MCCH series

HIGH SPEED CYLINDER

Feature

- The diameter of the port orifice has been enlarged to support high speed operation. max speed: 3000mm/sec
- Longer cushion rod to absorb more exercise energy and reduce external cushioning settings.
- The cylinder with relief valve provides better cushioning performance than the general purpose cylinder with needle valve.
- The relief valve body can rotate 360 degrees freely, which is convenient for adjustment and use.
- Magnetic as standard.

Specification

Model	MCCH	
Acting type	Double acting	
Tube I.D. (mm)	25	32
Port size	Rc1/4	Rc3/8
Medium	Air	
Max. operating perssure	1 MPa	
Min. operating perssure	0.05 MPa	
Proof pressure	1.5 MPa	
Lubrication	Not required	
Ambient temperature	-5~+60°C (No freezing)	
Available speed range	50~3000 mm/sec	
Cushion	Air cushion	
Max energy absorption (J)	12	21
Standard stroke (*1,2,3)	250~700 mm	250~1000 mm
Max. stroke	1500 mm	
Effective cushioning stroke	80 mm	
Sensor switch	RCM (Please refer to page 8-16)	
Sensor switch band	BMG25	BMG32

*1. Minimum stroke unit 1mm.
*2. Outside the guaranteed range when the stroke exceeds standard stroke, please reconfirm the dimension with our sales department when the stroke over our standard.
*3. This product has a large absorption energy and a longer effective buffer range. Therefore, when the stroke below 250mm is used at high speed, the cushioning performance may not meet the catalog standard.

Order example

MCCH — 11 — 32 — 250 — □

MODEL | **1**: Single rod | TUBE I.D. | STROKE | PORT THREAD

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

STYLE

Code		Symbol	Description
1	**1**		Double acting / Male thread

Order example of mounting accessories

Code	**LB** (Purchase 2 pcs)
Mounting / Tube I.D.	
25	**LB-C3-25**
32	**LB-C3-32**

Weight

Unit: g

Tube I.D.	Basic weight (magnet)	Stroke 100 mm	**LB**
			
25	777	137	228
32	1090	180	368

Operation

⚠ Caution

❶ Install the speed control valve to adjust speed
When operate the cylinders, please install the control valve to adjust the speed of piston within the regular usage range.

❷ Don't exert the lateral load on the piston rod
Please operate the cylinders within the regular usage ranges. Do not exert excessively lateral load on the piston rod.

❸ The long piston rod need to be braced by supports
Operate the long stroke cylinders, please use supports to brace the piston rod for avoiding piston rod droop.

❹ Assemble snap ring into the groove certainly
Please use the appropriate tool to disassemble the snap ring for replacing the rod packing, Don't support the air to the cylinders until finish replacing certainly to avoid snap ring spouting hurt people or machines.

❺ Adjustment method of relief valve screw

ⓐ When using, please adjust the relief valve screw to the fully closed state (do not lock too tightly, or this will damage internal parts), then turn overflow valve screw counterclockwise according to the buffer requirements, and finally fix it with the lock nut.

ⓑ Loosing relief valve screw excessively will invalidate the buffer and shorten the life of the cylinder. Therefore, the relief valve screw must be adjusted from tight to loose first.

❻ Across flats cover designed for disassembly
When removing the cylinder, use a vise to fix the flat surface on both sides of the rod cover or the head cover, and then remove the other end cap with a wrench.

Operation

⚠ Caution

❼ The method of adjustment relief valve body
The relief valve body can be adjusted 360 degrees arbitrarily, please follow the procedure as bellow:

ⓐ Turn off the source of pressure and confirm that there is no residual pressure in the cylinder, then loosen the accessories.

ⓑ Loosen the fixing screw of the relief valve fixing seat,and then the relief valve body can be rotated and adjusted.

ⓒ After adjustment, fix it with fixing screws until the relief valve body does not rotate.

Before use the air cylinder which has been installed, please confirm whether the relief valve body is loose. The looseness may cause buffer failure.

❽ Illustration of speed 3000 mm/s

ⓐ The velocity of using speed is 3000mm / s that means the maximum speed, not the average speed.

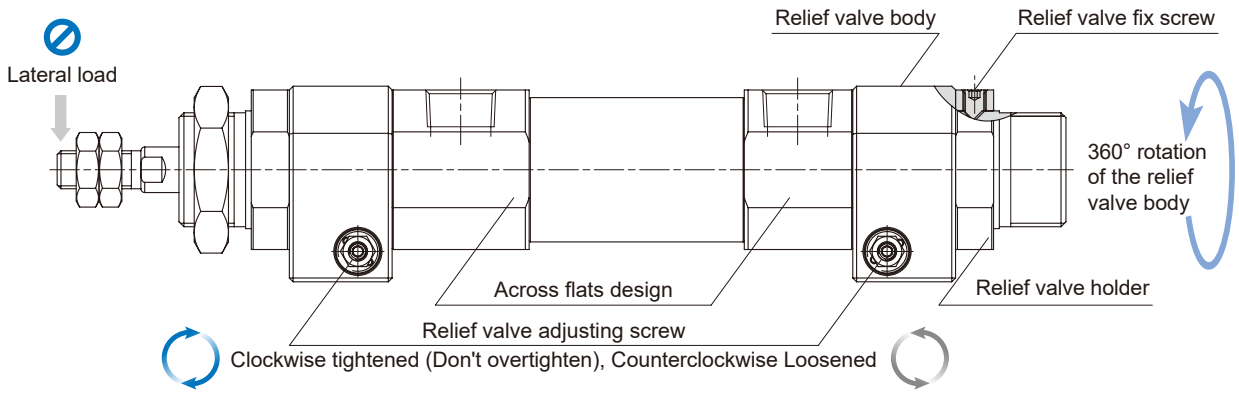
ⓑ The short stroke may not achieve the desired speed.

ⓒ The speed is related to the speed control valve, piping, and fittings, etc. When the flow rate is restricted, the desired speed may not be achieved. Therefore, ensure that the pneumatic system has a sufficient effective area.

❾ Do not exceed absorbed energy
If the maximum absorbed energy (J) value is exceeded, an external buffer is required.

❿ Back pressure on exhaust side is necessary
Before starting the cylinder, make a back pressure on the exhaust side of the cylinder to prevent the piston rod from flying out.

⓫ The source of pressure is stable
Please make sure that the source of pressure is stable when use the cylinder. The Sudden rise in pressure will cause buffering performance invalid.



Seloection example1. **Horizontal operation**

* Use an external guide, etc. for horizontal actuation of a load.

Operating conditions

Horizontal operation ..... Graph 1
Load mass ..... M = 8kg
Stroke ..... St = 600mm
Time for stroke required . To = 0.6s

Estimate of the max speed

Average speed ..... Vm = St/To = 1000mm/s
Maximum speed ..... Vmax = 1.5Vm = 1500mm/s

Model selection by graph

Load mass ..... M = 8kg
Maximum speed ..... Vmax = 1500mm/s

Graph 1, Mark ●

MCCH-25

Seloection example2. **Vertical operation**

Operating conditions

Vertical operation ..... Graph 2
Load mass ..... M = 6kg
Stroke ..... St = 700mm
Time for stroke required . To = 0.5s

Estimate of the max speed

Average speed ..... Vm = St/To = 1400mm/s
Maximum speed ..... Vmax = 1.5Vm = 2100mm/s

Model selection by graph

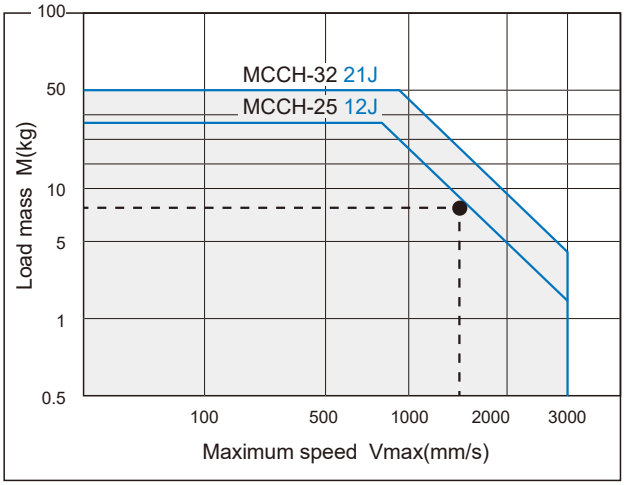
Load mass ..... M = 6kg
Maximum speed ..... Vmax = 2100mm/s

Graph 2, Mark ●

MCCH-32

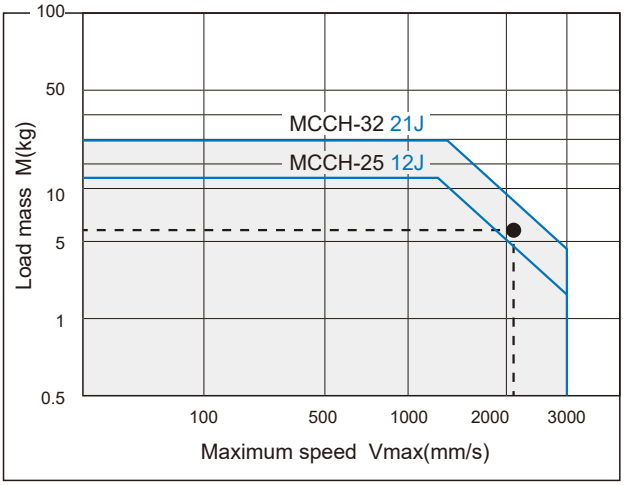
Graph 1 - Horizontal operation

Supply pressure 0.5 MPa



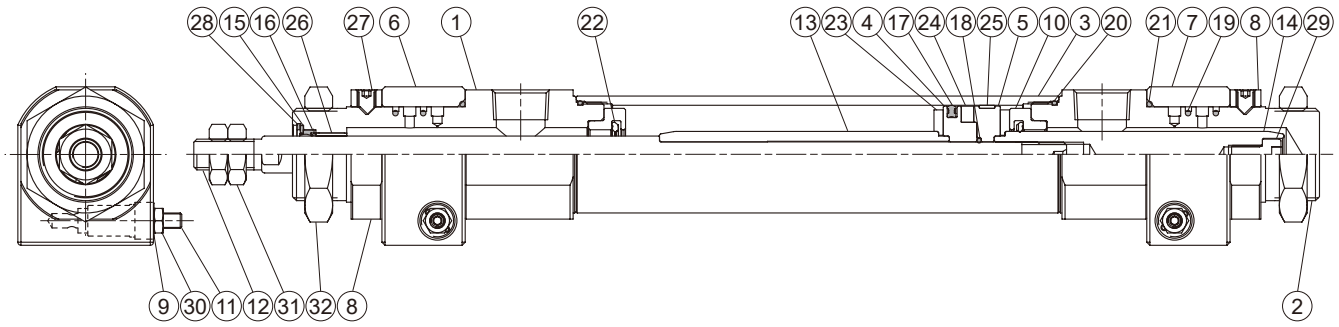
Graph 2 - Vertical operation

Supply pressure 0.5 MPa



MCCH Inside structure & Parts list

HIGH SPEED CYLINDER



Material

A: Component parts, **B**: Repair kits

No.	Part name	Material	Q'y	A inclusion	B inclusion
1	Cover-R	Aluminum alloy	1	●	
2	Cover-H	Aluminum alloy	1	●	
3	Tube	Aluminum alloy	1		
4	Piston-R	Aluminum alloy	1	●	
5	Piston-H	Aluminum alloy	1	●	
6	Relief valve body-R	Aluminum alloy	1	●	
7	Relief valve body-H	Aluminum alloy	1	●	
8	Relief valve holder	Aluminum alloy	2	●	
9	Relief valve cover	Stainless steel	2	●	
10	Cushion spacer	Stainless steel	2	●	
11	Relief valve adjustment screw	Stainless steel	2	●	
12	Piston rod	Carbon steel	1		
13	Cushion axis-R	Carbon steel	1	●	
14	Cushion axis-H	Carbon steel	1	●	
15	Washer	Carbon steel	1	●	
16	Rod packing	NBR	1	●	●
17	Piston packing	NBR	1	●	●
18	O-ring	NBR	1	●	
19		NBR	4	●	●
20		NBR	2	●	●
21		NBR	2	●	●
22	Cushion packing	NBR	2	●	●
23	Gasket	PU	2	●	
24	Magnet ring	Magnet material	1	●	
25	Wear ring	Resin	1	●	●
26	Rod bush	Bearing alloy	1	●	
27	Screw	SCM	4	●	
28	Snap ring	Spring steel	1	●	
29	Bolt	Carbon steel	1	●	
30	Nut	Carbon steel	2	●	
31	Rod front nut	Carbon steel	2	●	
32	Tie nut	Carbon steel	1	●	

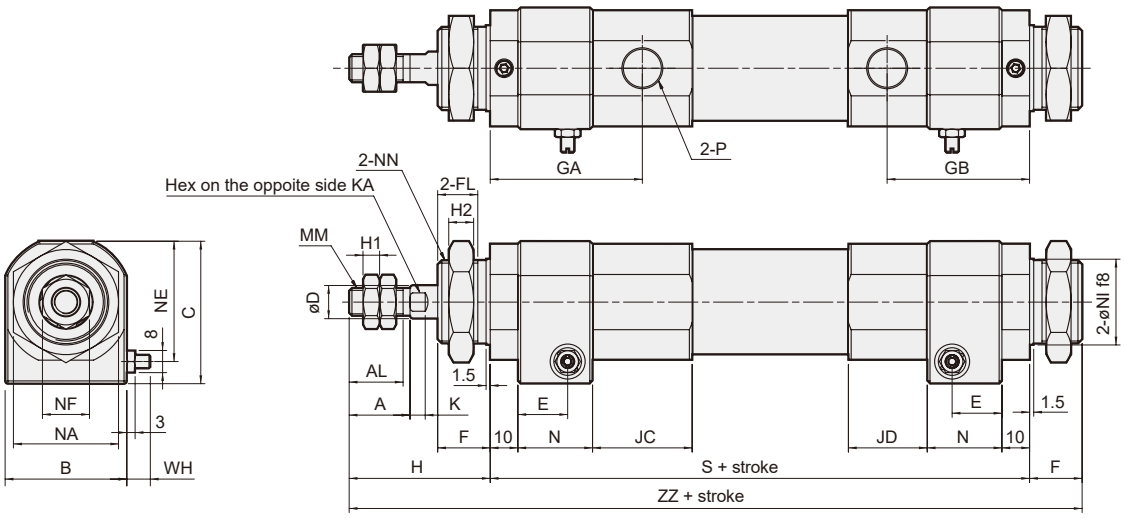
Order example of Component parts

CP — MCCH — 32 — G

- MCCH: MODEL
- 32: TUBE I.D.
- G: PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

Repair kits

Tube I.D.	Repair kits
25	**PS-MCCH-25**
32	**PS-MCCH-32**

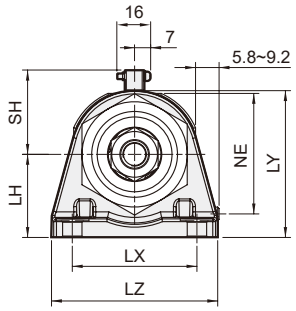


Code / Tube I.D.	A	AL	B	C	D	E	F	FL	GA	GB	H	H1	H2	JC	JD	K	KA	MM	N	NE	NA
25	22	19.5	36	45.5	12	18	16	11.5	56.5	49.5	48	6	7	39	25.5	5.5	10	M10×1.25	27	37	32
32	22	19.5	44	51.5	12	18	19	14.5	55	51.5	51	6	9	36	28.5	5.5	10	M10×1.25	27	43.5	38

Code / Tube I.D.	NF	NI	NN	P	S	WH	ZZ
25	17	25 $^{-0.020}_{-0.053}$	M24×1.5	Rc1/4	193	5.8~9.2	257
32	17	31 $^{-0.025}_{-0.064}$	M30×1.5	Rc3/8	195	5.8~9.2	265

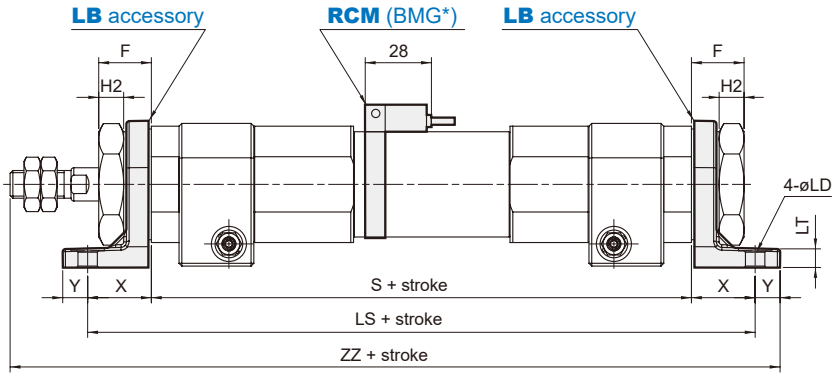
■ Mounting accessories

LB Material: Carbon steel



■ Installation of sensor switch

Sensor switch: RCM (Band: BMG*)



Code / Tube I.D.	F	H2	LD	LH	LS	LT	LX	LY	LZ	NE	S	SH	X	Y	ZZ
25	16	8	7	28	233	6.5	40	46.5	55	37	193	26.5	20	9	270
32	19	9	7	30	241	7	45	53	60	43.5	195	30.5	23	9	278