

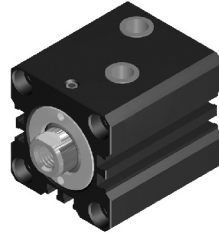
### 7MPa Compact hydraulic with piston sensing cylinders

#### HCB-M

Front Mounting



#### HCB-MZ



- Short stroke and compact body design minimizes total length.
- The cylinder barrel is manufactured from structural carbon steel. Internal wall is specially treated, featuring maximum smoothness and long service.
- High quality and durability.
- Piston with magnet is standard accessory in the HC-M series cylinders.

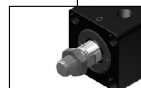
### Specification

Bore sizes of cylinder (mm)	φ 32	φ 40	φ 50	φ 63	φ 80
The range of stroke (mm)	50				
Power fluid	Filtered oil				
Material	Anodised aluminium alloy				
The range of pressure (MPa)	7(70kgf/cm <sup>2</sup> )				
The range of temperature (°C)	-10 ~ +60				

### How to order

<b>H C B</b>	<b>50</b>	<b>M</b>	<b>30</b>	<b>Z</b>	<b>LN32H</b> ×	<b>2</b>
Type	Bore	Magnet	Stroke	Rod end type	Sensor switch	Quantity
	32 - φ 32mm 40 - φ 40mm 50 - φ 50mm 63 - φ 63mm 80 - φ 80mm		10 - 10mm 20 - 20mm 30 - 30mm 40 - 40mm 50 - 50mm	 No Code: Female thread in rod end		1: 1pc 2: 2pcs

Note:  
 1.Can choose NPN or PNP type (3-Wire type, 24VDC).  
 2.Can choose plug-in cable.  
 3.For details see page 4-1.8.



Z: Male thread in rod end

### Standard stroke

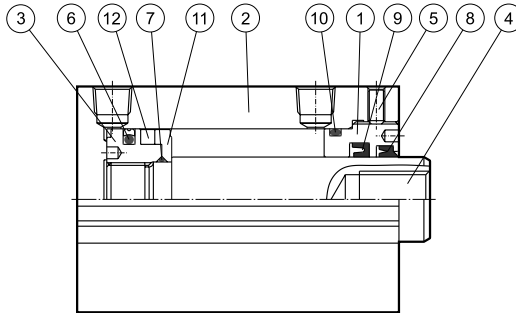
Type	Bore	Stroke				
		10	20	30	40	50
HC B-M	φ 32	●	●	●	●	●
	φ 40	●	●	●	●	●
HC B-MZ	φ 50	●	●	●	●	●
	φ 63	●	●	●	●	●
	φ 80	●	●	●	●	●

### How to order the seal kit

HC-B-MSK

Bore	Seal kit
φ 32	HC-B-MSK32 -Including No.6,7,8,9,10
φ 40	HC-B-MSK40 -Including No.6,7,8,9,10
φ 50	HC-B-MSK50 -Including No.6,7,8,9,10
φ 63	HC-B-MSK63 -Including No.6,7,8,9,10
φ 80	HC-B-MSK80 -Including No.6,7,8,9,10

### ● HC-B-M TYPE



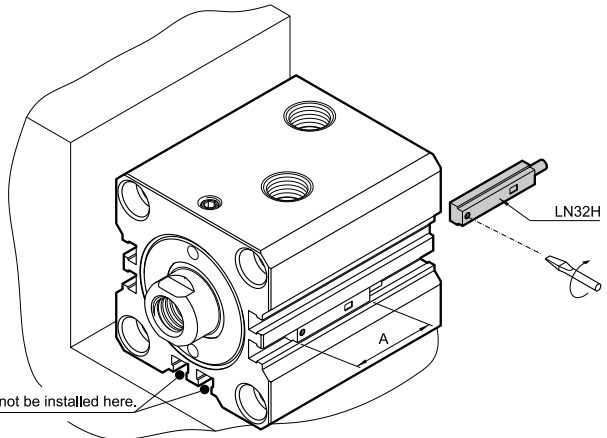
NO.	Part name	Quantity	NO.	Part name	Quantity	NO.	Part name	Quantity
1	Rod cover	1	5	Set screw	1	9	Rod packing	1
2	Cylinder tube	1	6	Piston packing	1	10	Cylinder gasket	1
3	Piston	1	7	Piston gasket	1	11	Washer	1
4	Piston rod	1	8	Dust wiper	1	12	Magnet	1

- TC
- TS
- RP
- HC
- HC\_M
- HCK
- TH
- DO
- DX
- DW
- DM
- DH
- DK

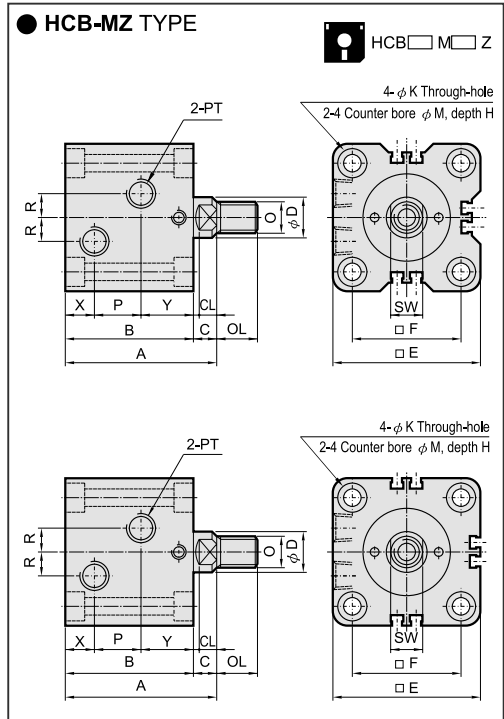
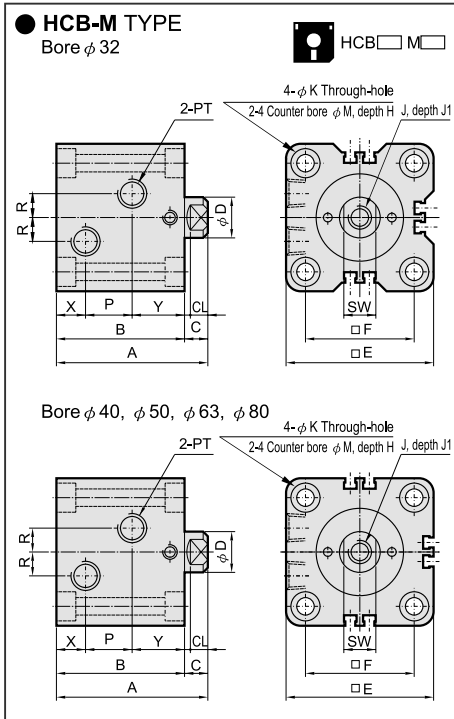
### Installation of sensor switches

Bore	Sensor switch	A
φ 32	LN32H	29
φ 40	LN32H	29
φ 50	LN32H	29
φ 63	LN32H	29
φ 80	LN32H	29

- Sensor installation can not be too close (10mm) to magnetic materials (such as carbon steel and cast iron) or the sensor would fail to work.



### Dimensional features



**Dimensional Table** The length "B" of cylinder body is same of the stroke: (5,10)(15,20)(25,30)(35,40)(45,50)

Bore	C	CL	F	D	E	H	J	J1	K	M	O	OL	PT	R	SW	X	Y
φ 32	10	7	47	20	62	6.5	M12×1.75P	15	6,6	11	M16×1.5P	25	PT 1/4	10	17	12	28
φ 40	10	7	52	25	70	9	M16×2.0P	20	9	14	M22×1.5P	30	PT 1/4	10	22	12	28
φ 50	11	8	58	30	80	11	M20×2.5P	25	11	18	M26×1.5P	35	PT 1/4	10	27	12.5	29.5
φ 63	13	10	69	35	94	13	M27×3.0P	35	13	20	M30×1.5P	40	PT 3/8	10	32	16	31
φ 80	17	14	86	45	114	15	M30×3.5P	35	15	22	M39×1.5P	45	PT 3/8	15	41	18	33

Bore	Stroke										
	5	10	15	20	25	30	35	40	45	50	
φ 32	A	74	74	84	84	94	94	104	104	114	114
	B	64	64	74	74	84	84	94	94	104	104
	P	24	24	34	34	44	44	54	54	64	64
φ 40	A	75	75	85	85	95	95	105	105	115	115
	B	65	65	75	75	85	85	95	95	105	105
	P	25	25	35	35	45	45	55	55	65	65
φ 50	A	81	81	91	91	101	101	111	111	121	121
	B	70	70	80	80	90	90	100	100	110	110
	P	28	28	38	38	48	48	58	58	68	68
φ 63	A	90	90	100	100	110	110	120	120	130	130
	B	77	77	87	87	97	97	107	107	117	117
	P	30	30	40	40	50	50	60	60	70	70
φ 80	A	105	105	115	115	125	125	135	135	145	145
	B	88	88	98	98	108	108	118	118	128	128
	P	37	37	47	47	57	57	67	67	77	77

### Theoretic Force

Unit: N

Bore (mm)	Rod (mm)	Pressure area (mm <sup>2</sup> )	Operating pressure (MPa)						
			2	3	4	5	6	7	
φ 32	φ 20	A	804	1608	2413	3217	4021	4825	5630
		B	490	980	1470	1960	2450	2941	3431
φ 40	φ 25	A	1257	2513	3770	5027	6283	7540	8796
		B	766	1532	2297	3063	3829	4595	5360
φ 50	φ 30	A	1963	3927	5890	7854	9817	11781	13744
		B	1257	2513	3770	5027	6283	7540	8796
φ 63	φ 35	A	3117	6234	9352	12469	15586	18703	21821
		B	2155	4310	6465	8621	10776	12931	15086
φ 80	φ 45	A	5027	10053	15080	20106	25133	30159	35186
		B	3436	6872	10308	13744	17181	20617	24053

**The method of calculation**  
(Hydraulic cylinders' force)

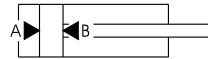
$$F = P \times A - f$$

F: Cylinders' force (N)

P: Operating pressure (MPa)

A: Piston area (mm<sup>2</sup>)

f: Friction drag (N)



### Cylinder weight (including the mounting nut)

Unit: kg

Stroke	Bore φ 32		φ 40		φ 50		φ 63		φ 80	
	Type		HC-B_M		HC-B_M		HC-B_M		HC-B_M	
	N	Z	N	Z	N	Z	N	Z	N	Z
5	0.86	0.91	1.21	1.33	1.67	1.87	2.65	3.00	4.72	5.33
10	0.85	0.90	1.19	1.31	1.64	1.84	2.59	2.94	4.63	5.24
15	0.96	1.01	1.35	1.47	1.84	2.04	2.86	3.21	5.03	5.64
20	0.95	1.00	1.33	1.45	1.81	2.01	2.80	3.15	4.94	5.55
25	1.05	1.10	1.47	1.59	2.01	2.21	3.07	3.42	5.37	5.98
30	1.04	1.09	1.45	1.57	1.98	2.18	3.01	3.36	5.28	5.89
35	1.15	1.20	1.60	1.72	2.17	2.37	3.30	3.65	5.69	6.30
40	1.14	1.19	1.58	1.70	2.14	2.34	3.24	3.59	5.60	6.21
45	1.26	1.31	1.73	1.85	2.32	2.52	3.49	3.84	6.01	6.62
50	1.25	1.30	1.71	1.83	2.29	2.49	3.43	3.78	5.92	6.53

N(Female thread) : Z(Male thread)

TC

TS

RP

HC

HC\_M

HCK

TH

DO

DX  
DW

DM

DH

DK