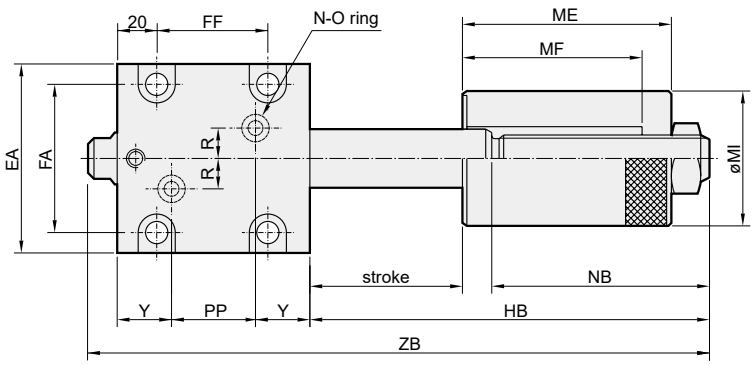
Code / Tube I.D.	C	CL	D	EA	EB	FA	H	J	JH	K	KA	KL	KT	KW	LH
ø32	10	7	20	70	56	56	9	M12×1.75	15	9	38	63	8	12	25
ø40	10	7	25	80	64	62	11	M16×2.0	20	11	38	70	8	12	29
ø50	11	8	30	94	74	74	13	M20×2.5	25	13	40	80	9	14	34
ø63	13	10	35	114	89	90	15	M27×3.0	35	15	42	100	10	16	42

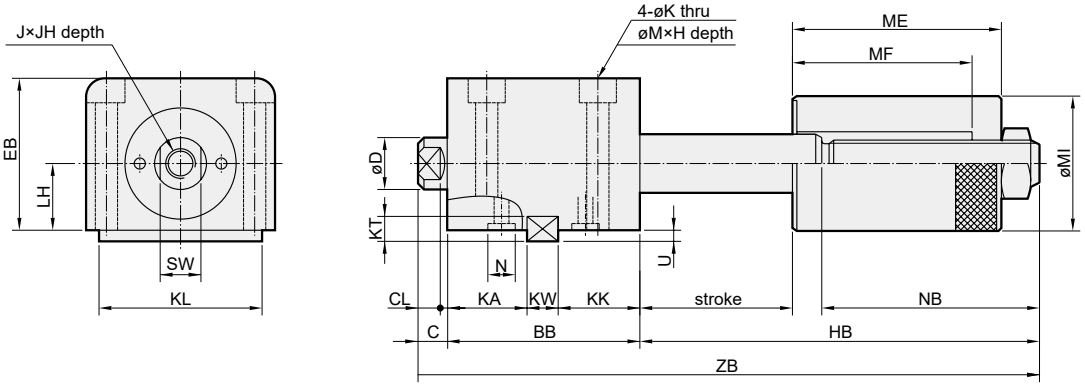
Code / Tube I.D.	M	MI	MA	MB	N	NA	O	OL	R	SW	U	Y
ø32	14	45	46	36	P9	49	M16×1.5	25	10	17	4.5	28
ø40	18	55	54	36	P9	58	M22×1.5	30	10	22	4.5	28
ø50	20	60	53	37	P11	59	M26×1.5	35	10	27	5	29.5
ø63	22	75	63	39	P11	65	M30×1.5	40	10	32	5.5	31

* Stroke: 5, 10mm without keyway.

MHCBS-DB

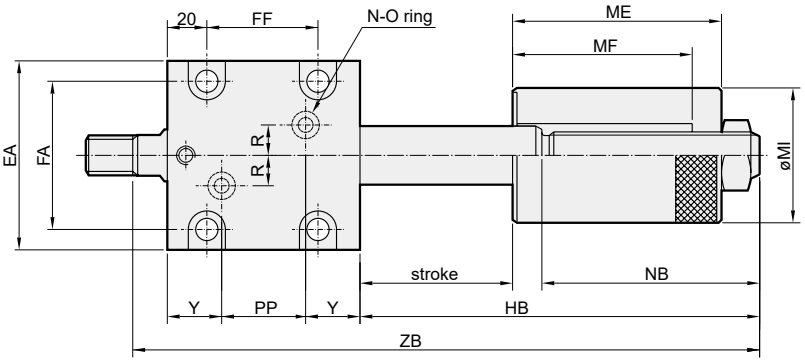
Adjustable stroke 50 mm

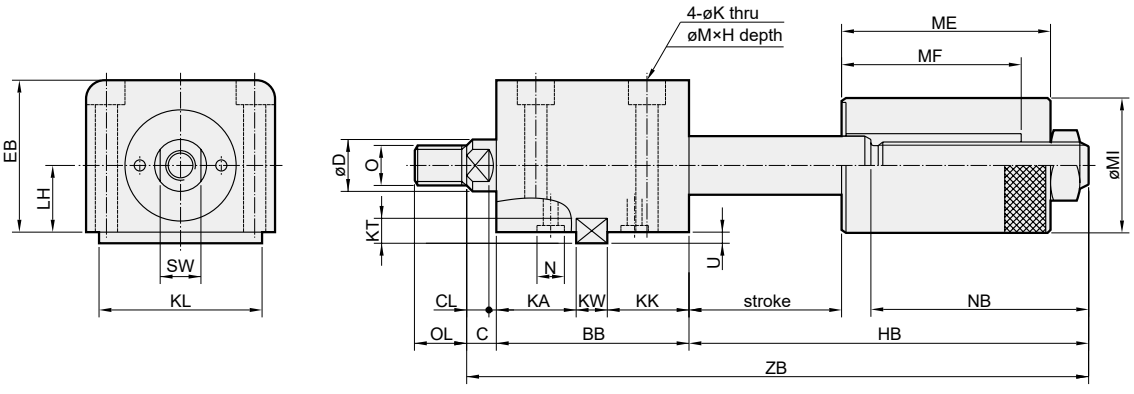




MHCBS-ZDB

Adjustable stroke 50 mm





Tube I.D. (mm)	Type	MHCBS-DB / MHCBS-ZDB									
	Stroke	5	10	15	20	25	30	35	40	45	50
ø32	ZB	178	183	198	203	218	223	238	243	258	263
	BB	79	79	89	89	99	99	109	109	119	119
	FF	42	42	52	52	62	62	72	72	82	82
	KK	–	–	39	39	49	49	59	59	69	69
	PP	23	23	33	33	43	43	53	53	63	63
	HB	89	94	99	104	109	114	119	124	129	134
ø40	ZB	188	193	208	213	228	233	248	253	268	273
	BB	80	80	90	90	100	100	110	110	120	120
	FF	42	42	52	52	62	62	72	72	82	82
	KK	–	–	40	40	50	50	60	60	70	70
	PP	24	24	34	34	44	44	54	54	64	64
	HB	98	103	108	113	118	123	128	133	138	143
ø50	ZB	196	201	216	221	236	241	256	261	276	281
	BB	85	85	95	95	105	105	115	115	125	125
	FF	45	45	55	55	65	65	75	75	85	85
	KK	–	–	41	41	51	51	61	61	71	71
	PP	26	26	36	36	46	46	56	56	66	66
	HB	100	105	110	115	120	125	130	135	140	145
ø63	ZB	213	218	233	238	253	258	273	278	293	298
	BB	92	92	102	102	112	112	122	122	132	132
	FF	52	52	62	62	72	72	82	82	92	92
	KK	–	–	44	44	54	54	64	64	74	74
	PP	30	30	40	40	50	50	60	60	70	70
	HB	108	113	118	123	128	133	138	143	148	153

Code / Tube I.D.	C	CL	D	EA	EB	FA	H	J	JH	K	KA	KL	KT	KW	LH
ø32	10	7	20	70	56	56	9	M12×1.75	15	9	38	63	8	12	25
ø40	10	7	25	80	64	62	11	M16×2.0	20	11	38	70	8	12	29
ø50	11	8	30	94	74	74	13	M20×2.5	25	13	40	80	9	14	34
ø63	13	10	35	114	89	90	15	M27×3.0	35	15	42	100	10	16	42

Code / Tube I.D.	M	MI	ME	MF	N	NB	O	OL	R	SW	U	Y
ø32	14	45	71	61	P9	74	M16×1.5	25	10	17	4.5	28
ø40	18	55	79	61	P9	83	M22×1.5	30	10	22	4.5	28
ø50	20	60	78	62	P11	84	M26×1.5	35	10	27	5	29.5
ø63	22	75	88	64	P11	90	M30×1.5	40	10	32	5.5	31

* Stroke: 5, 10mm without keyway.

MDO* series

HYDRAULIC WITH PISTON SENSING CYLINDER

Caution for safety
(Read before installing)



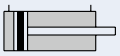
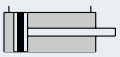
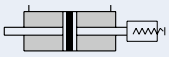
Features

- Hydraulic cylinder with magnetic piston allows sensors to be used.
- Large range of mounting accessories.
- Adjustable stroke available.
- Magnetic as standard.

Specification

Model	MDO*	
Tube I.D. (mm)	20	32
Medium	Filtered oil	
Material of cylinder barrel	Anodised aluminum	Stainless steel
Max. operating pressure	3.5 MPa	
Proof pressure	5 MPa	
Speed range	0.5~300 mm/sec	
The range of temperature	-10~+60°C (No freezing)	
Sensor switch	LN01G	

Double acting hydraulic cylinders

MDOC	Pivot type	
MDOA	Front nose mounting type	
MDOD	Double rod type	
MDON	Adjustable forward stroke type	

Order example

MDON — 32 — 100 — A — LB — Y

MODEL









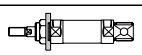
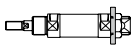
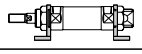
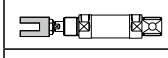
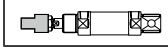
TUBE I.D.

STROKE

ADJUSTABLE STROKE

Blank: Standard type
A: Adjustable 25mm
B: Adjustable 50mm
* Only for **MDON** model.

ACCESSORY

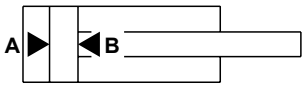
	**FA**
	**FB**
	**LB**
	**Y**
	**I**

Standard stroke

Unit: mm

Tube I.D.	25	50	75	100	125	150	200	250	300
ø20	●	●	●	●	●	●	●	–	–
ø32	●	●	●	●	●	●	●	●	●

Note. May to order of unstandard stroke.



Theoretic force

Unit: N

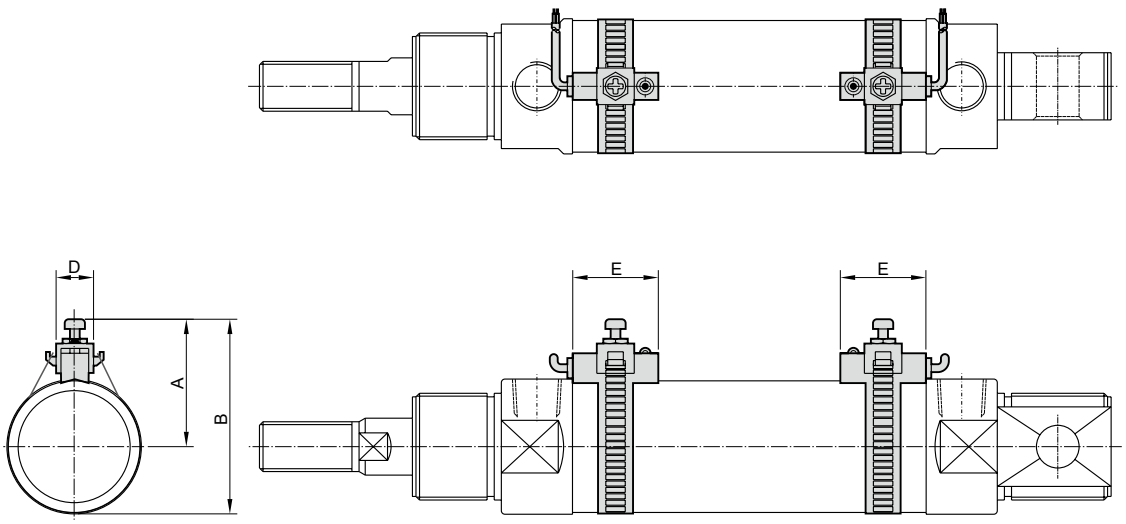
Tube I.D. (mm)	Rod (mm)	Area (mm^2)		Operating pressure (MPa)						
				0.5	1.0	1.5	2.0	2.5	3.0	3.5
ø20	ø12	A	314	157	314	471	628	785	942	1099
		B	201	101	201	302	402	503	603	704
ø32	ø16	A	707	354	707	1061	1414	1768	2121	2475
		B	506	253	506	759	1012	1265	1518	1771

The method of calculation (Hydraulic cylinders' force)

$$F = P \times A - f$$

F:	Cylinders' force	(N)
P:	Operating pressure	(MPa)
A:	Piston area	(mm^2)
f :	Friction drag	(N)

Installation of sensor switchs



Tube I.D.	Sensor switch	A	B	D	E
20	LN01G	28	40.5	7	22
32	LN01G	33	49.5	7	22

How to order the seal kit

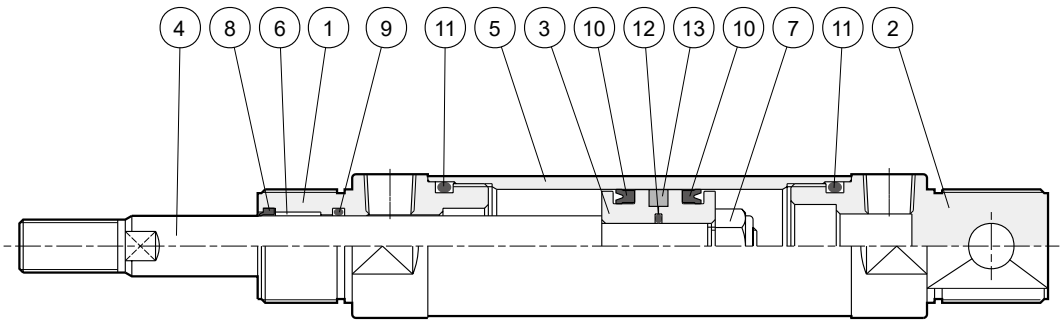
MDOSK ☐

Tube I.D.	Seal kit
20	MDOSK20 - Including No.8,9,10,11,12
32	MDOSK32 - Including No.8,9,10,11,12

MDODSK ☐

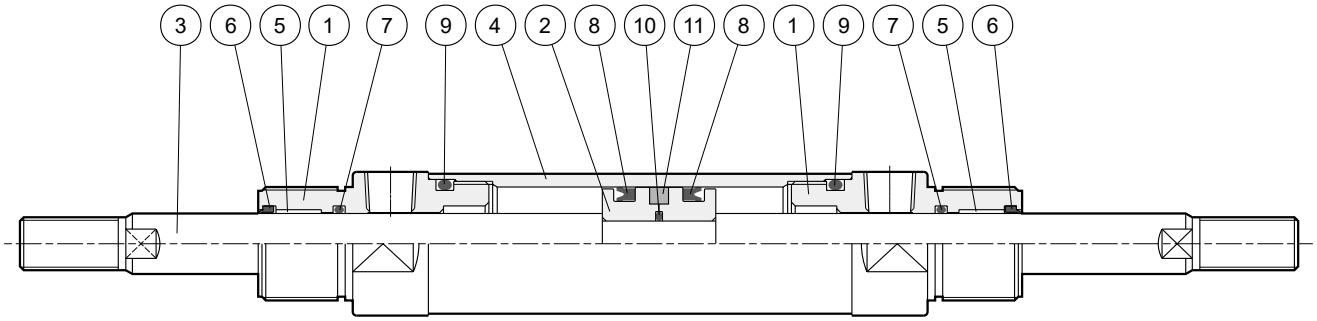
Tube I.D.	Seal kit
20	MDODSK20 - Including No.6,7,8,9,10
32	MDODSK32 - Including No.6,7,8,9,10

MDOA / MDOC



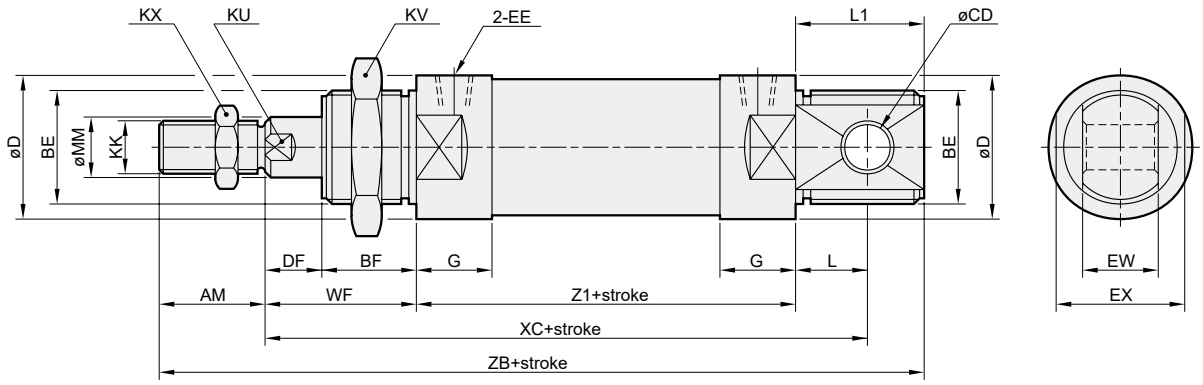
No.	Part name	Q'y	No.	Part name	Q'y	No.	Part name	Q'y
1	Rod cover	1	6	Oilless bearing	1	11	Cylinder gasket	2
2	Head cover	1	7	Nut	1	12	Piston gasket	1
3	Piston	1	8	Dust wiper	1	13	Magnet	1
4	Piston rod	1	9	Rod packing	1			
5	Cylinder tube	1	10	Piston packing	2			

MDOD

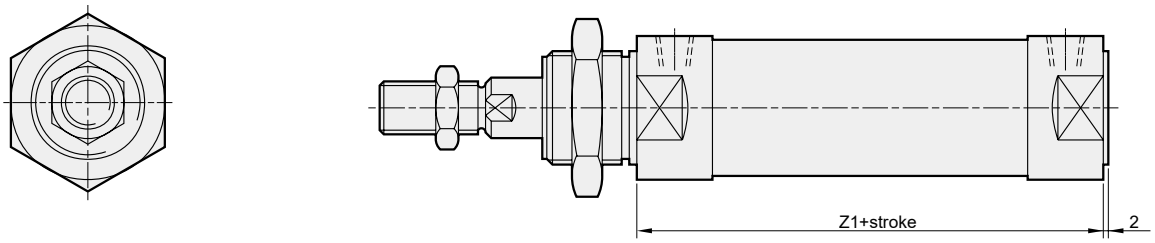


No.	Part name	Q'y	No.	Part name	Q'y	No.	Part name	Q'y
1	Rod cover	2	5	Oilless bearing	2	9	Cylinder gasket	2
2	Piston	1	6	Dust wiper	2	10	Piston gasket	1
3	Piston rod	1	7	Rod packing	2	11	Magnet	1
4	Cylinder tube	1	8	Piston packing	2			

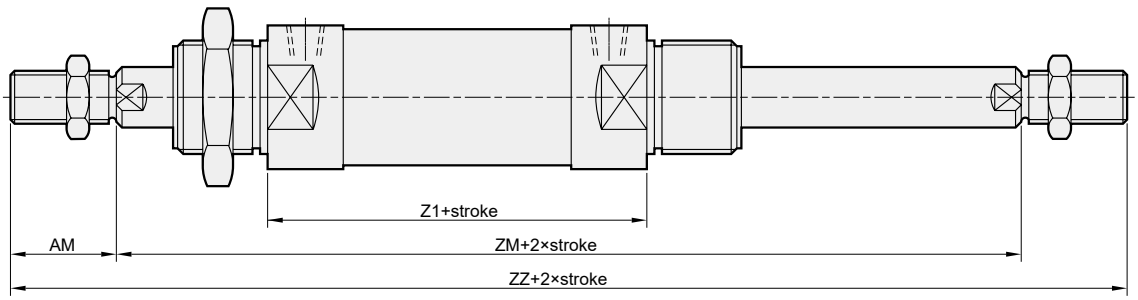
MDOC



MDOA

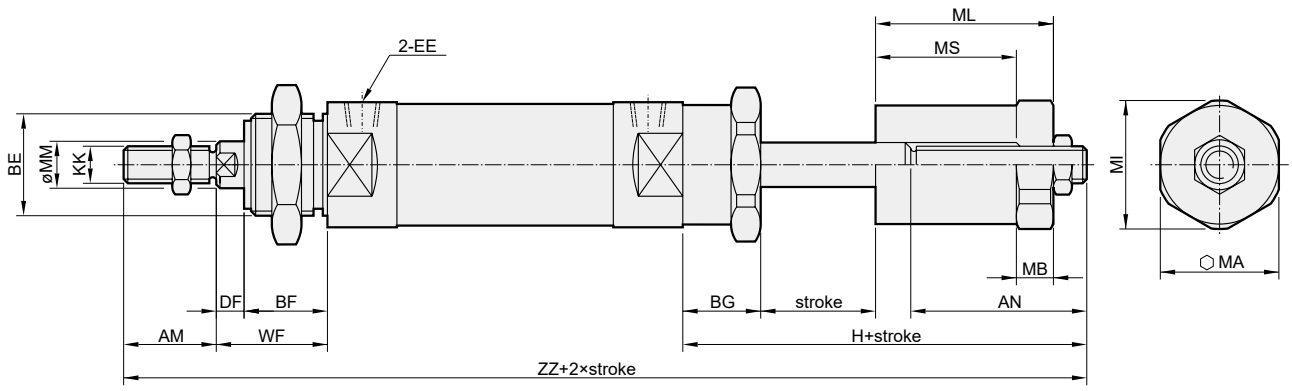


MDOD



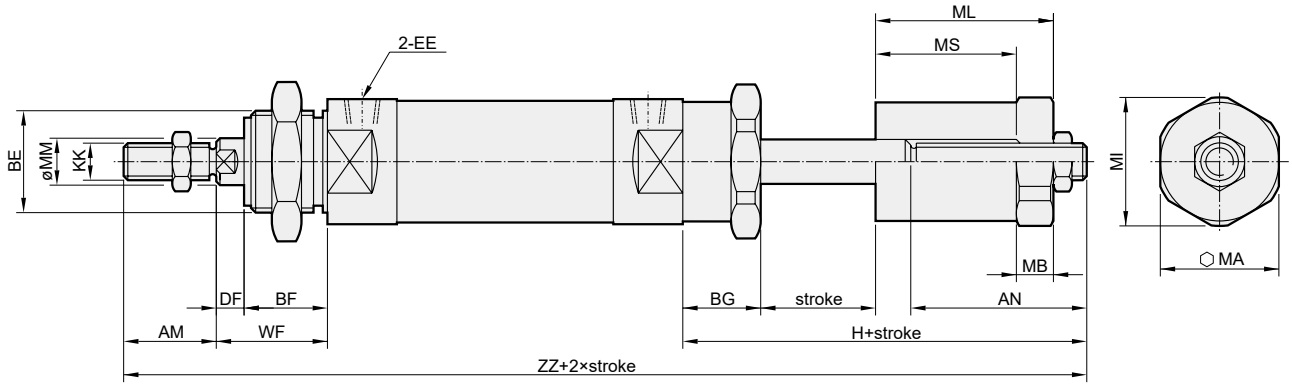
Code / Tube I.D.	AM	BE	BF	CD	D	DF	EE	EX	EW	G	KK	KU	KV	KX	L	L1	MM	WF	XC	Z1	ZB	ZM	ZZ
ø20	20	M22×1.5	20	10	28	8	Rc1/8	25	12	16	M10×1.25	10	27	17	15	25	12	28	130	87	160	143	183
ø32	28	M30×1.5	25	12	38	15	Rc1/4	35	20	20	M14×1.5	14	41	22	17	32	16	40	159	102	202	182	238

MDON (A : Adjustable stroke 25mm)



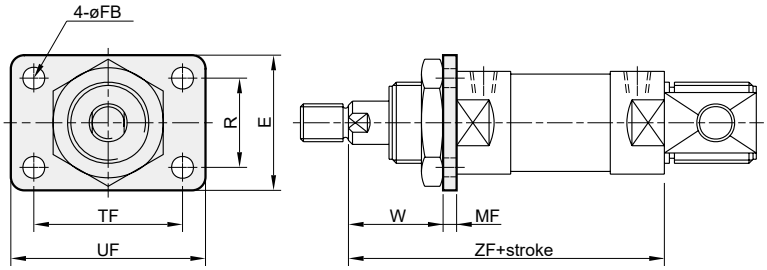
Code / Tube I.D.	AN	AM	BE	BF	BG	DF	EE	H	KK	MA	MB	MI	ML	MM	MS	WF	ZZ
ø20	48	20	M22×1.5	20	25	8	G1/8	81	M10×1.25	27	10	29	47	12	37	28	216
ø32	48	28	M30×1.5	25	30	15	G1/4	88	M14×1.5	32	10	35	47	16	37	40	258

MDON (B : Adjustable stroke 50mm)



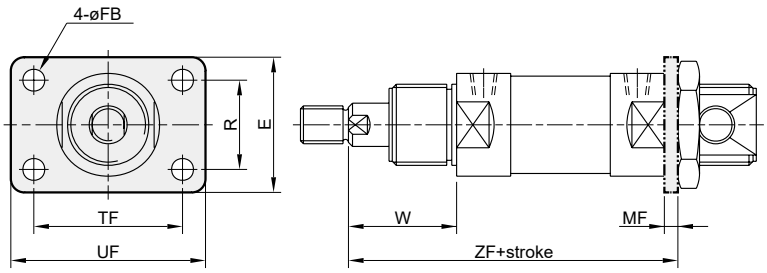
Code / Tube I.D.	AN	AM	BE	BF	BG	DF	EE	H	KK	MA	MB	MI	ML	MM	MS	WF	ZZ
ø20	73	20	M22×1.5	20	25	8	G1/8	106	M10×1.25	27	10	29	72	12	62	28	241
ø32	73	28	M30×1.5	25	30	15	G1/4	113	M14×1.5	32	10	35	72	16	62	40	283

FA



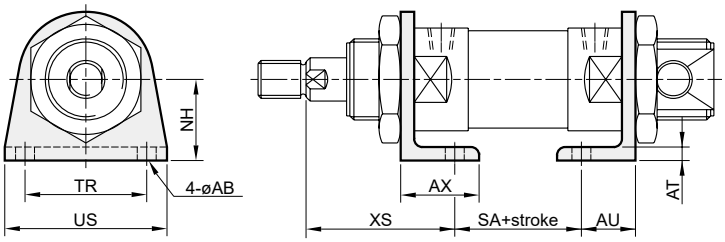
Code / Tube I.D.	E	FB	MF	R	TF	UF	W	ZF
ø20	38	7	6	21	51	68	22	115
ø32	50	7	9	33	55	72	31	142

FB



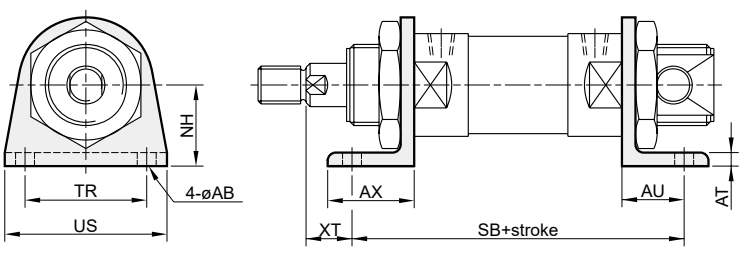
Code / Tube I.D.	E	FB	MF	R	TF	UF	W	ZF
ø20	38	7	6	21	51	68	28	121
ø32	50	7	9	33	55	72	40	151

LB



Code / Tube I.D.	AB	AT	AU	AX	NH	SA	TR	US	XS
ø20	7	5	17	25	25	63	40	54	40
ø32	7	5	20	30	35	72	40	55	55

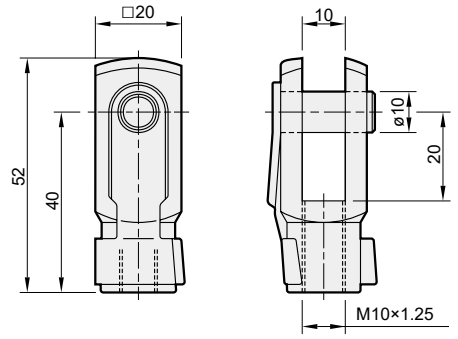
LB



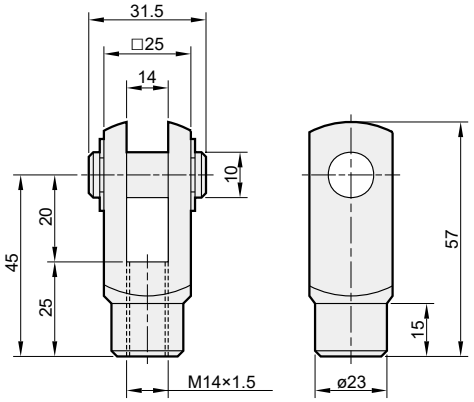
Code / Tube I.D.	AB	AT	AU	AX	NH	SB	TR	US	XT
ø20	7	5	17	25	25	121	40	54	11
ø32	7	5	20	30	35	142	40	55	20

Y connector Pin (Extra purchase)

Type Y - M10×1.25

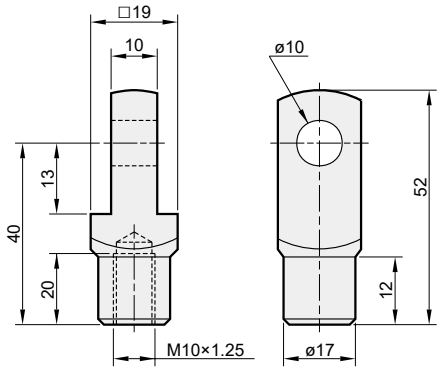


Type Y - M14×1.5

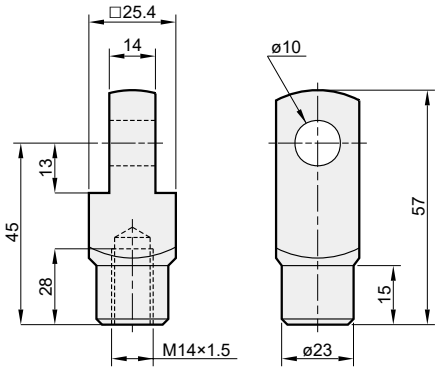


I connector

Type I - M10×1.25

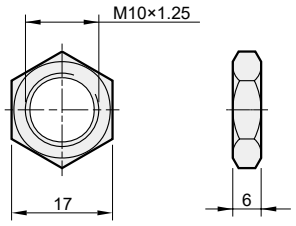


Type I - M14×1.5

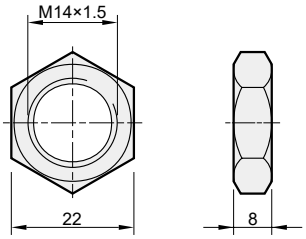


Mounting nut

Type N - M10×1.25

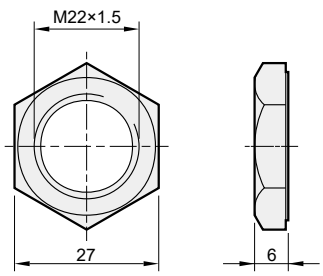


Type N - M14×1.5

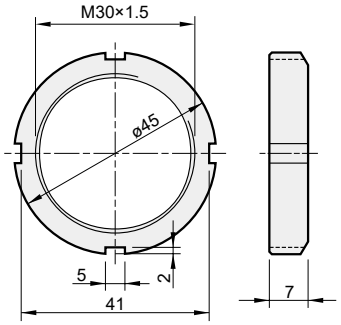


Mounting nut

Type N - M22×1.5



Type N - M30×1.5B

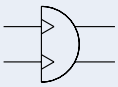


MRPH series

HYDRAULIC ROTARY ACTUATOR

Caution for safety
(Read before installing)



MRPH Male pivot gear 

Features

- Compact body manufactured from anodised aluminum.
- Functional design with clean appearance.
- Rotation angle can be adjusted via screw

Specification

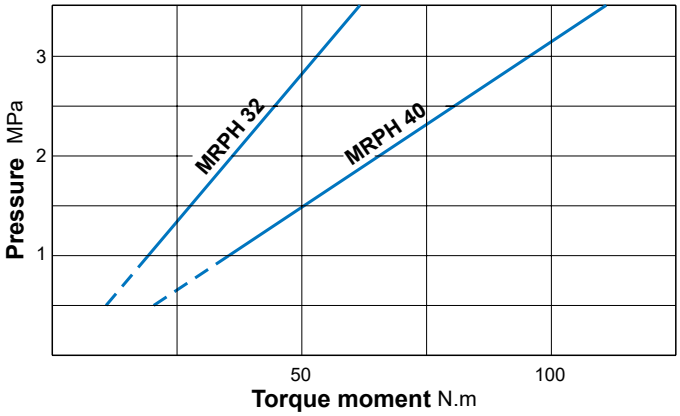
Model	MRPH	
Tube I.D. (mm)	32	40
Standard rotation	90±5°, 180±5°	
Rotating shaft dia. (mm)	24	28
Initial position of slot (mm)	See dimensional feature	
Medium	Filtered hydraulic circulating oil	
Max. operating pressure	3.5 MPa	
Ambient temperature	-10~+60°C (No freezing)	
Max. allowable axial thrust	12 kg	20 kg
Sensor switch	LN01P	

Order example

MRPH — 40 — 90

- MODEL
- TUBE I.D.
  32
  40
- ROTATION
  90: 90°
  180: 180°

Output torque table



Kind of fluid

Petroleum - based fluid	Water - glycol fluid	Phosphate - ester fluid	Water in oil fluid	Oil in water fluid
○	×	×	△	△

Note. ○ allowable ×unallowable △ consult us

Oil volume per

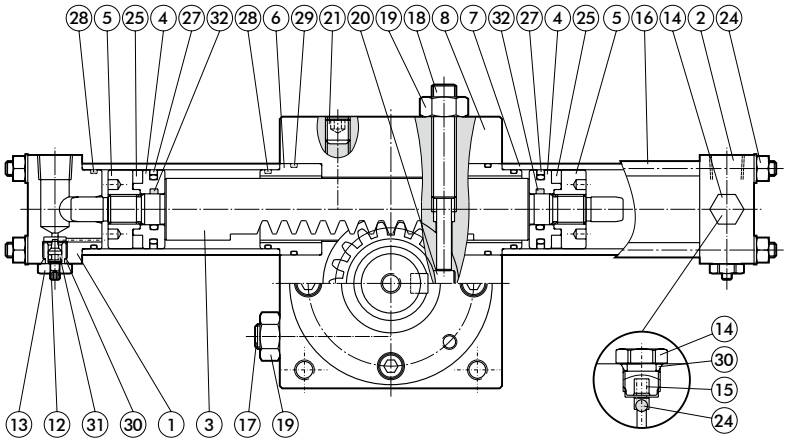
Unit: ml

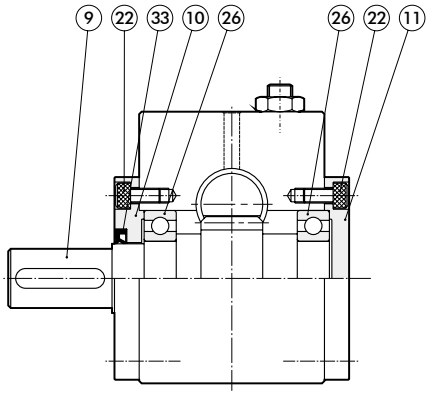
Rotary angle / Tube I.D.	90°	180°
32	29	54
40	52	100

How to order the seal kit

MRPHSK ☐

Tube I.D.	Seal kit
32	MRPHSK32 - Including No.27,28,29,30,31,32,33
40	MRPHSK40 - Including No.27,28,29,30,31,32,33

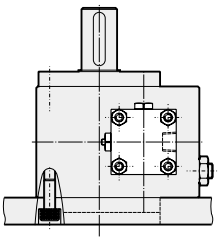




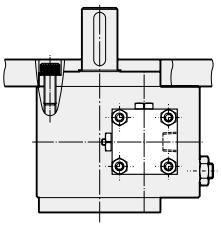
Parts list

No.	Part name	Q'y	No.	Part name	Q'y	No.	Part name	Q'y
1	End cap	1	12	Cushion needle	2	23	Nut & Spring washer	8
2	End cap	1	13	Cushion plug	2	24	Steel ball	2
3	Rack	1	14	Check valve	2	25	Magnet	2
4	Piston	2	15	Spring	2	26	Ball bearing	2
5	Magnet holder	2	16	Tie bolt	8	27	Piston packing	2
6	Rod bush	2	17	Adjusting screw	1	28	Cylinder gasket	4
7	Cylinder tube	2	18	Adjusting screw	1	29	O-ring	2
8	Housing	1	19	Lock nut	2	30	O-ring	4
9	Pinion shaft	1	20	Stopper pin	1	31	O-ring	2
10	End cover	1	21	Set screw	1	32	Piston gasket	2
11	End cover	1	22	Hexagon socket head screw	8	33	Rod packing	1

Mounting type

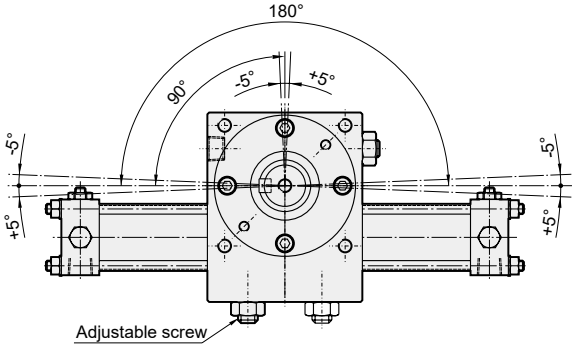


Bottom mounting

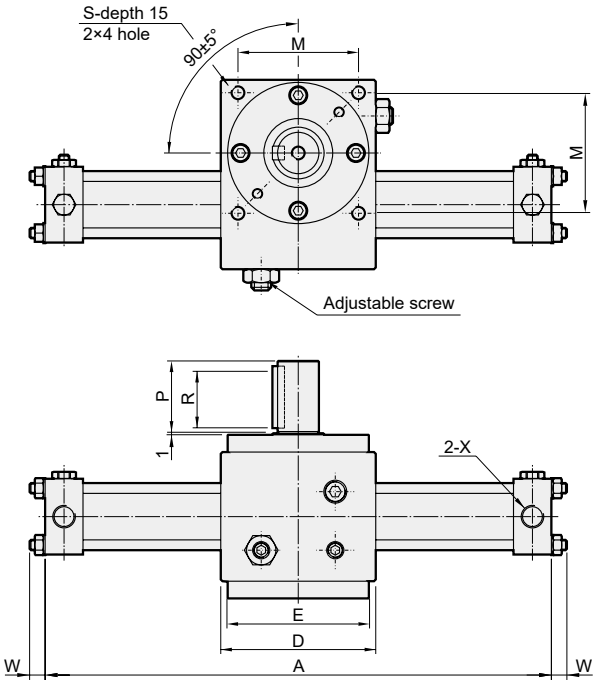


Top mounting

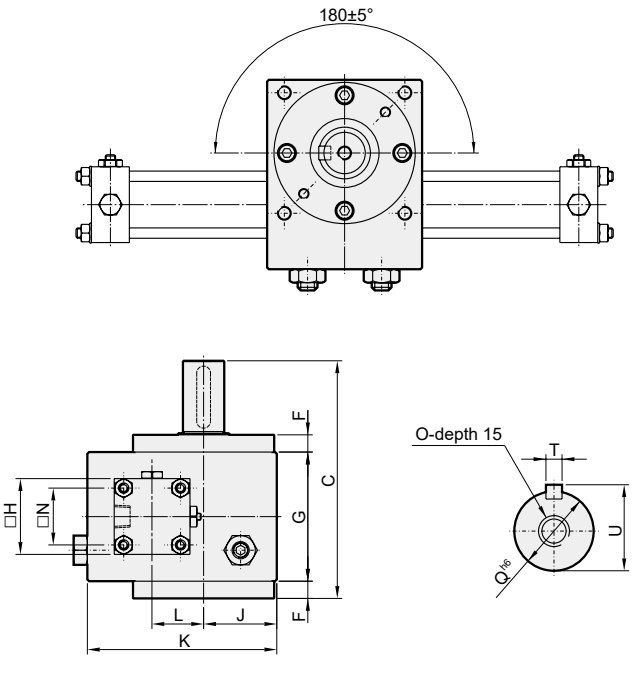
Rotating direction and adjustable angle



Angle of rotation 90°

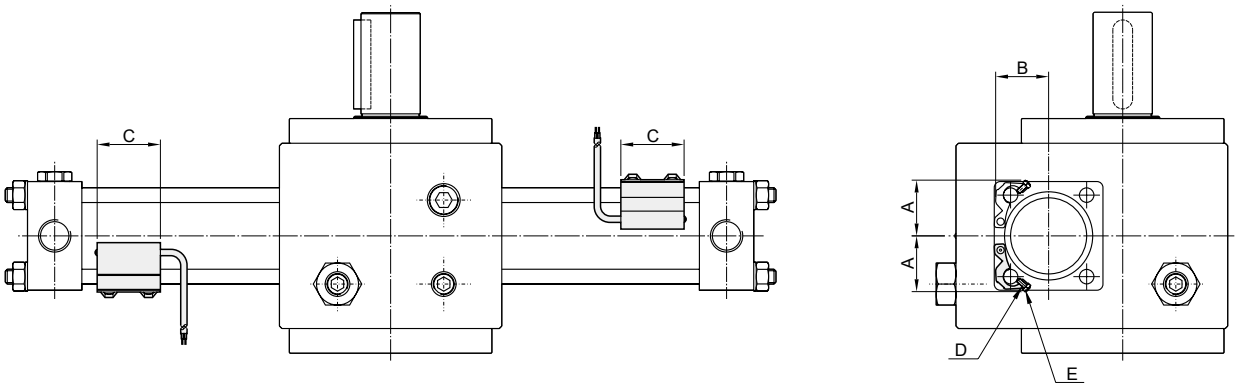


Angle of rotation 180°



Code / Tube I.D.	A		C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S	T	U	W	X
	90°	180°																				
32	286	357	138	90	82	10	75	44	42.5	110	30	70	33	M8	42	24	36	M8	8	27	9	Rc1/4
40	315	400	170	105	96	12	95	50	51.5	135	36	82	37	M8	50	28	45	M10	8	31	9	Rc3/8

Installation of sensor switchs



Code / Tube I.D.	Sensor switch	A	B	C	D	E
32	LN01P	25	29	32	M4×16L	M4
40	LN01P	27	30	32	M4×16L	M4

Caution for safety
(Read before installing)



Features

- Lever type clamp cylinder gives high clamping force.
- Manifold or freestanding model available.
- Carbon steel body ensures long life of unit.
- Ideal for use on CNC machine tools where repetitive clamping is required.

Specification

Model	MHCK				
Tube I.D. (mm)	25	32	40	50	63
Piston-rod (mm)	18	20	22.4	28	35
Standard stroke (mm)	25	25	30	35	40
Operating pressure range	0.5~5 MPa				
Proof pressure	7 MPa				
Clamping force (3 MPa)	1296N	2123N	3063N	4531N	6471N

MHCK Standard type

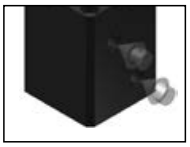
MHCK-F Manifold type



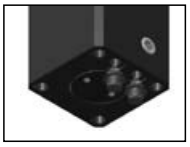
Order example

MHCK — 25 — F

MODEL | TUBE I.D. | MANIFOLD TYPE

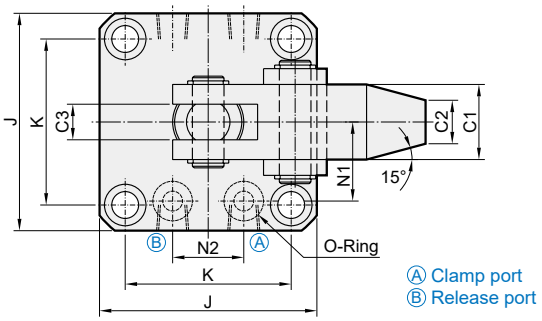


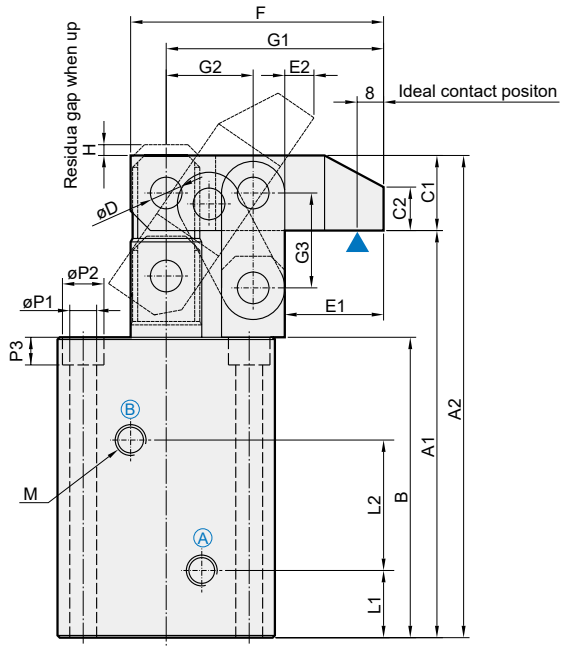
Blank: Standard type



F: Manifold type

MHCK
MHCK-F





Code / Tube I.D.	A1	A2	B	C1	C2	C3	D	E1	E2	F	G1	G2	G3	H	J
25	103	122	76	19	11	9	8	25	5	64	55	22	24	3	55
32	112	131	85	19	11	9	8	25	5	64	55	22	24	3	57
40	122	144.2	90	22.2	13	10	10	30	5.5	77	66	26	29	4	69
50	137	162.4	100	25.4	15	11	12	35.5	6.5	90	77	30	33	5	75
63	155	186.8	111	31.8	19	15	15	43	12.8	110	94	36	39	4	96

Code / Tube I.D.	K	L1	L2	M	N1	N2	O	P1	P2	P3
25	42	17	33	Rc1/8	20	18	P7	6.8	10.5	7
32	44	19	38	Rc1/8	22	22	P7	6.8	10.5	7
40	52	19	40	Rc1/4	26	26	P8	9	14	9
50	58	21.5	45	Rc1/4	30	32	P8	9	14	9
63	75	22	52	Rc1/4	38	38	P9	11	18	11

Caution for safety
(Read before installing)



Features

- Compact design available with large range of bore sizes.
- Available with both clockwise and anti clockwise movement.
- Available with single or double arms.
- Available with inbuilt flow control.

Note

- Please don't exceed 1.5 times of the original length, if it is necessary to increase the length of the clamping arm.
- Suggested to install a flow control valve protect cylinder barrel and internal components against fretting wear

Specification

Model	MTHS, MTHD
Tube I.D. (mm)	25, 32, 40, 50, 63
Acting type	Double acting
Medium	Filtered oil
Operating pressure range	0.5~7 MPa
Proof pressure	10 MPa
Material of cylinder barrel	Carbon steel
Standard angle of rotation	90°±2°(Angles of 0°, 45°and 60°are optional)
Rotating direction	Clockwise or counter clockwise

Tube I.D. / Model		25	32	40	50	63
MTHS	MTHD	○	○	○	○	○
MTHSL	MTHDL	×	○	○	○	○
MTHS-FC	MTHD-FC	○	○	○	○	○
MTHS-MF	MTHD-MF	○	○	○	○	○
MTHS-F	MTHD-F	○	○	○	○	×

Double acting

MTHS / MTHD
Single side clamping arm / Double sides clamping arm



Double acting (manifold type)

MTHS..FC / MTHD..FC
Single side clamping arm / Double sides clamping arm
(With flow control) (With flow control)



MTHS..F / MTHD..F
Single side clamping arm / Double sides clamping arm



MTHS..MF / MTHD..MF
Single side clamping arm / Double sides clamping arm

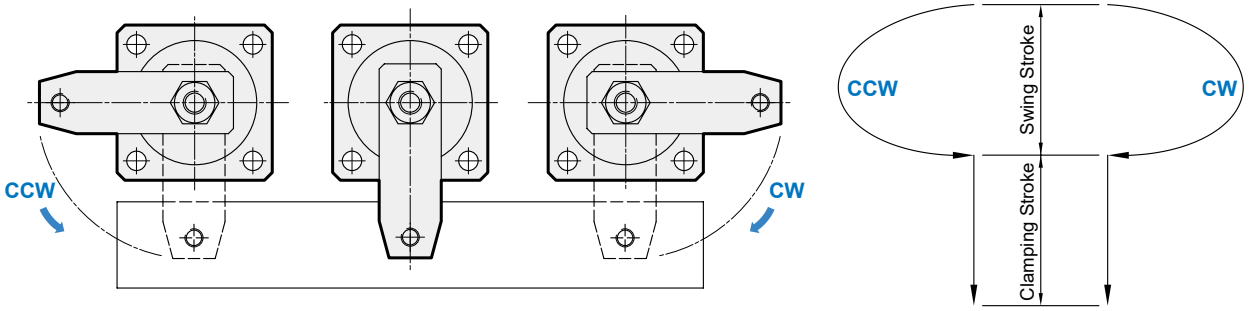


Order example

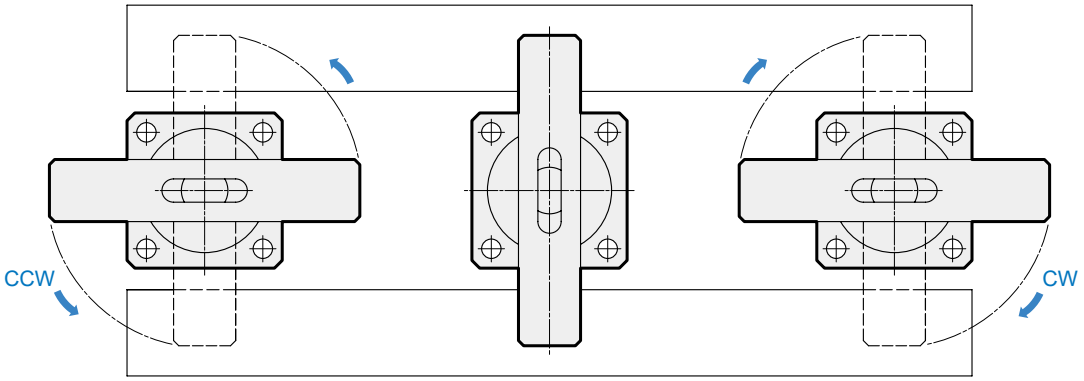
MTHS L — 25 — CW — 90 — FC — B

- MODEL: MTHS / MTHD
- CLAMPING STROKE: Blank: Standard; **L**: Lengthened
- TUBE I.D.
- ROTATING DIRECTION: **CCW**: Counter clockwise; **CW**: Clockwise
- ROTATING ANGLE: **90**: Standard rotation 90°
- MANIFOLD TYPE: FC / MF / F
- CLAMPING ARM TYPE: Blank: Standard; **B**: Extension

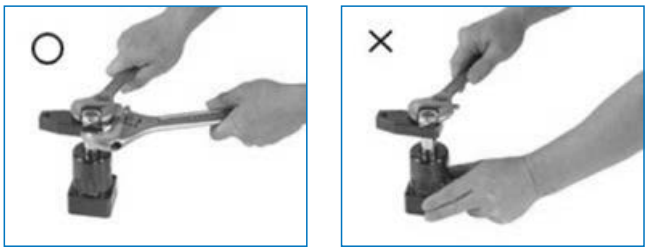
Single side swing clamp



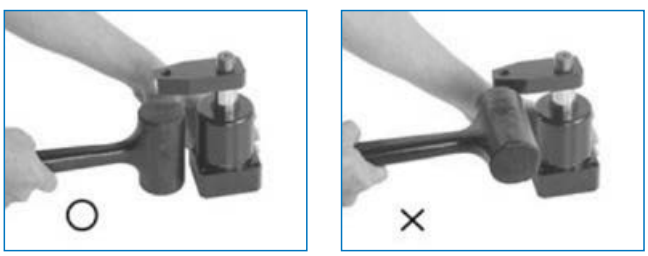
Double side swing clamp

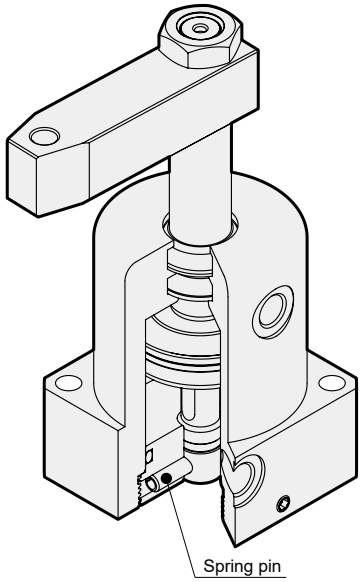


Clamping arm mounting methods



Clamping arm removing methods

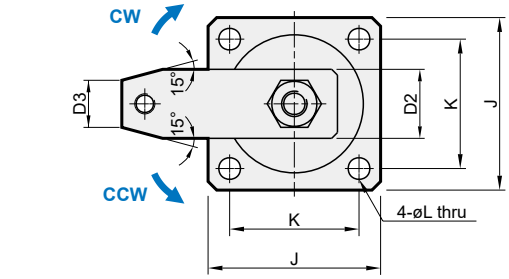


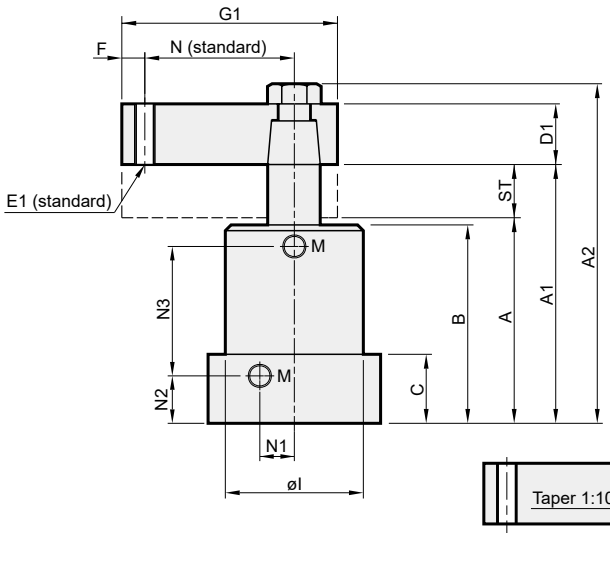


Note. If the clamping arm is wrong mounting and removing, the spring pin is broken easily. Than the rotation angle is deviation or the action is not smooth when the cylinder works.

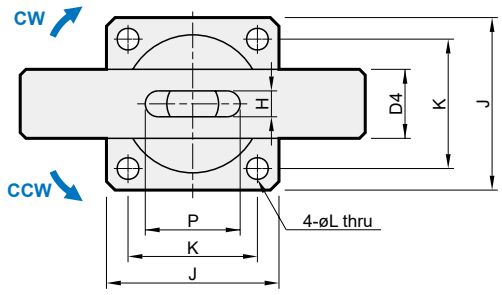
ø25~ø63

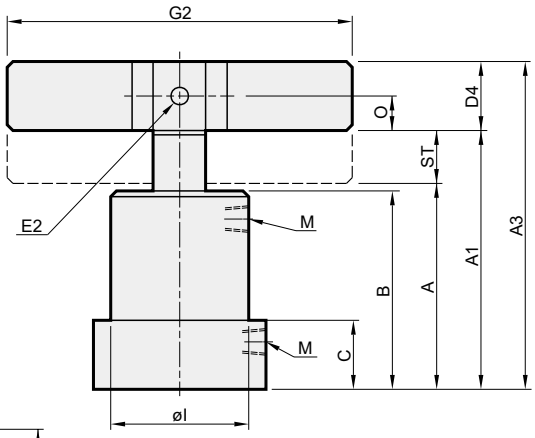
MTHS / MTHSL





MTHD / MTHDL





Single side clamping arm

ST: Stroke
* Clamping stroke lengthened type.

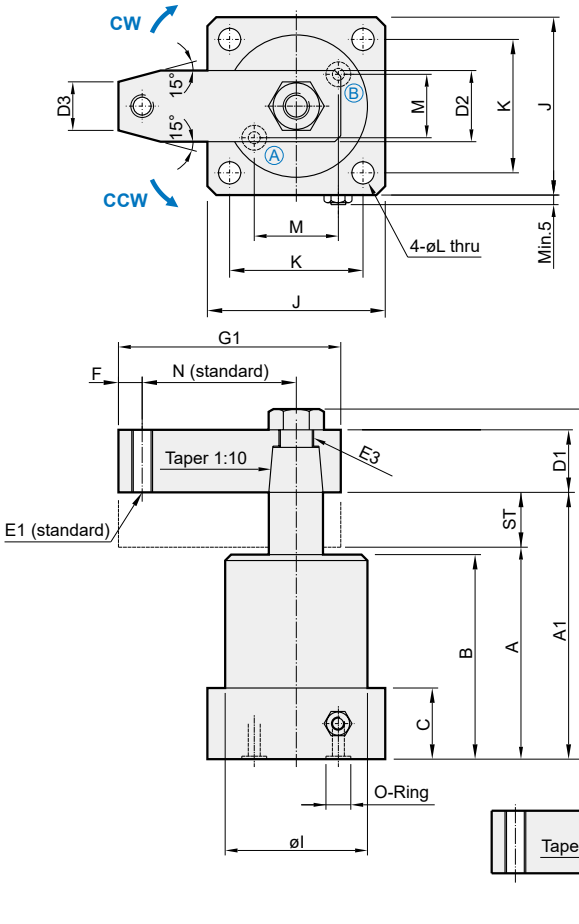
Model		Tube I.D. (mm)	Piston rod (mm)	Swing stroke (mm)	Clamping stroke (mm)		Pressure area push/ pull (mm^2)	Clamping force (N) 3.5MPa	Clamping arm type			
									G1		G2	
					Standard	*			Standard	Extension	Standard	Extension
MTHS-25	**MTHD-25**	ø25	ø18	9	13	–	491 / 237	830	74	100	140	200
MTHS-32	**MTHD-32**	ø32	ø20	11	15	30	804 / 490	1720	81	110	160	230
MTHS-40	**MTHD-40**	ø40	ø22.4	11	15	30	1257 / 863	3020	86	120	160	230
MTHS-50	**MTHD-50**	ø50	ø28	13	17	34	1963 / 1347	4710	96	130	180	260
MTHS-63	**MTHD-63**	ø63	ø35	13	17	34	3117 / 2155	7540	114	150	200	–

Code / Model		Standard type						Clamping stroke lengthened type *						C	D1	D2	D3	D4	E1	E2
		A	A1	A2	A3	B	ST	A	A1	A2	A3	B	ST							
MTHS-25	**MTHD-25**	79	101	124	120	76	22	–	–	–	–	–	–	27	15	27	15	□19	M10×1.5	ø8
MTHS-32	**MTHD-32**	89	115	140	137.2	85	26	104	145	170	167.2	100	41	30	17	31	17	□22.2	M10×1.5	ø8
MTHS-40	**MTHD-40**	94	120	148	142.2	90	26	109	150	178	172.2	105	41	30	18	31	17	□22.2	M10×1.5	ø10
MTHS-50	**MTHD-50**	104	134	166	159.4	100	30	121	168	200	193.4	117	47	34	20	37	19	□25.4	M12×1.75	ø12
MTHS-63	**MTHD-63**	109	139	175	170.8	105	30	126	173	209	204.8	122	47	34	23	48	24	□31.8	M16×2.0	ø15

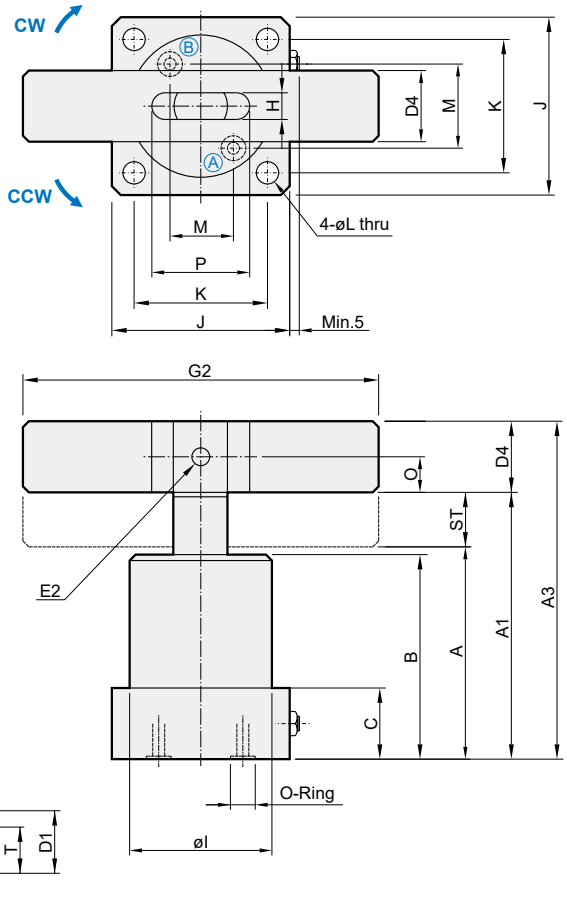
Code / Model		F	H	I	J	K	L	M	N	N1	N2	N3		O	P	R	S	T
												Standard	*					
MTHS-25	**MTHD-25**	10	9	ø46	52	40	ø6.8	Rc1/8	50	8	17	46	–	9.5	25	ø15	ø18	13
MTHS-32	**MTHD-32**	10	10	ø50	56	44	ø6.8	Rc1/8	55	10	19	52	67	11.1	29	ø17	ø20	14
MTHS-40	**MTHD-40**	10	10	ø54	63	48	ø9	Rc1/8	60	12	19	57	72	11.1	31	ø19	ø22.4	15
MTHS-50	**MTHD-50**	12	12	ø66	72	57	ø9	Rc1/4	65	15	21.5	63.5	80.5	12.7	38	ø21	ø28	16
MTHS-63	**MTHD-63**	15	15	ø80	88	70	ø11	Rc1/4	75	17	22	68	85	15.9	48	ø27	ø35	18

Manifold type - FC ø25~ø63

MTHS-FC



MTHD-FC



Ⓐ Clamp port
Ⓑ Release port

Single side clamping arm

ST: Stroke

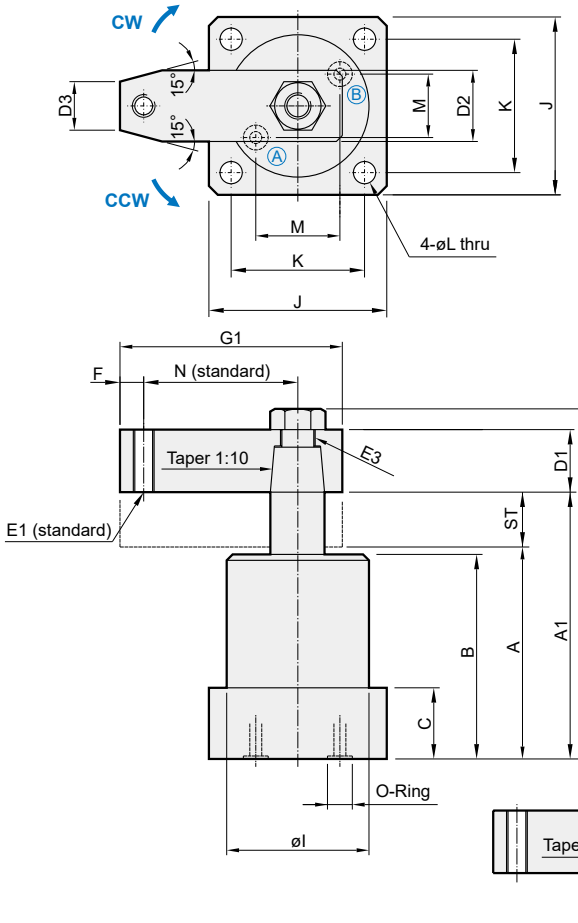
Model		Tube I.D. (mm)	Piston rod (mm)	Swing stroke (mm)	Clamping stroke (mm)	Pressure area push/ pull (mm^2)	Clamping force (N) 3.5 MPa	Clamping arm type			
								G1		G2	
								Standard	Extension	Standard	Extension
MTHS-25FC	MTHD-25FC	ø25	ø18	9	13	491 / 237	830	74	100	140	200
MTHS-32FC	MTHD-32FC	ø32	ø20	11	15	804 / 490	1720	81	110	160	230
MTHS-40FC	MTHD-40FC	ø40	ø22.4	11	15	1257 / 863	3020	86	120	160	230
MTHS-50FC	MTHD-50FC	ø50	ø28	13	17	1963 / 1347	4710	96	130	180	260
MTHS-63FC	MTHD-63FC	ø63	ø35	13	17	3117 / 2155	7540	114	150	200	—

Code / Model		ST	A	A1	A2	A3	B	C	D1	D2	D3	D4	E1	E2	E3
MTHS-25FC	MTHD-25FC	22	79	101	124	120	76	22	15	27	15	□19	M10×1.5	ø8	M14×1.5
MTHS-32FC	MTHD-32FC	26	89	115	140	137.2	85	25	17	31	17	□22.2	M10×1.5	ø8	M16×1.5
MTHS-40FC	MTHD-40FC	26	94	120	148	142.2	90	25	18	31	17	□22.2	M10×1.5	ø10	M18×1.5
MTHS-50FC	MTHD-50FC	30	104	134	166	159.4	100	30	20	37	19	□25.4	M12×1.75	ø12	M20×1.5
MTHS-63FC	MTHD-63FC	30	109	139	175	170.8	105	30	23	48	24	□31.8	M16×2.0	ø15	M26×1.5

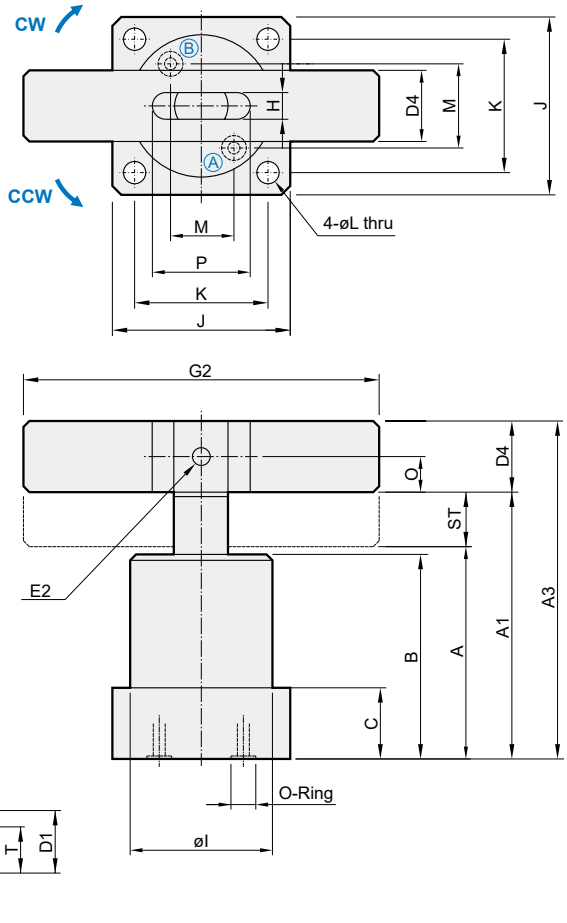
Code / Model		F	G1	G2	H	I	J	K	L	M	N	O	O-Ring	P	R	S	T
MTHS-25FC	MTHD-25FC	10	74	140	9	ø46	55	42	ø6.8	19	50	9.5	P7	25	ø15	ø18	13
MTHS-32FC	MTHD-32FC	10	81	160	10	ø50	57	44	ø6.8	21	55	11.1	P7	29	ø17	ø20	14
MTHS-40FC	MTHD-40FC	10	86	160	10	ø54	63	48	ø9	23	60	11.1	P9	31	ø19	ø22.4	15
MTHS-50FC	MTHD-50FC	12	96	180	12	ø66	72	57	ø9	28	65	12.7	P9	38	ø21	ø28	16
MTHS-63FC	MTHD-63FC	15	114	200	15	ø80	88	70	ø11	32	75	15.9	P9	48	ø27	ø35	18

Manifold type - MF ø25~ø63

MTHS-MF



MTHD-MF



Ⓐ Clamp port
Ⓑ Release port

Single side clamping arm

ST: Stroke

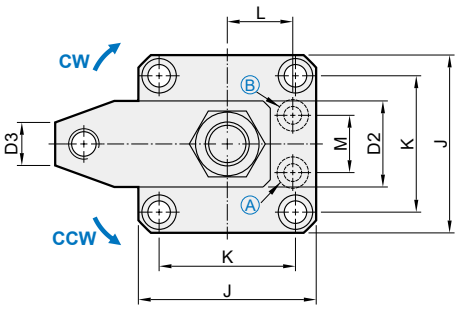
Model		Tube I.D. (mm)	Piston rod (mm)	Swing stroke (mm)	Clamping stroke (mm)	Pressure area push/ pull (mm^2)	Clamping force (N) 3.5MPa	Clamping arm type			
								G1		G2	
								Standard	Extension	Standard	Extension
MTHS-25MF	MTHD-25MF	ø25	ø18	9	13	491 / 237	830	74	100	140	200
MTHS-32MF	MTHD-32MF	ø32	ø20	11	15	804 / 490	1720	81	110	160	230
MTHS-40MF	MTHD-40MF	ø40	ø22.4	11	15	1257 / 863	3020	86	120	160	230
MTHS-50MF	MTHD-50MF	ø50	ø28	13	17	1963 / 1347	4710	96	130	180	260
MTHS-63MF	MTHD-63MF	ø63	ø35	13	17	3117 / 2155	7540	114	150	200	–

Code / Model		ST	A	A1	A2	A3	B	C	D1	D2	D3	D4	E1	E2	E3
MTHS-25MF	MTHD-25MF	22	79	101	124	120	76	22	15	27	15	□19	M10×1.5	ø8	M14×1.5
MTHS-32MF	MTHD-32MF	26	89	115	140	137.2	85	25	17	31	17	□22.2	M10×1.5	ø8	M16×1.5
MTHS-40MF	MTHD-40MF	26	94	120	148	142.2	90	25	18	31	17	□22.2	M10×1.5	ø10	M18×1.5
MTHS-50MF	MTHD-50MF	30	104	134	166	159.4	100	30	20	37	19	□25.4	M12×1.75	ø12	M20×1.5
MTHS-63MF	MTHD-63MF	30	109	139	175	170.8	105	30	23	48	24	□31.8	M16×2.0	ø15	M26×1.5

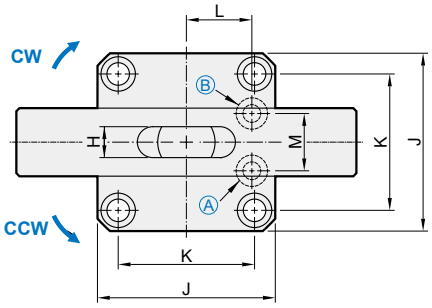
Code / Model		F	G1	G2	H	I	J	K	L	M	N	O	O-Ring	P	R	S	T
MTHS-25MF	MTHD-25MF	10	74	140	9	ø46	55	42	ø6.8	19	50	9.5	P7	25	ø15	ø18	13
MTHS-32MF	MTHD-32MF	10	81	160	10	ø50	57	44	ø6.8	21	55	11.1	P7	29	ø17	ø20	14
MTHS-40MF	MTHD-40MF	10	86	160	10	ø54	63	48	ø9	23	60	11.1	P9	31	ø19	ø22.4	15
MTHS-50MF	MTHD-50MF	12	96	180	12	ø66	72	57	ø9	28	65	12.7	P9	38	ø21	ø28	16
MTHS-63MF	MTHD-63MF	15	114	200	15	ø80	88	70	ø11	32	75	15.9	P9	48	ø27	ø35	18

Manifold type - F ø25~ø50

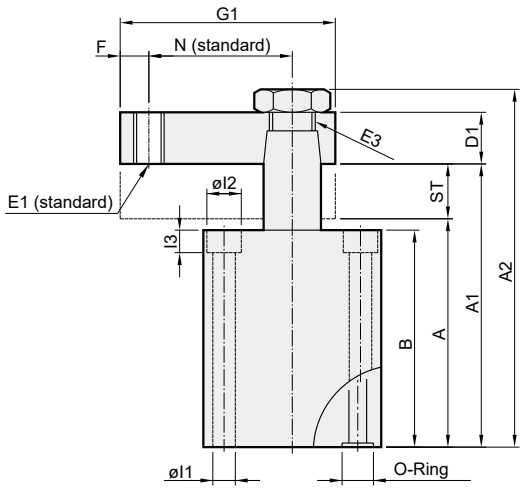
MTHS-F

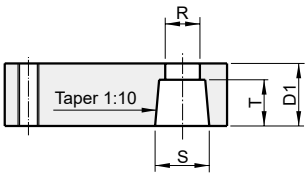


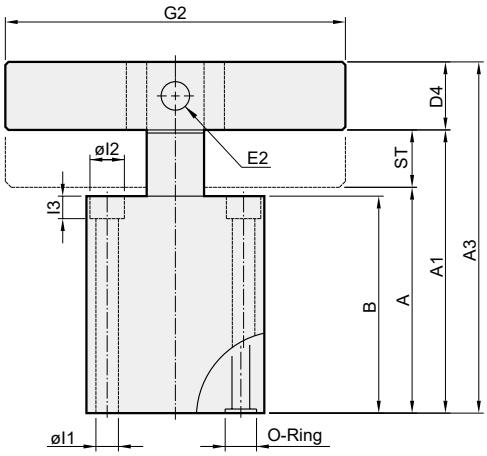
MTHD-F



Ⓐ Clamp port
Ⓑ Release port







Single side clamping arm

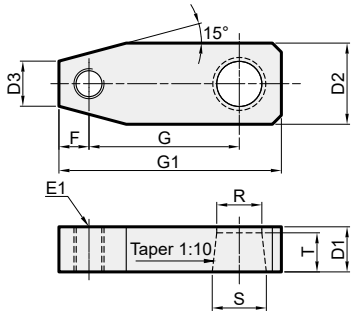
ST: Stroke

Model		Tube I.D. (mm)	Piston rod (mm)	Swing stroke (mm)	Clamping stroke (mm)	Pressure area push/ pull (mm^2)	Clamping force (N) 3.5MPa	Clamping arm type			
								G1		G2	
								Standard	Extension	Standard	Extension
MTHS-25F	MTHD-25F	ø25	ø18	9	13	491 / 237	830	74	100	140	200
MTHS-32F	MTHD-32F	ø32	ø20	11	15	804 / 490	1720	81	110	160	230
MTHS-40F	MTHD-40F	ø40	ø22.4	11	15	1257 / 863	3020	86	120	160	230
MTHS-50F	MTHD-50F	ø50	ø28	13	17	1963 / 1347	4710	96	130	180	260

Code / Model		ST	A	A1	A2	A3	B	C	D1	D2	D3	D4	E1	E2	E3
MTHS-25F	MTHD-25F	22	79	101	124	120	76	22	15	27	15	□19	M10×1.5	ø8	M14×1.5
MTHS-32F	MTHD-32F	26	89	115	140	137.2	85	25	17	31	17	□22.2	M10×1.5	ø8	M16×1.5
MTHS-40F	MTHD-40F	26	94	120	148	142.2	90	25	18	31	17	□22.2	M10×1.5	ø10	M18×1.5
MTHS-50F	MTHD-50F	30	104	134	166	159.4	100	30	20	37	19	□25.4	M12×1.75	ø12	M20×1.5

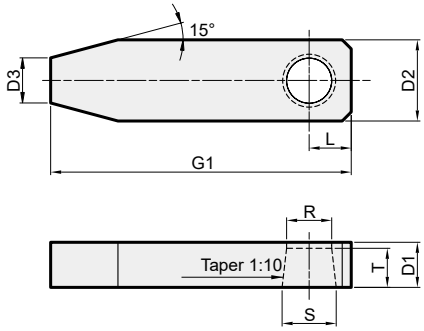
Code / Model		F	G1	G2	H	I1	I2	I3	J	K	L	M	N	O-Ring	R	S	T
MTHS-25F	MTHD-25F	10	74	140	9	ø6.8	ø10.5	7	55	42	20	18	50	P7	ø15	ø18	13
MTHS-32F	MTHD-32F	10	81	160	10	ø6.8	ø10.5	7	57	44	22	22	55	P7	ø17	ø20	14
MTHS-40F	MTHD-40F	10	86	160	10	ø9	ø14	9	69	52	26	26	60	P8	ø19	ø22.4	15
MTHS-50F	MTHD-50F	12	96	180	12	ø9	ø14	9	75	58	30	32	65	P8	ø21	ø28	16

Single side clamping arm (Standard type with thread)



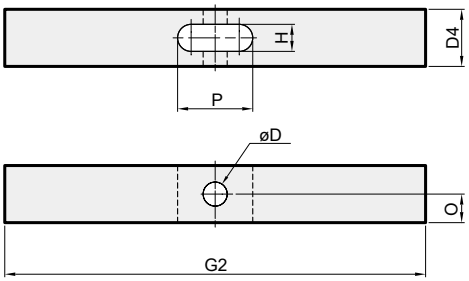
Code / Model	D1	D2	D3	F	G	G1	E1	R	S	T
MTHS-25	15	27	15	10	50	74	M10×1.5	15	18	13
MTHS-32	17	31	17	10	55	81	M10×1.5	17	20	14
MTHS-40	18	31	17	10	60	86	M10×1.5	19	22.4	15
MTHS-50	20	37	19	12	65	96	M12×1.75	21	28	16
MTHS-63	23	48	24	15	75	114	M16×2.0	27	35	18

Single side clamping arm B type (Extension type without thread)



Code / Model	D1	D2	D3	L	G1	R	S	T
MTHS-25 B	15	27	15	14	100	15	18	13
MTHS-32 B	17	31	17	16	110	17	20	14
MTHS-40 B	18	31	17	16	120	19	22.4	15
MTHS-50 B	20	37	19	19	130	21	28	16
MTHS-63 B	23	48	24	24	150	27	35	18

Double side clamping arm (Standard & Extension type)



Double side clamping arm (Standard type)

Code / Model	D	D4	O	P	H	G2
MTHD-25	ø8	□19	9.5	25	9	140
MTHD-32	ø8	□22.2	11.1	29	10	160
MTHD-40	ø10	□22.2	11.1	31	10	160
MTHD-50	ø12	□25.4	12.7	38	12	180
MTHD-63	ø15	□31.8	15.9	48	15	200

Double side clamping arm B type (Extension type)

Code / Model	D	D4	O	P	H	G2
MTHD-25 B	ø8	□19	9.5	25	9	200
MTHD-32 B	ø8	□22.2	11.1	29	10	230
MTHD-40 B	ø10	□22.2	11.1	31	10	230
MTHD-50 B	ø12	□25.4	12.7	38	12	260

Weight

Unit: kg

Model			Weight
MTHS-25	MTHS-25MF	MTHS-25FC	1.3
MTHD-25	MTHD-25MF	MTHD-25FC	1.5
MTHS-32	MTHS-32MF	MTHS-32FC	1.7
MTHD-32	MTHD-32MF	MTHD-32FC	2.0
MTHS-40	MTHS-40MF	MTHS-40FC	2.0
MTHD-40	MTHD-40MF	MTHD-40FC	2.3
MTHS-50	MTHS-50MF	MTHS-50FC	3.2
MTHD-50	MTHD-50MF	MTHD-50FC	3.5
MTHS-63	MTHS-63MF	MTHS-63FC	5.1
MTHD-63	MTHD-63MF	MTHD-63FC	5.7

Model	Weight
MTHS-25F	1.8
MTHD-25F	2.0
MTHS-32F	2.2
MTHD-32F	2.5
MTHS-40F	3.3
MTHD-40F	3.5
MTHS-50F	4.3
MTHD-50F	4.65

Model	Weight
MTHSL-32	2.4
MTHDL-32	2.7
MTHSL-40	2.8
MTHDL-40	3.1
MTHSL-50	4.5
MTHDL-50	4.8
MTHSL-63	7.1
MTHDL-63	7.7

MHS* / MHTS* series

HYDRAULIC SWING CLAMP CYLINDER

Caution for safety
(Read before installing)



Features

- Double clamp retracting, the piston rod ratates, causing the clamping arm to swing in either a clockwise or counterclockwise direction. Clamping then takes place as the rod continues to retract in a straight line, pulling the arm against the workpieces.
- Pull cylinder type, Available models offer angles of rotation of 0°, 45°, 60° or 90°.
- The cylinder body is made of aluminum alloy and the surface is hard membrane treated.
- Mounting methode: Square base type, threaded type, flange type.

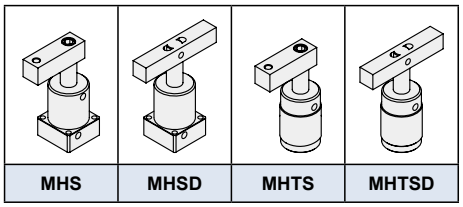
Note

- When it is necessary to change the length of the clamping arm, it should be noted that do not exceed 1.2 times of the original G value in order to avoid the serious slanting of the piston rod.
- Suggested to add a flow control valve to the hydraulic inlet to control the motion of the swing angle in order to prevent the inertial impaction.
- A workpiece should not be clamped within a swing stroke, and it should be calmped within the vertical downward clamping stroke.
- Whenever placing and taking off a workpiece, it is necessary to use an air gun to clean the piston and the seal for removing the iron slag or foreigner objects attached thereon in order to prevent the foreigner objects form entering the seal to cause oil leakage.

Order example

MHS L — 40 F — 90

- MODEL
- SWIVEL DIRECTION: **R**: CW; **L**: CCW; **P**: Non-swing
- PISTONø: **25**, **32**, **40**, **50**, **63**
- Blank: Line type; **F**: Manifold
- ANGLE: **0°**, **45°**, **60°**, **90°**

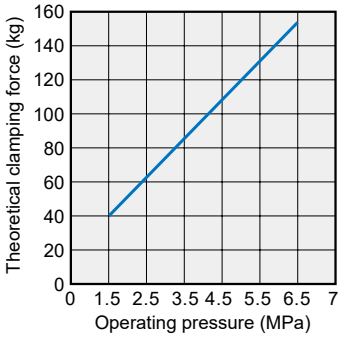


* **MHTS** and **MHTSD** produced by order.
And without manifold type (F).

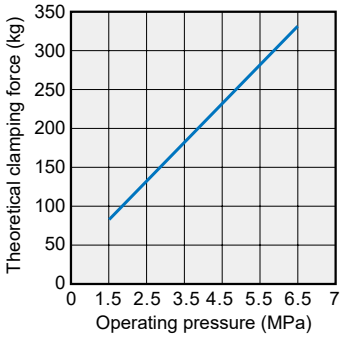
Schematic view showing a theoretical clamping force under different hydraulic pressure.

Capacity

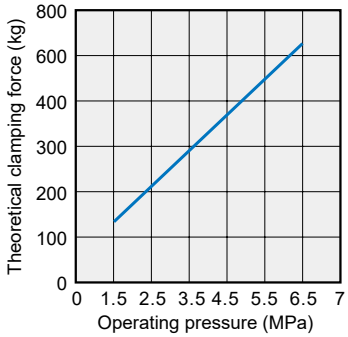
MHS-25



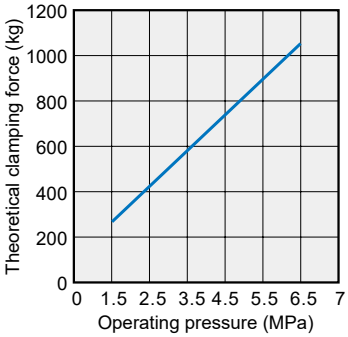
MHS-32



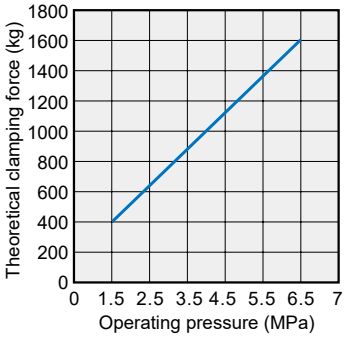
MHS-40



MHS-50

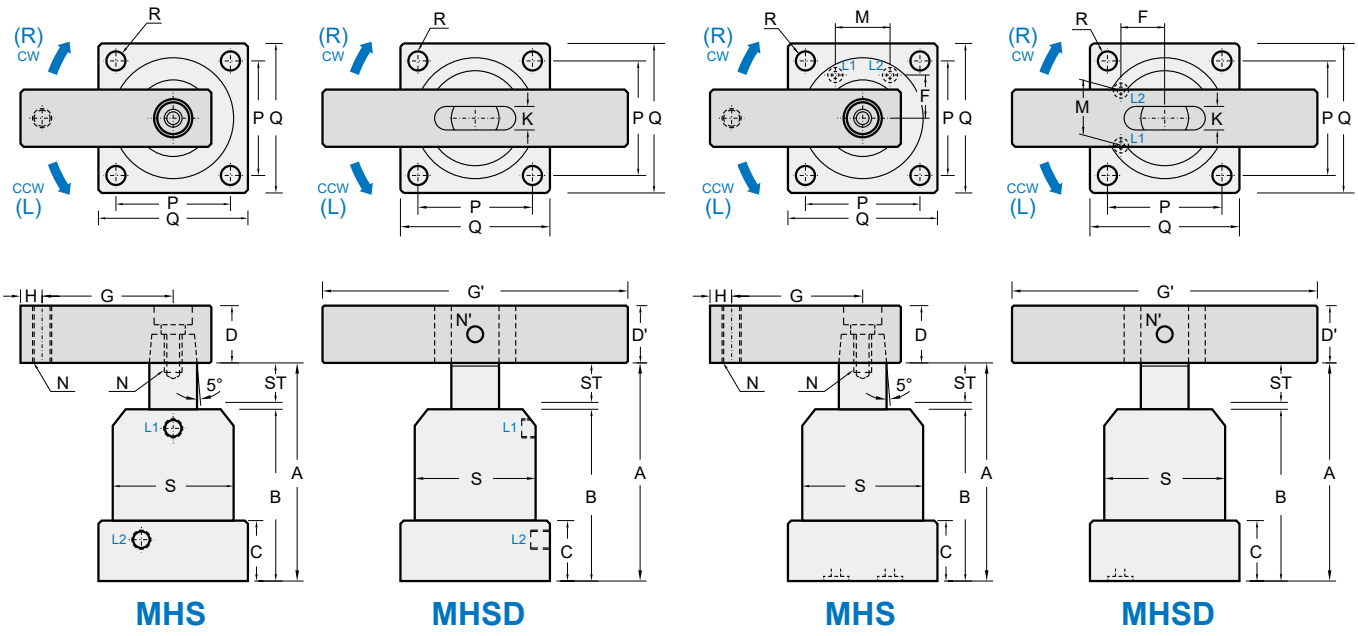


MHS-63



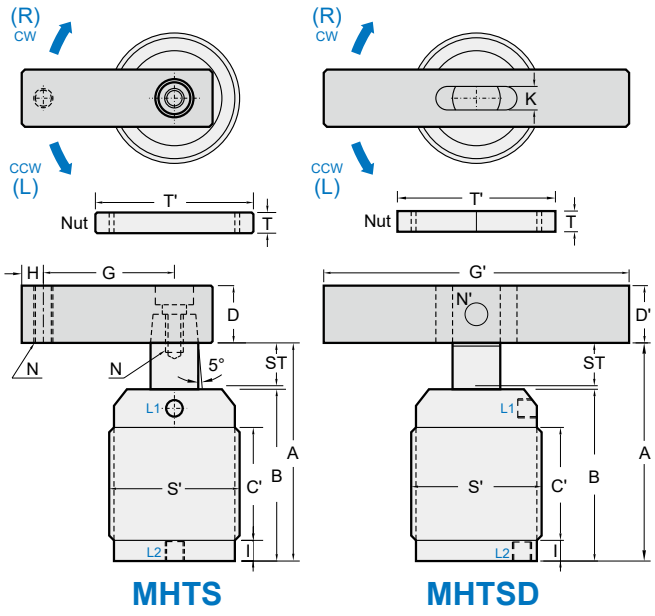
MHS*

MHS*-F



Flange type	MHS-25 MHSD-25	MHS-32 MHSD-32	MHS-40 MHSD-40	MHS-50 MHSD-50	MHS-63 MHSD-63
Operating pressure range	2~4.5 MPa				
Proof pressure	7 MPa				
Cylinder operating	Double acting				
Swivel angle	90°(60°,45°,0°)±2°				
Swivel stroke (mm)	12	14	14	14	14
Clamping stroke (mm)	14	15	15	15	15
Piston ø (mm)	25	32	40	50	63
Piston rod ø (mm)	18	20	20	20	25
Theoretical force (2.5 MPa)	59kg	125kg	200kg	400kg	600kg
A (unclamp) (mm)	100	111	113.6	114.5	118
B (mm)	70	76	80	80	85
C (mm)	23	25	27	27	32
D (mm)	□25.4	□25.4	□25.4	□25.4	□32
D' (mm)	□19	□22	□22	□22	□25.4
G (mm)	50	55	55	55	75
G' (mm)	100	120	120	120	140
H (mm)	10	10	10	10	11
K (mm)	9	10	10	10	12
L1 (clamp) L2 (unclamp)	Rc1/8	Rc1/8	Rc1/8	Rc1/8	Rc1/8
O-ring manifold	S4	S4	S4	S4	S4
N (mm)	M10×1.5	M10×1.5	M10×1.5	M10×1.5	M12×1.75
N' (mm)	ø8	ø8	ø8	ø8	ø10
P (mm)	40	44	48	57	70
Q (mm)	50	55	62	74	88
R (mm)	ø6.5	ø6.5	ø8.5	ø8.5	ø10.5
S (mm)	ø45	ø50	ø54	ø65	ø80
M (mm)	18	24	26	30	40
F (mm)	15	17	20	25	30
Weight (kg)	0.8	1.0	1.1	1.4	2.3

MHTS*



Threaded type (produced by order)	MHTS-25 MHTSD-25	MHTS-32 MHTSD-32	MHTS-40 MHTSD-40	MHTS-50 MHTSD-50
Operating pressure range	2~4.5 MPa			
Proof pressure	7 MPa			
Cylinder operating	Double acting			
Swivel angle	90°(60°,45°,0°)±2°			
Swivel stroke (mm)	12	14	14	14
Clamping stroke (mm)	14	15	15	15
Piston ø (mm)	25	32	40	50
Piston rod ø (mm)	18	20	20	20
Theoretical force (2.5 MPa)	59kg	125kg	200kg	400kg
A (unclamp) (mm)	100	111	113.6	114.5
B (mm)	70	76	80	80
C' (mm)	35	45	45	45
D (mm)	□25.4	□25.4	□25.4	□25.4
D' (mm)	□19	□22	□22	□22
G (mm)	50	55	55	55
G' (mm)	100	120	120	120
H (mm)	10	10	10	10
I (mm)	9	9	9	9
K (mm)	9	10	10	10
L1 (clamp) L2 (unclamp)	Rc1/8	Rc1/8	Rc1/8	Rc1/8
N (mm)	M10×1.5	M10×1.5	M10×1.5	M10×1.5
N' (mm)	ø8	ø8	ø8	ø8
S' (mm)	M45×1.5	M50×1.5	M55×1.5	M65×1.5
T (×2 pcs nut) (mm)	10	11	11	12
T' (mm)	ø65	ø70	ø75	ø85
Weight (kg)	0.8	1.1	1.25	1.7

MF* / MD* series

HIGH OIL PRESSURE SWING CLAMP **CYLINDER**

Caution for safety
(Read before installing)



Features

- Double clamp retracting, the piston rod ratates, causing the clamping arm to swing in either a clockwise or counterclockwise direction. Clamping then takes place as the rod continues to retract in a straight line, pulling the arm against the workpieces.
- Pull cylinder type, Available models offer angles of rotation of 0°, 45°, 60° or 90°.
- The cylinder body is made of carbon steel and the surface is hard membrane treated.

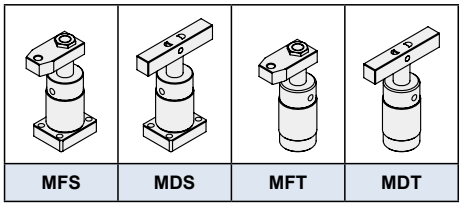
Note

- When it is necessary to change the length of the clamping arm, it should be noted that do not exceed 1.2 times of the original G value in order to avoid the serious slanting of the piston rod.
- Suggested to add a flow control valve to the hydraulic inlet to control the motion of the swing angle in order to prevent the inertial impaction.
- A workpiece should not be clamped within a swing stroke, and it should be calmped within the vertical downward clamping stroke.
- Whenever placing and taking off a workpiece, it is necessary to use an air gun to clean the piston and the seal for removing the iron slag or foreigner objects attached thereon in order to prevent the foreigner objects form entering the seal to cause oil leakage.

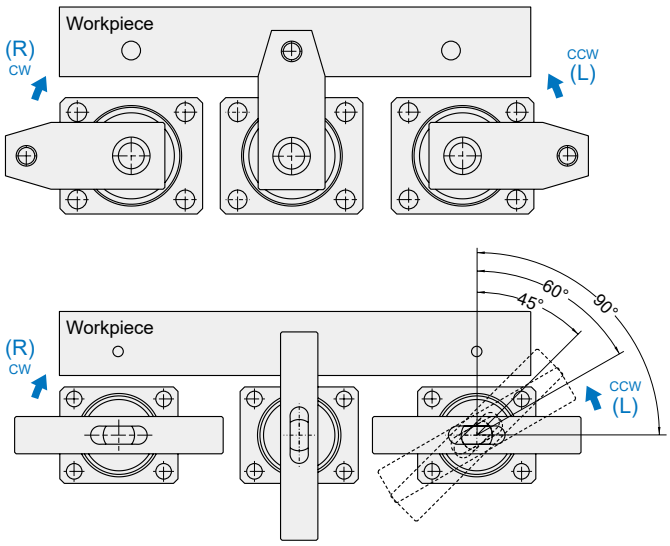
Order example

MFS L — 32A F — 90

MODEL	SWIVEL DIRECTION	PISTON ø		ANGLE
			Blank: Line type **F**: Manifold	
	R: CW **L**: CCW **P**: Non-swing	**25A**, **25B** **32A**, **32B** **40A**, **40B** * A: Single acting B: Double acting		**0°** **45°** **60°** **90°**



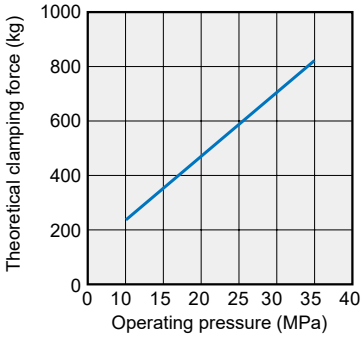
Swivel dir. definition



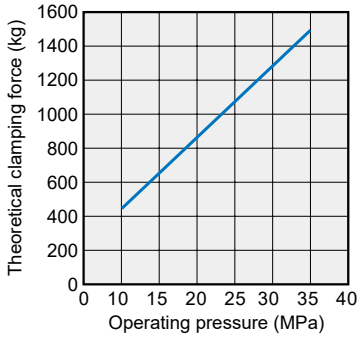
Capacity

Schematic view showing a theoretical clamping force under different hydraulic pressure.

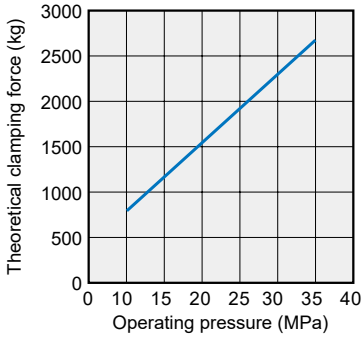
MFS-25



MFS-32

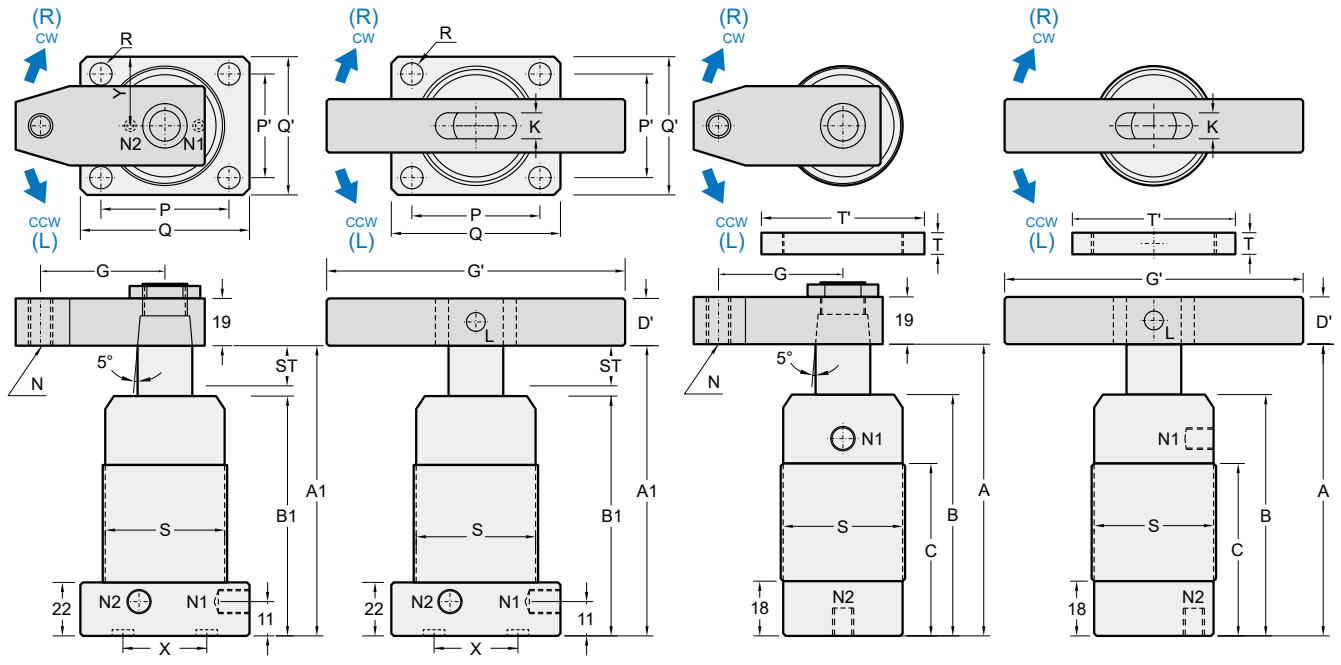


MFS-40



MF* / MD* Dimensions ø25~ø40

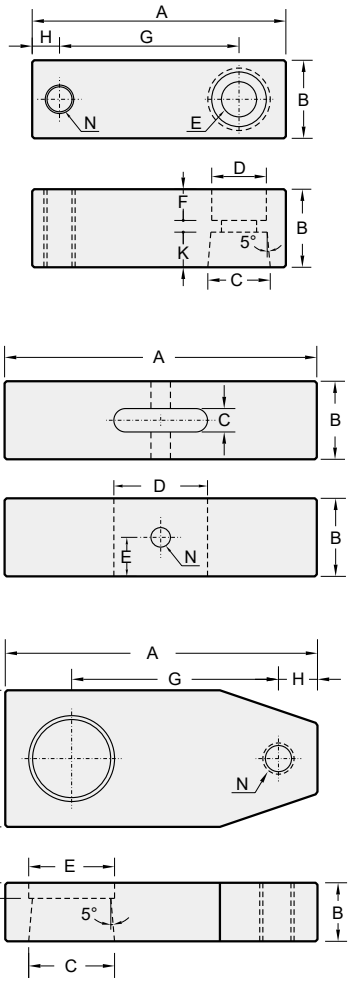
HIGH OIL PRESSURE SWING CLAMP **CYLINDER**



MFS **MDS** **MFT** **MDT**

MFS / **MDS** (Flange type) **MFT** / **MDT** (Threaded type)	**25A**	**32A**	**40A**	**25B**	**32B**	**40B**
Operating pressure range	5~21 MPa					
Proof pressure	35 MPa					
Cylinder operating	Single acting			Double acting		
Swivel stroke (mm)	12			15		
Clamping stroke (mm)	11			18		
Swivel angle	90°(60°,45°,0°)±2°					
Piston ø (mm)	25	32	40	25	32	40
Piston rod ø (mm)	18	22	25	18	22	25
Theoretical force (21 MPa)	495kg	890kg	1600kg	495kg	890kg	1600kg
A (unclamp) (mm)	127	127	127	134	133	134
A1 (unclamp) (mm)	131	131	131	138	137	138
B (mm)	102	97	98	102	97	98
B1 (mm)	106	101	102	106	101	102
C (mm)	70	74	76	70	74	76
D' (mm)	□19	□22	□25.4	□19	□22	□25.4
G (mm)	45	50	50	45	50	50
G' (mm)	100	120	140	100	120	140
K (mm)	9	10	12	9	10	12
L (mm)	ø8	ø8	ø10	ø8	ø8	ø10
N1 (clamp)/ N2 (unclamp) (mm)	Rc1/8	Rc1/8	Rc1/8	Rc1/8	Rc1/8	Rc1/8
O-ring manifold	P7	P7	P7	P7	P7	P7
N (mm)	M12×1.75	M12×1.75	M12×1.75	M12×1.75	M12×1.75	M12×1.75
P (mm)	50	54	66	50	54	66
P' (mm)	30	34	40	30	34	40
Q (mm)	64	68	84	64	68	84
Q' (mm)	46	54	64	46	54	64
R (mm)	ø6.5	ø8.5	ø8.5	ø6.5	ø8.5	ø8.5
S (mm)	M45×1.5	M50×1.5	M60×1.5	M45×1.5	M50×1.5	M60×1.5
T (×2 pcs) (mm)	10	11	11	10	11	11
T' (mm)	ø65	ø70	ø80	ø65	ø70	ø80
X (mm)	35	40	50	35	40	50
Y (mm)	23	27	32	23	27	32
Weight (kg)	1.5	1.9	2.9	1.5	1.9	2.9

Clamping arm



Unit: mm

Code / Model	A	B	C	D	E	F	G	H	K	N
MAS-25	50	□16	14	11	7	6	30	8	6	M6
MAS-32 MATS-32 MAS-40 MATS-40	70	□19	16	14	9	7	50	9	9	M8
MHS-32 MHTS-32 MHS-40 MHTS-40 MHS-50 MHTS-50	80	□25	20	17	11	9	55	10	12	M10
MAS-50 MATS-50 MAS-63	95	□25	20	17	11	9	70	10	12	M10
MHS-25	74	□25	18	17	11	9	50	10	12	M10
MHS-63	103	□32	25	19	13	12	75	11	14	M12

Unit: mm

Code / Model	A	B	C	D	E	N
MASD-32 MATSD-32 MHSD-25 MDS-25 MASD-40 MATSD-40 MDT-25	100	□19	9	30	9.5	8
MASD-50 MATSD-50 MHSD-32 MHTSD-32 MDS-32 MASD-63 MHSD-40 MHTSD-40 MDT-32 MHSD-50 MHTSD-50	120	□22	10	35	11	8
MHSD-63 MDS-40 MDT-40	140	□25	12	42	12.5	10

Unit: mm

Code / Model	A	B	C	D	E	F	G	H	N
MFS-25, MFT-25	70	19	18	38	23	7	45	10	M12
MFS-32, MFT-32	78	19	22	38	25	7	50	10	M12
MFS-40, MFT-40	78	19	25	38	27	7	50	10	M12

Flange type for manifold mounting with o-ring seal

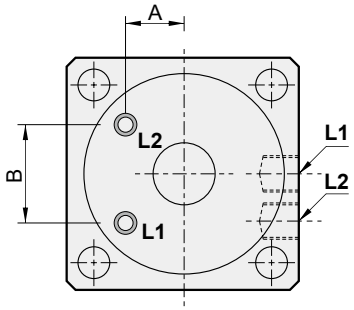
Flange type dil cavity paths are reserved on square base type of hydraulic & high pressure cylinder, contently for fixture design.

Unit: mm

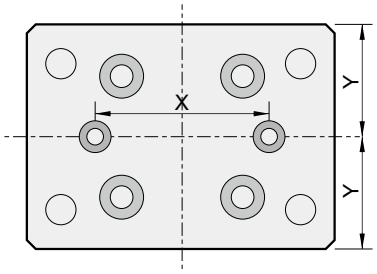
Code / Model	A	B	O-ring
MHS-25	15	18	S4
MHS-32	17	24	S4
MHS-40	20	26	S4
MHS-50	25	30	S4
MHS-63	30	40	S4

Unit: mm

Code / Model	X	Y	O-ring
MFS-25, MDS-25	35	23	S4
MFS-32, MDS-32	40	27	S4
MFS-40, MDS-40	50	32	S4



Top view



MTC series

THREADED-BODY **CYLINDER** Hydraulic single-acting, spring return

Max. operating pressure 35 MPa

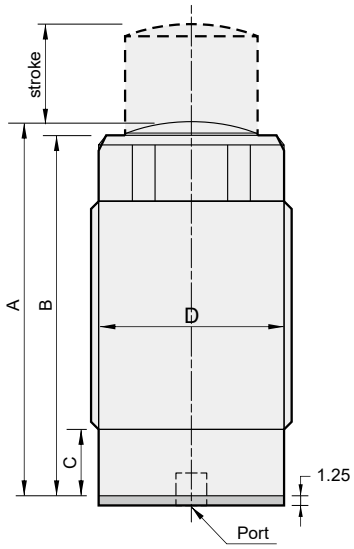
Caution for safety
(Read before installing)



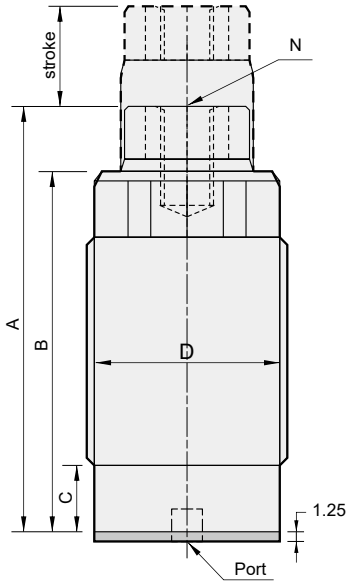
Features

- Simple construction, high strength unit ideal for pushing heavy loads.
- Threaded body design allows quick and easy installation.
- Additional mounting heads can be fitted to rod.
- Teflon packing ensures zero leakage.

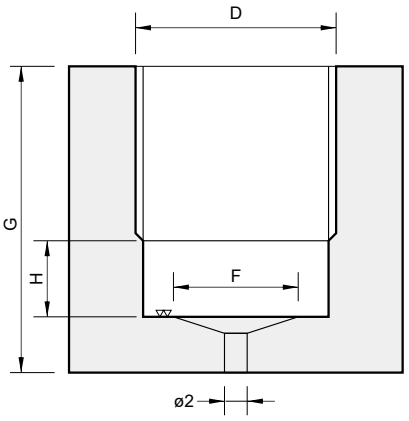
A series



B series



Mounting diagram



Dimensions

Model / Item	MTC-12A	MTC-16A	MTC-20A	MTC-25A	MTC-12B	MTC-16B	MTC-20B	MTC-25B
Normal operating pressure	2~35 MPa							
Cylinder operating	Single acting							
Stroke (mm)	10	12	15	16	10	12	15	16
Piston ø (mm)	12	16	20	25	12	16	20	25
Theoretical force (20 MPa)	200 kg	400 kg	620 kg	980 kg	200 kg	400 kg	620 kg	980 kg
A (mm)	38	46.5	56	57	45	52	64.5	67
B (mm)	36	44.5	54	55	36	44.5	54	55
C (mm)	7	8	8	11	7	8	8	11
D (mm)	M22×1.5	M26×1.5	M30×1.5	M38×1.5	M22×1.5	M26×1.5	M30×1.5	M38×1.5
N (mm)					M6×1.0	M6×1.0	M8×1.25	M8×1.25
F (mm)	12	16	20	25	12	16	20	25
G (min) (mm)	16	20	24	28	16	20	24	28
H (max) (mm)	8	9	9	11	8	9	9	11

Caution for safety
(Read before installing)



Features

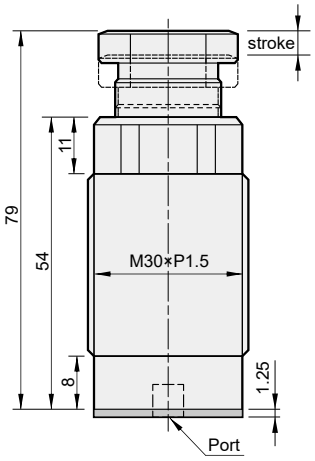
- Hydraulic work support is used to both minimise vibration during machining and offer increased support.
- A type unit works on the outward stroke with a internal spring.
- B type unit works with oil pressure providing the motive force.

Specification

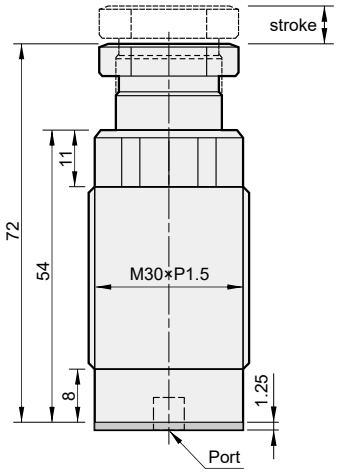
Model	MSP-16A	MSP-16B
Normal operating pressure	10~35 MPa	
Cylinder operating	Single-acting	
Piston ø (mm)	16	
Stroke (mm)	8	
Theoretical force (20 MPa)	210 kg	

Dimensions

MSP-16A



MSP-16B



Mounting diagram

