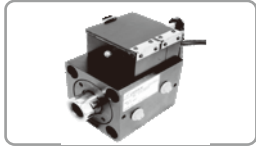


# SENSOR MOLD CYLINDERS

## SERIES Products Content



**MDC** Sensor compact Cylinders . . . . . P172



**MDC2** Sensor compact Cylinders . . . . . P186

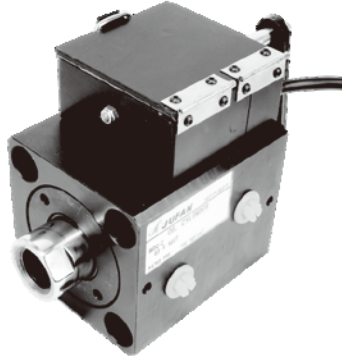


**MDH** Sensor tie rod Cylinders . . . . . P197



**JEAL-R/JEAL-S** Auto-Locking Cylinders . . . . . P210

## MDC SENSOR COMPACT CYLINDERS



- MDC model is compact cylinder (CX-HC) with limit switches and touch rod which are used to control precisely position of molds.
- MDC is especially suit for plastic mold ejection.

Tie-rod Hydraulic Cylinder

Mold Hydraulic Cylinders

Swivel & Clamp Hydraulic Cylinders

Booster Cylinders & Undamping cylinders

ISO Specifications Cylinders

Round Hydraulic Cylinders

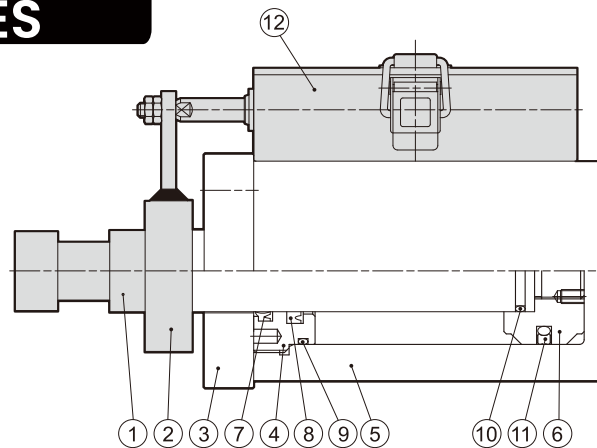
Specific Hydraulic Cylinders

Systems & Fittings

## THEORETICAL OUTPUT TABLE

bore (mm)	shaft (mm)	Piston pressure area (cm <sup>2</sup> )		theoretical output(P=70kgf/cm <sup>2</sup> )		theoretical output(P=140kgf/cm <sup>2</sup> )	
		Extend (kgf)	Retract(kgf)	Extend(kgf)	Retract (kgf)	Extend(kgf)	Retract (kgf)
32	20	8	4.9	563	343	1126	686
40	25	12.6	7.7	880	536	1759	1072
50	30	19.6	12.6	1374	880	2749	1759
63	35	31.2	21.6	2182	1509	4364	3017
80	40	50.3	37.7	3519	2639	7037	5278
100	56	78.5	53.9	5498	3774	10996	7547

## INTERNAL STRUCTURE AND PART NAMES

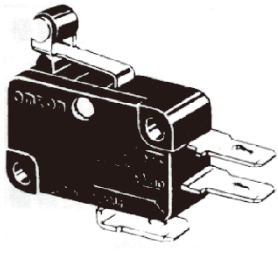
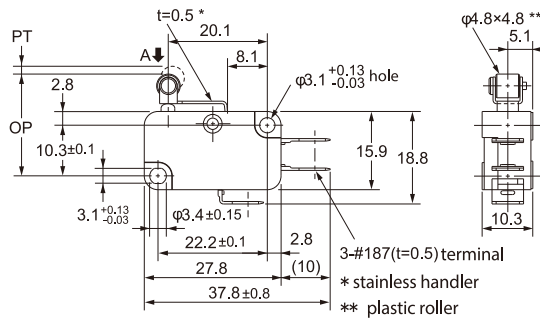


item	part name	qty	item	part name	qty
①	rod	1	⑦	rod dust seal	1
②	connecting plate	1	⑧	rod packing	1
③	flange	1	⑨	cover O-ring	1
④	rod cover	1	⑩	rod O-ring	1
⑤	body	1	⑪	piston O-ring	1
⑥	piston	1	⑫	control box	1

## SEAL SPEC.

item	⑦	⑧	⑨	⑩	⑪
	rod dust seal (NBR)	rod packing (NBR)	cover O-ring (1B)	rod O-ring (1B)	piston O-ring (NBR)
quantity	1	1	1	1	1
32	20x28x6	20x28x5	G25	P16	32x21x4.2
40	25x33x6	25x33x5	G35	P21	40x29x4.2
50	30x38x6.5	30x40x6	G45	G25	50x39x4.2
63	35x43x6.5	35x45x6	G58	G30	63x52x4.2
80	40x48x6.5	40x50x6	G75	G35	80x69x4.2
100	56x64x6.5	56x66x6	G95	G50	100x84.5x6.3

## FEATURE & SPEC. OF LIMIT SWITCHES

Spec.	V-105-1A5	External dimension			
				OF (max.) RF (min.)	2.35N(240GF) 0.49N(50GF)
				PT (max.) OT (max.) MD (max.)	1.6mm 0.8mm 0.6mm
				OP	20.7±0.6mm
operating speed	0.1mm~1m/sec. (push botton)				
operating frequency	electrical	600 times/ mins			
	mechanical	60 times/ mins			
Insulation resistance	>100mΩ (DC500V MEGA)				
Contact resistance	<15mΩ (initial value)				
Temperature	-25°C~+850°C (without freezing)		durability	electrical	>50 million times
Humidity	<85% RH (+5~35°C)			mechanical	>300,000 times
Protection	IP00				

## CONTROL BOX TYPE

- bore Ø50、Ø63、Ø80、Ø100

type	relative position	length of box			
		A1 = compact cylinder	A2 < compact cylinder	A3 > compact cylinder	
		stroke (mm)	stroke (mm)	stroke (mm)	
B1	127 (max.adjust 75mm)	50	=73	>73	<73
		63	=63	>63	<63
		80	=52	>52	<52
		100	=45	>45	<45
B2	177 (max.adjust 125mm)	50	=123	>123	<123
		63	=113	>113	<113
		80	=102	>102	<102
		100	=95	>95	<95
B3	227 (max.adjust 175mm)	50	=173	>173	<173
		63	=163	>163	<163
		80	=152	>152	<152
		100	=145	>145	<145
B4	277 (max.adjust 225mm)	50	=223	>223	<223
		63	=213	>213	<213
		80	=202	>202	<202
		100	=195	>195	<195

Tie-rod Hydraulic Cylinder

Mold Hydraulic Cylinders

Swivel & Clamp Hydraulic Cylinders

Booster Cylinders & Undamping cylinders

ISO Specifications Cylinders

Round Hydraulic Cylinders

Specific Hydraulic Cylinders

Systems & Fittings

## CONTROL BOX TYPE

- bore  $\varnothing 50$ 、 $\varnothing 63$ 、 $\varnothing 80$ 、 $\varnothing 100$

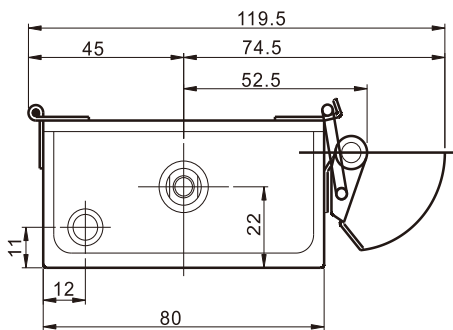
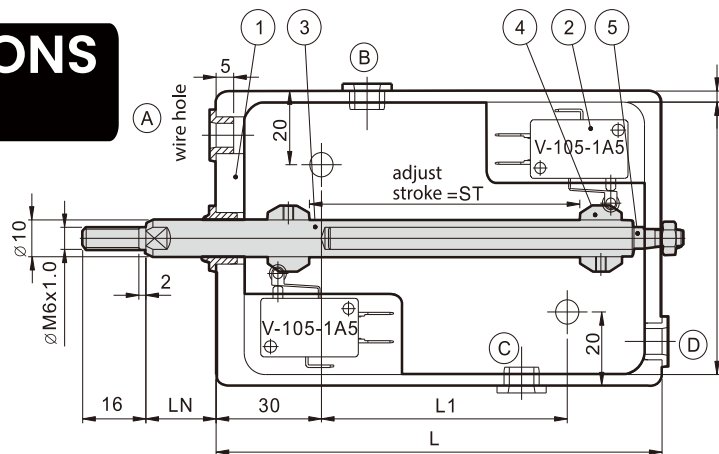
1. Based on the adjustable length of mold's pin to select different type of boxes. (B1~B4)

2. Based on the cylinder's stroke to select corresponding box.

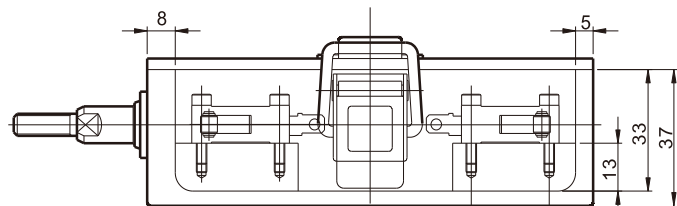
e.g.MDC-63 x 90ST, mold pin adjustable stroje is 80mm, how to select type of boxes?

- (1) If mold pin adjustable stroke is 80mm, bore of cylinder is 63mm, then we know type of boxes is B2 (limit of adjustment is 125mm).
- (2) If stroke of cylinder shown 90mm, based on table of control box, the statement shown stroke is  $90 < 110$ , type of boxes is A3.
- (3) B2 should be selected, and the length of box is larger than the length of cylinder.

## EXTERNAL DIMENSIONS (CONTROL BOX)



wire preset: front end  
(There are also related positions on both sides and the rear end)



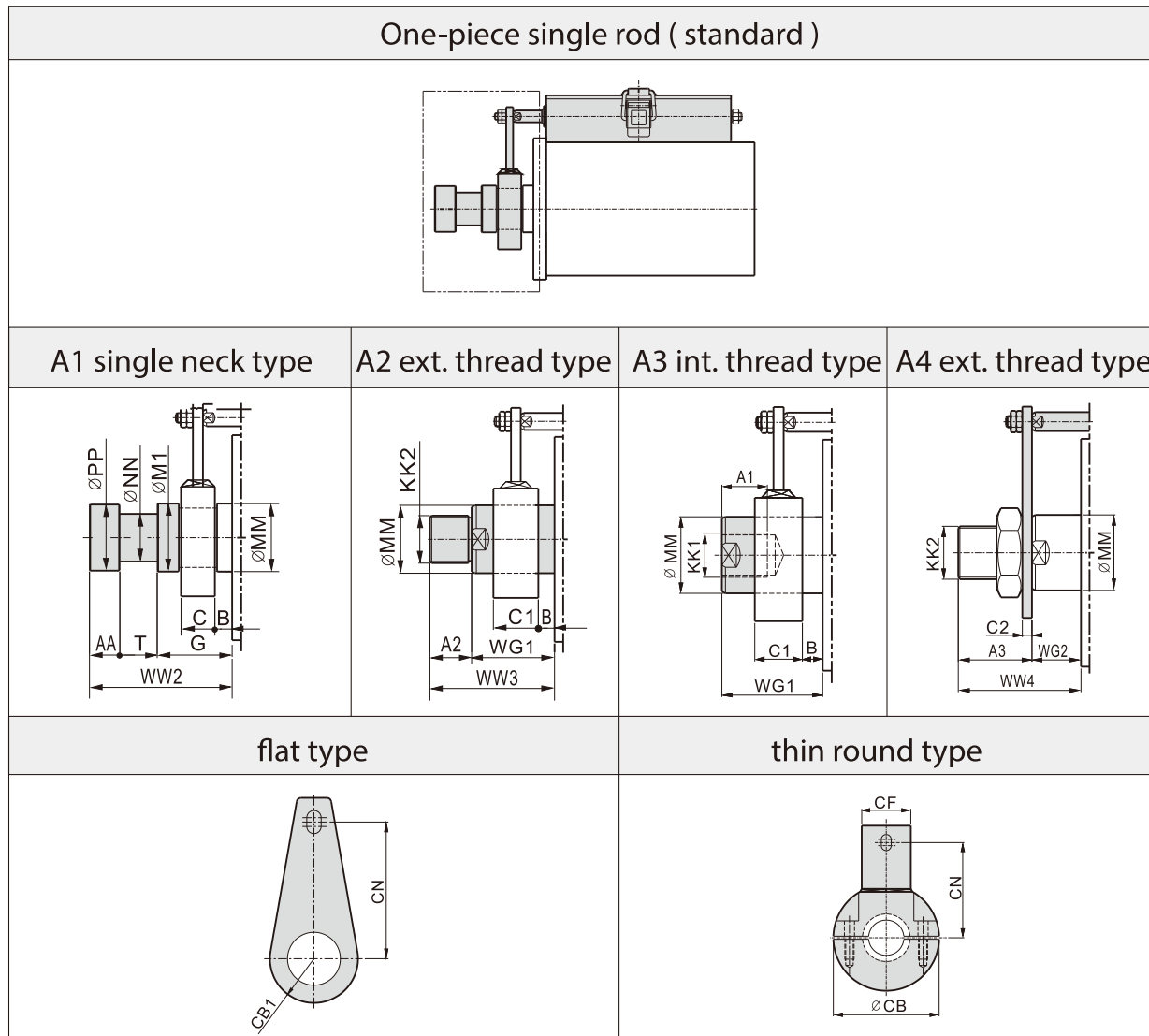
note: wire hole can be: (A) standard type

(B)、(C)、(D) customer selection

symbol	adjustable stroke (ST)	length (L)	distance (L1)	lock	item	part name	qty.
bore B1	75	127	70	1	(1)	body	1
B2	125	177	120	1	(2)	limit switches	2
B3	175	227	170	1	(3)	touch rod	1
B4	225	277	220	2	(4)	touch block	2
					(5)	support rod	1

## MDC ROD END TYPE

- single rod



symbol bore	MM	A1 single neck type									A2 ext. thread type					
		AA	T	G	C	B	WW2	PP	NN	M1	A2	WG1	C1	B	WW3	KK2
50	30	15	15	40	20	5	70	30	22	30	35	55	30	5	90	M24x1.5
63	35	18	22	40	20	5	80	34	25	35	45	55	30	5	100	M30x1.5
80	40	18	22	40	20	5	80	39	28	40	55	55	30	5	110	M36x1.5
100	56	20	27	45	20	5	92	49	38	56	70	65	40	5	135	M48x1.5

symbol bore	MM	A3 int. thread type					A4 ext. thread type					flat type & thin round type			
		C1	B	WG1	A1	KK1	A3	WG2	C2	WW4	KK2	CN	CB1	CF	CB
50	30	30	5	55	24	M20x2.5	48	11	6	59	M24x1.5	62	R20	32	69
63	35	30	5	55	33	M27x3.0	65	13	6	78	M30x1.5	69	R25	32	69
80	40	30	5	55	33	M30x3.5	75	17	6	92	M36x1.5	79	R30	32	69
100	56	40	5	65	40	M36x4.0	90	17	6	107	M48x1.5	89	R40	38	89

Tie-rod Hydraulic Cylinder

Mold Hydraulic Cylinders

Swivel & Clamp Hydraulic Cylinders

Booster Cylinders & Undamping cylinders

ISO Specifications Cylinders

Round Hydraulic Cylinders

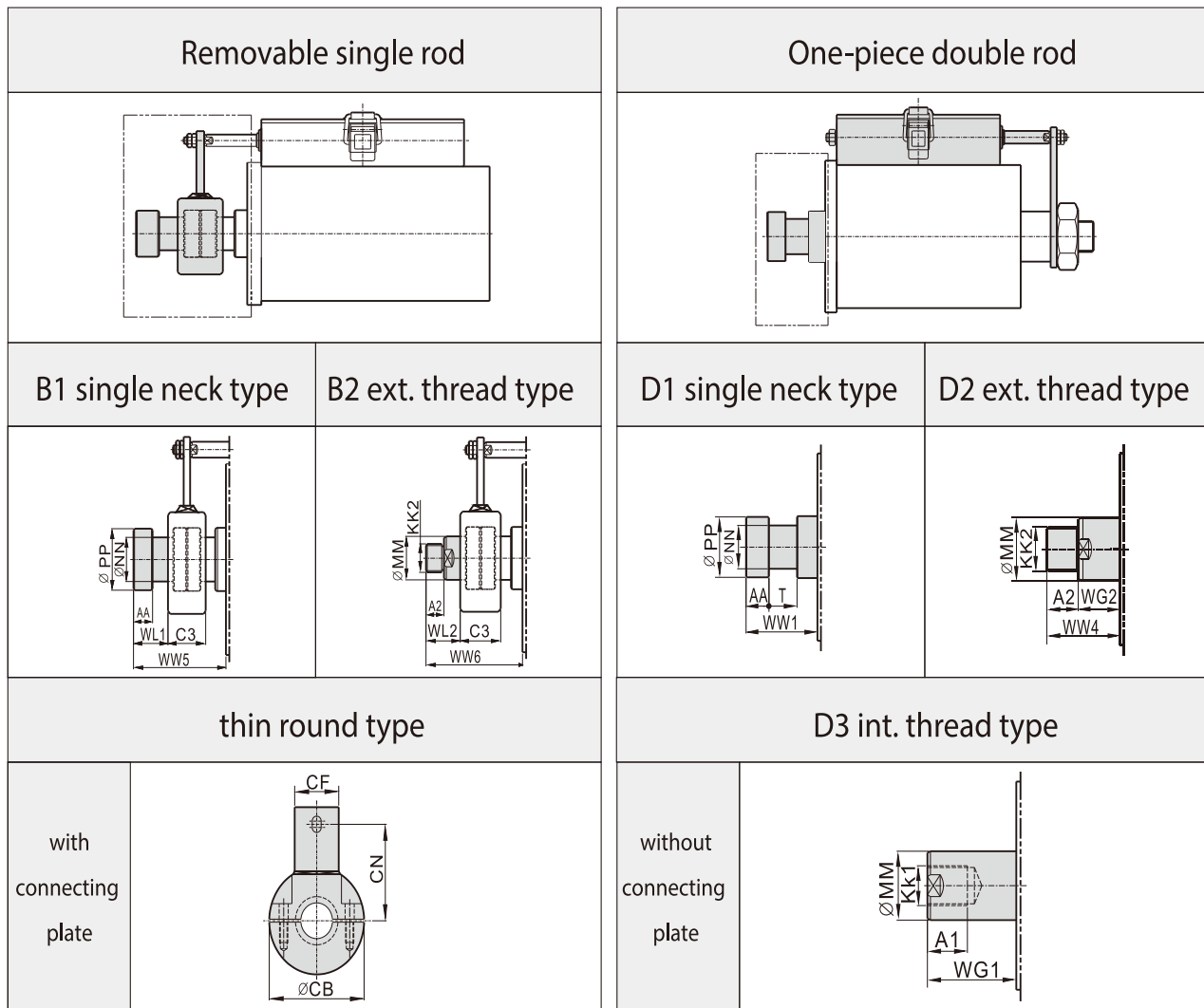
Specific Hydraulic Cylinders

Systems & Fittings

## MDC ROD END TYPE

- single rod

- double rod



Symbol bore	MM	B1 single neck type						B2 ext. thread type					D1 single neck type				
		WL1	C3	WW5	AA	PP	NN	WL2	C3	WW6	A2	KK2	AA	T	WW1	PP	NN
50	30	30	60	110	15	30	22	50	60	130	15	M24x1.5	15	15	55	30	22
63	35	40	80	140	18	34	25	60	80	160	22	M30x1.5	18	22	55	34	25
80	40	40	80	140	18	39	28	70	80	170	22	M36x1.5	18	22	55	39	28
100	56	47	87	152	20	49	38	85	87	190	27	M48x1.5	20	27	65	49	38

Symbol bore	MM	D2 ext. thread type				D3 int. thread type				thin round		
		A2	WG2	WW4	KK2	KK1	A1	WG1	CN	CF	CB	
50	30	35	11	46	M24x1.5	M20x2.5	24	55	62	32	69	
63	35	45	13	58	M30x1.5	M27x3.0	33	55	69	32	69	
80	40	55	17	72	M36x1.5	M30x3.5	33	55	79	32	69	
100	56	70	17	87	M48x1.5	M36x4.0	40	65	89	38	89	

## ORDER INDICATION

MDC	A		FA	50	30ST	
series	type	performance	installation	bore	stroke	rod end type
Compact Mold Cylinder	A: Single rod cylinder C: Double rod cylinder	blank = indicates standard (NBR)  J: FPM maximum heat resistance 150°C	SD: basic FA: rod flange LA: foot flange	50:50mm 63:63mm 80:80mm 100:100mm	customized	<p>1. Single rod: Pls refer P.221 <b>One-piece single rod ( standard )</b> A1 single neck (thin round connecting plate) A2 ext. thread (thin round connecting plate) A3 int. thread (thin round connecting plate) A4 ext. thread (flat connecting plate)</p> <p>2. Single rod: Pls refer P.222 <b>Removable single rod</b> B1 single neck (wide round connecting plate) B2 ext. thread (wide round connecting plate)</p> <p>3. Double rod: Pls refer P.222 <b>One-piece single rod</b> D1 single neck (thin round connecting plate) D2 ext. thread (thin round connecting plate) D3 int. thread (thin round connecting plate)</p>

	B2			L	A	A
seal material	control box type	Flow Regulator	Pilot Check Valve	Buckle position	Oil port position	Wiring outlet
blank = indicates standard (NBR) J: FPM	B1: maximum adjustable stroke is 75mm. B2: maximum adjustable stroke is 125mm. B3: maximum adjustable stroke is 175mm. B4: maximum adjustable stroke is 225mm. Dimension calculation pls refer P.220	refer to below form (left)	refer to below form (right)	R: right L: left	A、B C、D	A、B C、D

### ● Flow Regulator

Standard	Install position	Qty.	Bore
KC-02	FC (rod)	x1	∅32~∅63
KC-03	RC (head)	x1	∅80~∅100
KC-04	FC/RC (rod + head)	x1	∅125

▲ blank = indicates standard

### ● Pilot Check Valve

Standard	Install position	Qty.	Bore
PVCI-03	FC (rod)	x1	∅32~∅63
	RC (head)		
PVCI-03-T	FC/RC (rod + head)	x1	∅80~∅150

Note for check valve:

1. The selected standards are matched according to the size of the bore, and no need to indicated.

2. Install position need to indicated.

Tie-rod Hydraulic Cylinder

Mold Hydraulic Cylinders

Swivel & Clamp Hydraulic Cylinders

Booster Cylinders & Undamping cylinders

ISO Specifications Cylinders

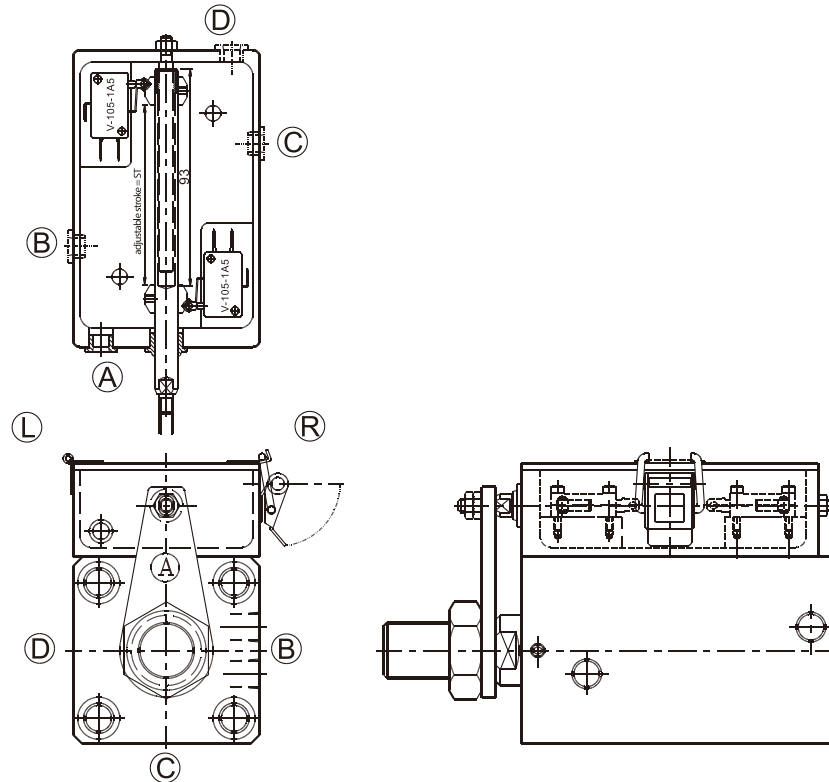
Round Hydraulic Cylinders

Specific Hydraulic Cylinders

Systems & Fittings

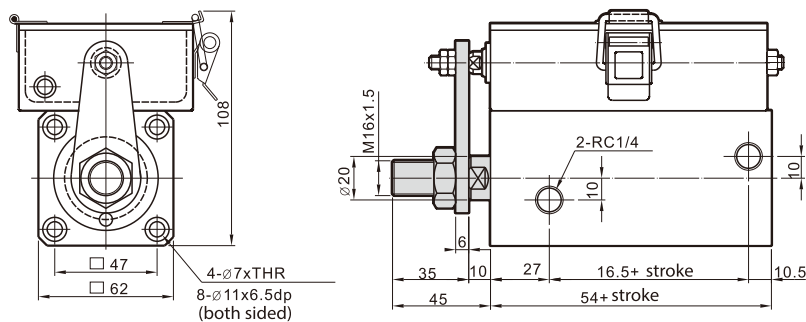


## POSITION OF BUCKLE, OIL PORT & WIRING OUTLET

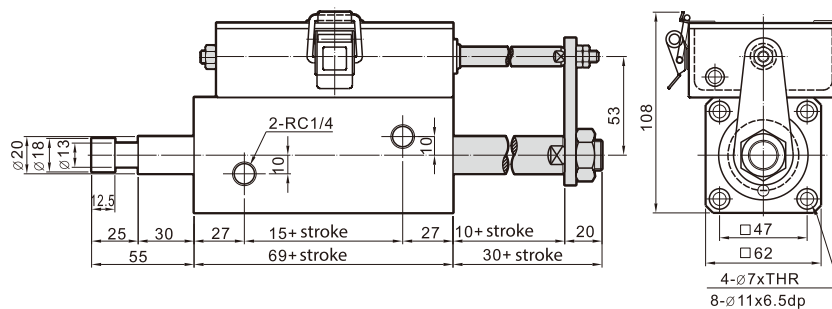


## EXTERNAL DIMENSIONS

- $\varnothing 32$  (rod dimension are for reference only and can be customized)
- MDC.A-SD single rod (standard)

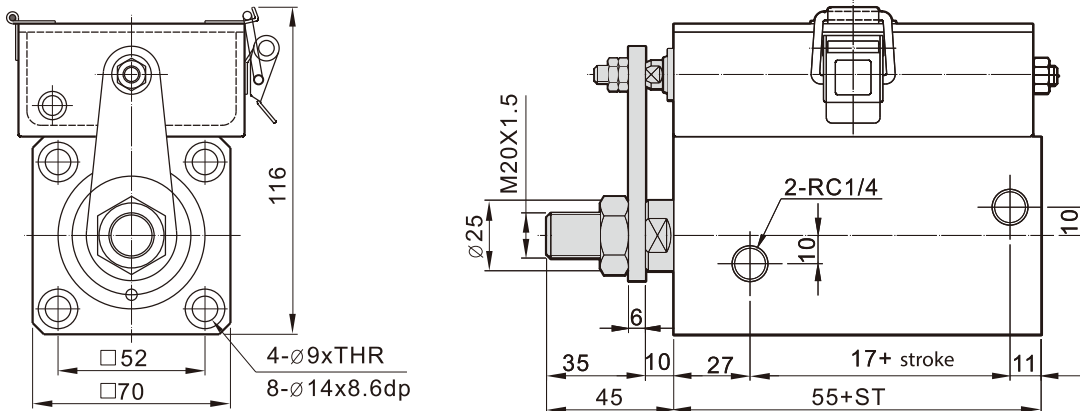


- MDC.C-SD double rod (standard)

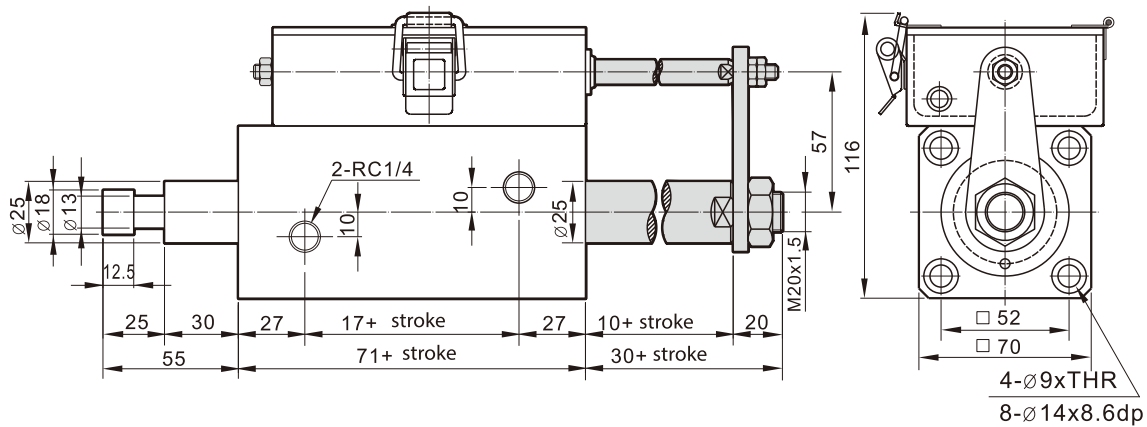


## EXTERNAL DIMENSIONS

- $\varnothing 40$  (rod dimension are for reference only and can be customized)
- MDC.A-SD single rod (standard)



- MDC.C-SD double rod (standard)



Tie-rod Hydraulic Cylinder

Mold Hydraulic Cylinders

Swivel & Clamp Hydraulic Cylinders

Booster Cylinders & Undamping cylinders

ISO Specifications Cylinders

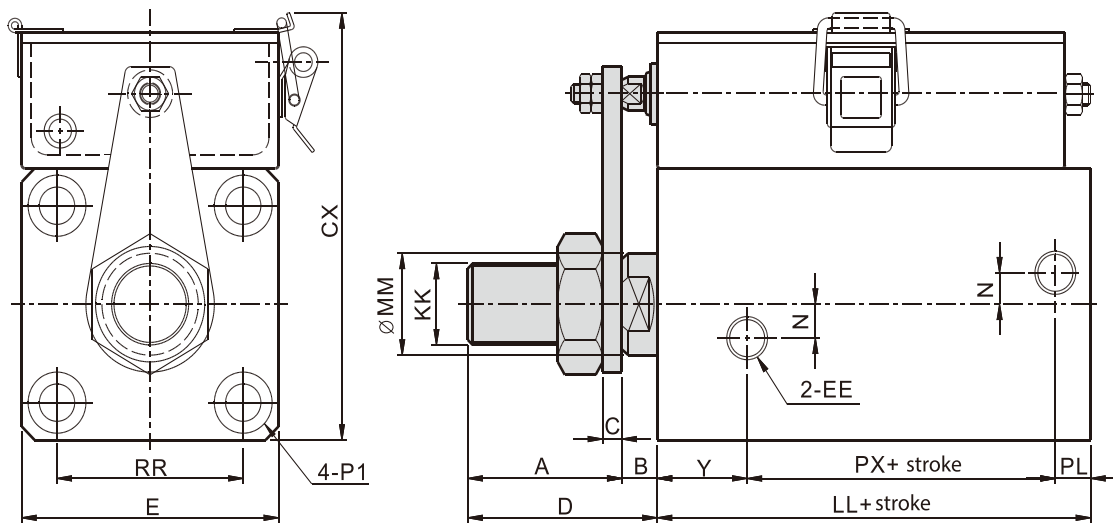
Round Hydraulic Cylinders

Specific Hydraulic Cylinders

Systems & Fittings

## EXTERNAL DIMENSIONS

- Ø50 ~ Ø100
- MDC.A-SD Ø50~Ø100 single rod (standard)

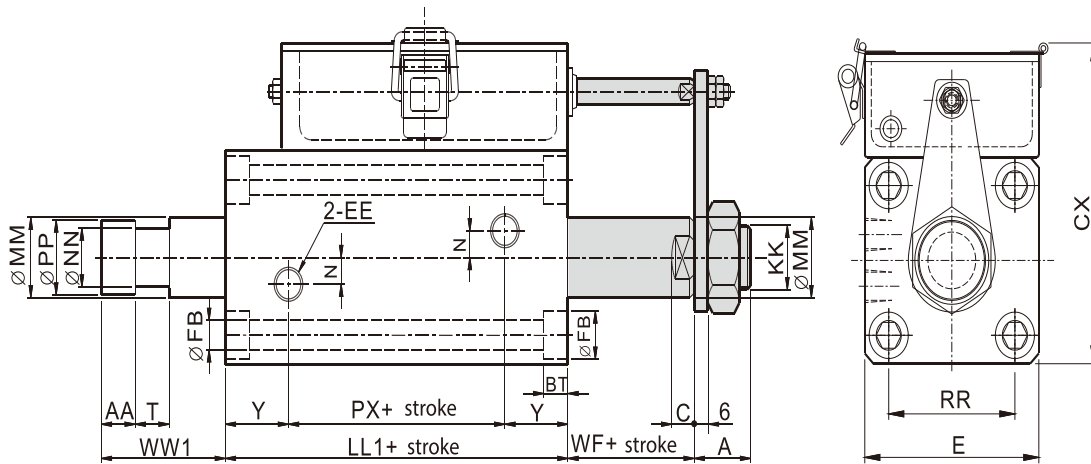


Symbol bore	A	MM	KK	B	C	D	E	LL	N	PL	Y
50	15	30	M24x1.5	11	6	59	80	60	10	11	28
63	18	35	M30x1.5	13	6	78	94	70	10	14	30
80	18	40	M36x1.5	17	6	92	114	81	15	18	35
100	20	56	M48x1.5	17	6	107	134	88	15	21	39

Symbol bore	PX	CX	EE	RR	P1								
50	21	125	RC1/4	58	Ø11 hole	.175	countersunk (both sided)	x10.8	depth (both sided)				
63	26	140	RC1/4	69	Ø14 hole	.20	countersunk (both sided)	x13	depth (both sided)				
80	28	160	RC1/4	86	Ø16 hole	.23	countersunk (both sided)	x15	depth (both sided)				
100	28	180	RC1/4	102	Ø18 hole	.26	countersunk (both sided)	x17.5	depth (both sided)				

**EXTERNAL DIMENSIONS**

- Ø50 ~ Ø100
- MDC.C-SD Ø50~Ø100 double rod (standard)



Tie-rod Hydraulic Cylinder

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ISO Specifications Cylinders

Round Hydraulic Cylinders

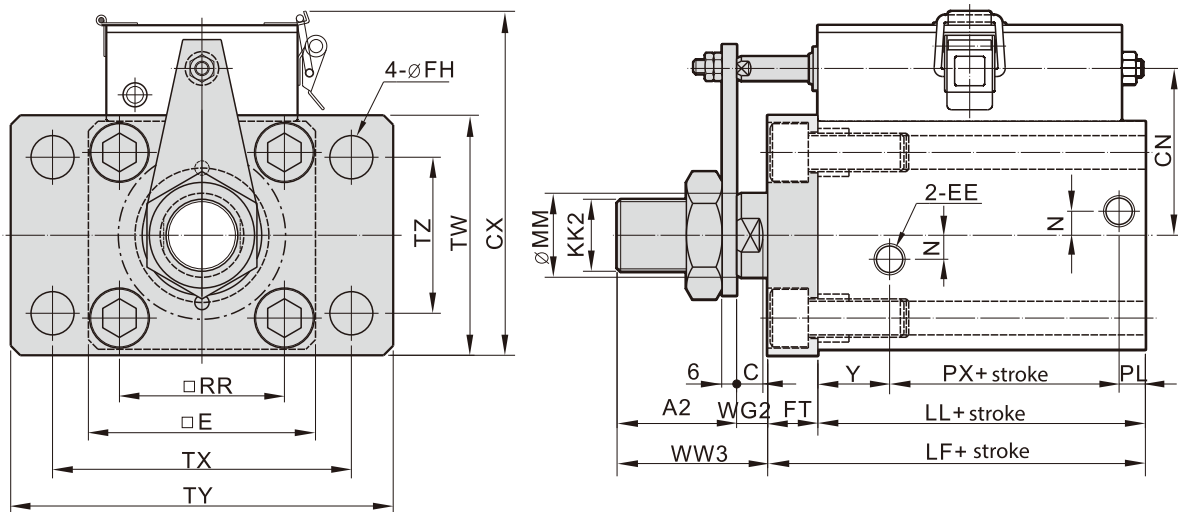
Specific Hydraulic Cylinders

Systems & Fittings

symbol bore	A	AA	T	KK	BT	C	CX	E	EE	FB	FG	LL1	WF	WW1	MM	NN	PP	N	RR	Y	PX
50	25	15	15	M24x1.5	10.8	9	126	80	RC1/4	11	17.5	77	11	55	30	22	30	10	58	28	21
63	30	18	22	M30x1.5	13	11	140	94	RC1/4	14	20	83	13	55	35	25	34	10	69	30	23
80	32	18	22	M36x1.5	15.2	14	160	113	RC3/8	16	23	95	17	55	40	28	39	15	86	35	25
100	32	20	27	M48x1.5	17.5	14	180	134	RC3/8	18	26	106	17	65	56	38	49	15	102	39	28

## EXTERNAL DIMENSIONS

- Ø50 ~ Ø100
- MDC.A-FA Ø50~Ø100 single rod (rod flange)



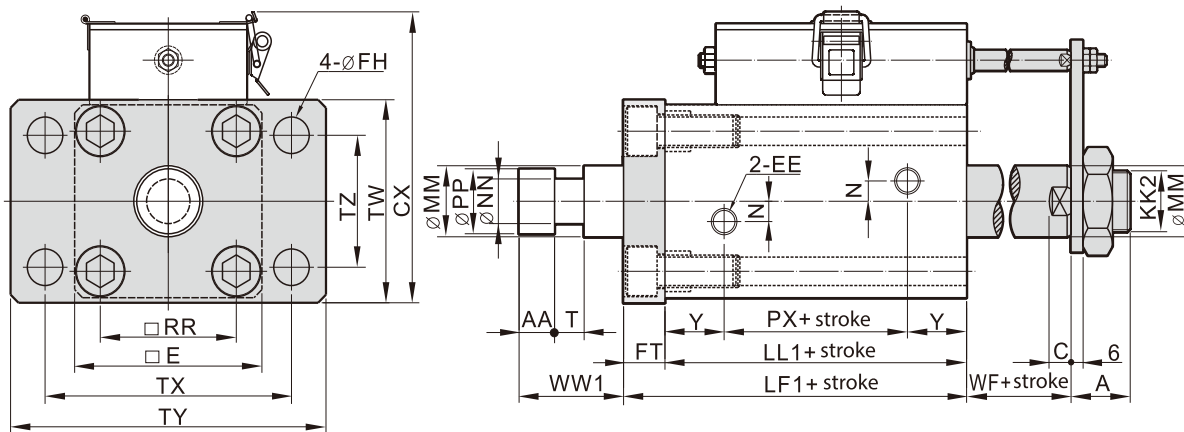
Symbol bore	A2	KK2	C	CN	CX	E	EE	FH	FT	LL	LF
50	48	M24x1.5	9	62	126	80	RC1/4	14	18	60	78
63	65	M30x1.5	11	69	140	94	RC1/4	18	21	70	91
80	75	M36x1.5	14	79	160	114	RC3/8	22	24	81	105
100	90	M48x1.5	14	89	180	134	RC3/8	22	30	88	118

Symbol bore	WG2	WW3	MM	N	PL	RR	TX	TY	TZ	Y	PX	TW
50	11	59	30	10	11	58	105	135	52	28	21	84
63	13	78	35	10	14	69	125	160	65	30	26	100
80	17	92	40	15	18	86	150	190	75	35	28	124
100	17	107	56	15	21	102	174	215	90	39	28	140

⚠ Rod dimension are for reference only and can be customized.

## EXTERNAL DIMENSIONS

- Ø50 ~ Ø100
- MDC.C-FA Ø50~Ø100 double rod (rod flange)



symbol bore	A	AA	T	KK2	C	CX	E	EE	FH	FT	LL1	LF1	WF
50	25	15	15	M24x1.5	9	126	80	RC1/4	14	18	77	95	11
63	30	18	22	M30x1.5	11	140	94	RC1/4	18	21	83	104	13
80	32	18	22	M36x1.5	14	160	113	RC3/8	22	24	95	119	17
100	32	20	27	M48x1.5	14	180	134	RC3/8	22	30	106	136	17

symbol bore	WW1	MM	NN	PP	N	RR	TW	PX	TX	TY	TZ	Y	PX
50	55	30	22	30	10	58	84	21	105	135	52	28	21
63	55	35	25	34	10	69	100	23	125	160	65	30	26
80	55	40	28	39	15	86	124	25	150	190	75	35	28
100	65	56	38	49	15	102	140	28	174	215	90	39	28

⚠ Rod dimension are for reference only and can be customized.

Tie-rod  
Hydraulic  
Cylinder

Mold  
Hydraulic  
Cylinders

Swivel &  
Clamp  
Hydraulic  
Cylinders

Booster  
Cylinders  
&  
Undamping  
cylinders

ISO  
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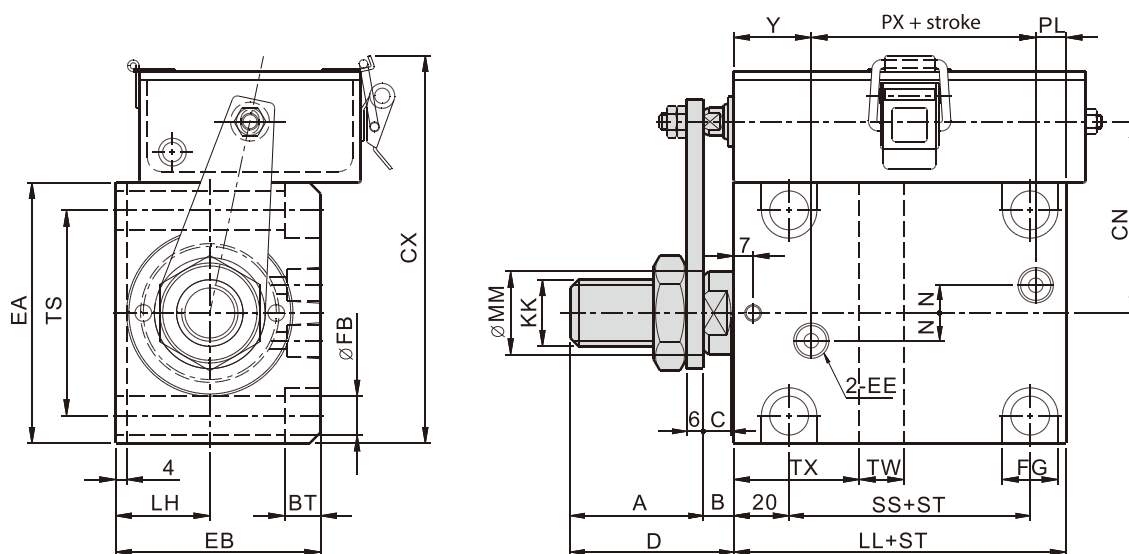
Round  
Hydraulic  
Cylinders

Specific  
Hydraulic  
Cylinders

Systems  
&  
Fittings

## EXTERNAL DIMENSIONS

- Ø50 ~ Ø100
- MDC.A-LA Ø50~Ø100 single rod (foot flange)



symbol bore	A	KK	MM	B	C	D	EA	EB	EE	CN	FB	FG	LH	LL	N	PL
50	25	M24x1.5	30	11	10	59	94	74	RC1/4	69	14	20	34	60	10	11
63	30	M30x1.5	35	13	11	78	114	89	RC1/4	79	16	23	42	70	10	14
80	32	M36x1.5	40	17	14	92	134	109	RC3/8	89	16	23	52	81	15	18
100	32	M48x1.5	56	17	15	107	160	129	RC3/8	102	18	26	62	88	15	21

symbol bore	RR	TX	TS	Y	SS	PX	TW	BT
50	58	29	74	28	27	21	14	13
63	69	31	90	30	32	26	16	15.2
80	86	34	110	35	41	28	16	15.2
100	102	34	134	39	44	28	16	17

⚠ Rod dimension are for reference only and can be customized.