



Clamping cylinder——MCK Series

Product series

Series name	Acting type	Bore size	Collocation of sensor switch			
			CS1-A	DS1-A	DS1-69AM	DS1-69DM
MCKA	Double acting	40	●	●	●	●
		50	●	●	●	●
		63	●	●	●	●
		80	●	●	●	●
MCKB						
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Installation and Application

1. In normal situation such as: edge packing, installation, jig test...and so on. Standard cylinder is suggested.
2. In case of high-magnetic field generated by welding in the vicinity, anti-magnetic welding clamp cylinder shall be used and corresponding anti-magnetic sensor switch shall be matched.
3. Before cylinder connecting, the dust must be eliminated to avoid it entering in the cylinder.
4. The medium used by cylinder shall be filtered to 40 μm or below.
5. Under high temperature environment, the cylinder of high-temperature resistance shall be selected.
Anti-freezing measure shall be adopted under low temperature environment to prevent the water freezing in cylinder.
6. If cylinder is not used for a long time, please advert the surface to get rusty. Inlet and outlet ports should be have anti-dust caps and also spread the oil to avoid getting rusty on piston rod.

Theoretical clamping force

Unit: Newton (N)

Bore size	Rod size	Acting type		Operating pressure(MPa)							
				0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8
40	20	Double acting	Push side	125.6	251.2	376.8	502.4	628.0	753.6	879.2	1004.8
			Pull side	94.2	188.4	282.6	376.8	471.0	565.2	659.4	753.6
50	20	Double acting	Push side	196.3	392.6	588.9	785.2	981.5	1177.8	1374.1	1570.4
			Pull side	164.9	329.8	494.7	659.6	824.5	989.4	1154.3	1319.2
63	20	Double acting	Push side	311.7	623.4	935.1	1246.8	1558.5	1870.2	2181.9	2493.6
			Pull side	280.3	560.6	840.9	1121.2	1401.5	1681.8	1962.1	2242.4
80	25	Double acting	Push side	502.6	1005.2	1507.8	2010.4	2513.0	3015.6	3518.2	4020.8
			Pull side	453.6	907.2	1360.8	1814.4	2268.0	2721.6	3175.2	3628.8



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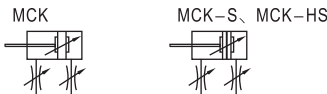
Clamping cylinder

AIRTAC

MCK Series



Symbol



Product feature

1. It suits for workshops that make automation welding.
2. There is a scraping dust ring in front cover, and it is firm and durable that can avoid dust and splashed welding slag breaking cylinders. It is more reliable than dust helmet.
3. It fits the working environment where has strong magnetic field, if it uses the sensor switch which is with strong magnet and anti-strong magnetic field.
4. Inlet interface are optional on three sides; buffer adjustment and speed limit adjustment are built-in.
5. Various types of sensor switches are available.



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Specification

Bore size(mm)	40	50	63	80
Acting	Double acting type			
Fluid	Air			
Pressure range	0.05~1.0MPa(8~145psi)			
Proof pressure	1.5MPa(215psi)			
Temperature	-20~80 °C			
Speed range	50~500mm/s			
Cushion type	variable cushion for covers			
Speed controlled valve	Standard setting for covers			
Lubrication	Not required			
Installation type	Double hinged-supports			
Port size ①	1/4"		3/8"	

① PT thread, NPT thread and G thread are available;

Stroke

Bore size(mm)	Standard stroke(mm)	Available stroke
40, 50, 63, 80	50 75 100 125 150	150

Remark) Consult us for non-standard stroke.

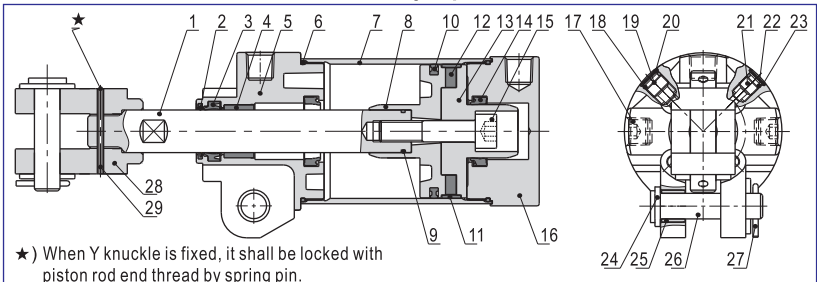
Ordering code

MCK A 50 × 75 S Y □			
Model	MCK: Clamping cylinder(Double acting)		
① Orifice model	A: Orifice model A B: Orifice model B		
Bore size	40 50 63 80		
Stroke	Refer to Stroke table for detail		
Thread type	Blank: PT T: NPT G: G		
Mounting type	Blank: Without Y knuckle Y: With Y knuckle		
Magnet	Blank: Without magnet S: With normal magnet HS: With powerful magnet ②		

① When the bore is 80, only one type of orifice is available, so the code is blank.

② In AC magnetic field, cylinder with powerful magnet is suggested and sensor switch for high-magnet shall be matched. In DC magnetic field, cylinder with powerful magnet must be used and sensor switch for high-magnet shall be matched. Please refer to Page 404 for option.

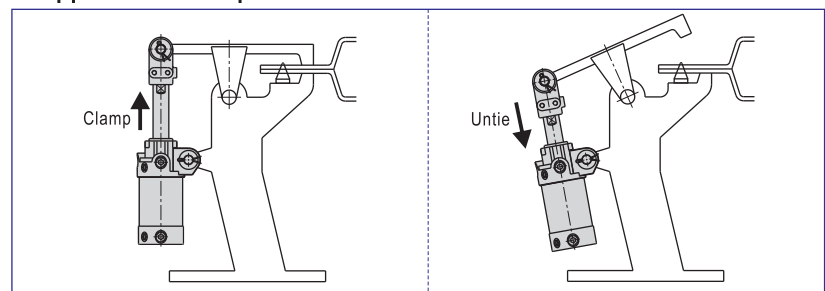
Inner structure and material of major parts



★) When Y knuckle is fixed, it shall be locked with piston rod end thread by spring pin.

No.	Item	Material	No.	Item	Material	No.	Item	Material
1	Piston rod	Carbon steel	11	Wear ring	Wear resistant material	21	Speed controlled screw	Aluminum alloy
2	Scraping dust ring	Stainless steel	12	Magnet	magnetism material	22	O-ring	NBR
3	Spool packing	NBR	13	Magnet holder	Aluminum alloy	23	Bead flange	Spring steel
4	Sliding bushing	Powder metallurgy	14	Cushion O-ring	TPU	24	Washer	SPCC
5	Front cover	Aluminum alloy	15	Countersink	S35C	25	Bronze	Brass
6	O-ring	NBR	16	Back cover	Aluminum alloy	26	Pin	S45C
7	Barrel	Aluminum alloy	17	Stop screw	S35C	27	Orifice Pin	Midl steel
8	Piston	Aluminum alloy	18	O-ring	NBR	28	Y knuckle	Nodular cast iron
9	Piston rod O-ring	NBR	19	Cush controlled screw	Aluminum alloy	29	Spring pin	Spring steel
10	Piston seal	NBR	20	Bead flange	Spring steel			

Application examples



AirTAC

■ Specifications and ordering codes of Y knuckle

Φ40, 50, 63

Pin: Φ12

6 - M6 × 1
dp: 11 (3-sides)

54
40
E

20
45
60

17 (3-sides)
(Φ30)
40

Technical drawing of the 3-position solenoid valve (3P-SV) showing side and front views with dimensions and labels.

Side View Dimensions and Labels:

- Φ40, 50, 63 (With magnet)**: Port size and magnet specification.
- A + Stroke**: Dimension from mounting face to center of coil.
- B**: Dimension from mounting face to center of first port.
- C + Stroke**: Dimension from mounting face to center of second port.
- D + Stroke**: Dimension from mounting face to center of third port.
- E**: Total length of the valve body.
- F**: Dimension from mounting face to center of magnet.
- G**: Dimension from mounting face to center of coil.
- H**: Dimension from mounting face to center of magnet.
- T + Stroke**: Dimension from mounting face to center of magnet.
- W**: Width of the valve body.
- X**: Dimension from mounting face to center of magnet.
- Y**: Dimension from mounting face to center of magnet.
- Z**: Dimension from mounting face to center of magnet.
- 6-O**: Mounting seat for Anti-magnetic sensor switch (available).
- Star symbol**: Indicated on the mounting face.

Front View Dimensions and Labels:

- Speed controlled valve**: Port type.
- 45°**: Port angle.
- ΦM1**: Port diameter.
- 4-L dp:L1**: Port specification.
- Cushion controlled valve**: Port type.
- 45°**: Port angle.
- ΦM2**: Port diameter.
- T1**: Dimension from center to cushion control port.
- E1**: Dimension from center to cushion control port.
- W1**: Width of the valve body.
- W2**: Width of the valve body.
- ΦV1**: Port diameter.

Φ40,50,63 (Without magnet)

The drawing illustrates the dimensions and components of a 5-Port Solenoid Valve (Type 5300) without a magnet. The side view (left) shows the valve body with dimensions A+Stroke, B, G, H, F, E, C+Stroke, D+Stroke, A1+Stroke, and 6-O. The end view (right) shows the valve body with dimensions 45°, 45°, ΦM1, ΦM2, 4-L dp: L1, W1, W2, E1, and ΦV41. The valve body is labeled with 'Speed controlled valve' and 'Cushion controlled valve'.

Φ80 (With magnet)

Technical drawing of the Φ80 (With magnet) model, showing side and front views with dimensions and labels.

Side View Dimensions:

- Overall length: 256 + Stroke
- Distance from magnet to center: 110
- Magnet diameter: M20X1.5
- Stroke length: 206 + Stroke
- Distance from magnet to center of stroke: 59
- Distance from magnet to center of stroke (detailed): 29
- Stroke length (detailed): 68 + Stroke
- Distance from center of stroke to cushion valve: 87 + Stroke
- Distance from center of stroke to speed valve: 127 + Stroke
- Stroke length (detailed): 87 + Stroke
- Distance from center of stroke to cushion valve (detailed): 35
- Distance from center of stroke to speed valve (detailed): 15
- Stroke length (detailed): 127 + Stroke
- Stroke length (detailed): 256 + Stroke
- Stroke length (detailed): 206 + Stroke
- Stroke length (detailed): 68 + Stroke
- Stroke length (detailed): 87 + Stroke
- Stroke length (detailed): 127 + Stroke
- Stroke length (detailed): 256 + Stroke

Front View Dimensions:

- Overall diameter: Φ80
- Stroke length: 206 + Stroke
- Distance from center to cushion valve: 45°
- Distance from center to speed valve: 45°
- Stroke length: 87 + Stroke
- Stroke length: 127 + Stroke
- Stroke length: 256 + Stroke
- Stroke length: 206 + Stroke
- Stroke length: 68 + Stroke
- Stroke length: 87 + Stroke
- Stroke length: 127 + Stroke
- Stroke length: 256 + Stroke

Labels:

- Mounting seat for Anti-magnetic sensor switch (available)
- Speed controlled valve Φ44
- Cushion controlled valve
- 4-M6X1.0 Dp:15

Φ 80 (Without magnet)

Technical drawing of a Φ 80 (Without magnet) solenoid valve. The drawing includes a side view and a top view.

Side View Dimensions:

- Total length: 206 + Stroke
- Coil diameter: Φ 86
- Valve body diameter: Φ 87.5
- Coil mounting flange diameter: Φ 63
- Coil mounting flange thickness: 20
- Coil mounting flange hole diameter: Φ 25
- Coil mounting flange hole offset: 29
- Coil mounting flange hole offset: 22
- Coil mounting flange hole offset: 110
- Coil mounting flange hole offset: 256 + Stroke
- Coil mounting flange hole offset: 87 + Stroke
- Coil mounting flange hole offset: 127 + Stroke
- Coil mounting flange hole offset: 59
- Coil mounting flange hole offset: 15
- Coil mounting flange hole offset: 35

Top View Dimensions:

- Speed controlled valve: 45°
- Cushion controlled valve: 45°
- Central port diameter: Φ 44
- Thread: 4-M6X1.0 Dp:15
- Base diameter: Φ 72
- Base height: 50
- Base hole diameter: Φ 18
- Base hole offset: 28

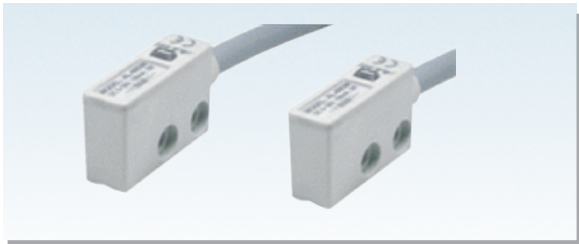


MCK

Clamping cylinder



Sensor switch——DS1-69AM、DS1-69DM Series



Feature

DS1-69AM、DS1-69DM series are anti-magnetic sensor switch, which are for AC or DC magnetic environment.

Ordering code

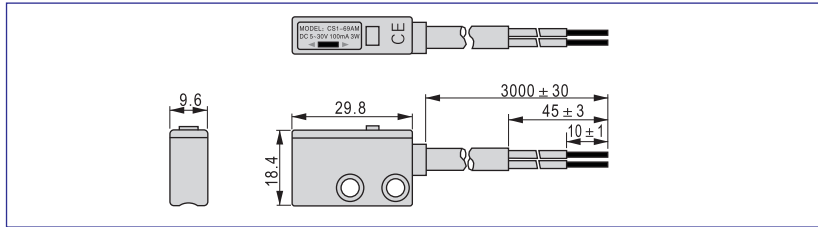
DS1-69AM	
Number of sensor switch	
Code	
69AM:Anti-magnetic sensor switch (AC resistant welder)	
69DM:Anti-magnetic sensor switch (DC)	

Specification

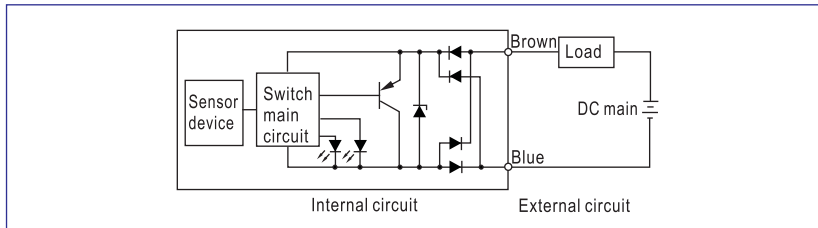
Item\Type	DS1-69AM	DS1-69DM ①
Switch logic	Transistor without contact, normally opened type	
Sensor type	Transistor, two-line, nonpolarity	
Operating voltage (V)	10~30V/DC	
Max. Switching current	100mA Max.	
Switching Rating (W)	3W Max.	
Anti-magnetic current	AC 17000A	
Voltage drop	4.8V Max. @100mA DC	
Leakage current	0.6mA Max. @30V DC	
Min. working current	3mA Min.	
Indicator	Stable range:Green LED ; Non-table range:Red LED	
Cable	Φ5.3/0.5SQ × 2C × 3m/oil resistant, Flame retarded, flection/gravy PVC	
Sensitivity	30~40 Gauss	
Max. Frequency	8Hz	
Temperature range	-10~70℃	
Shock	50m/s ²	
Vibration	9m/s ²	
Protection	IP 67(EN60529)	
Protection circuit	Transistor without contact, surge suppression	
Fire retardant grade	UL94-V0	

① : DC type has not been on sale.

Dimensions



Wiring diagram



Mounting

The MCK-HS(with strong magnet) cylinder must be used with the anti-magnetic sensor switch, and the anti-magnetic bracket(F-MH) must be ordered separately, the ordering code, dimensions and the mounting method are below:

Ordering code	F-MH	
Dimensions		
Mounting		DS1-69 model Sensor switch

Indicator action illustration

