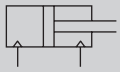


Compact cylinder double acting/single rod

SMG Series

● Bore size: ø6/ø10/ø16/ø20/ø25/ø32

JIS symbol



Double acting

RoHS CAD

Specifications

1 MPa ≈ 145.0 psi, 1 MPa = 10 bar

Item	SMG SMG-L (with switch)					
Bore size mm	ø6	ø10	ø16	ø20	ø25	ø32
Actuation	Double acting					
Working fluid	Compressed air					
Max. working pressure MPa	0.7 (≈100 psi, 7 bar)					
Min. working pressure MPa	0.12	0.06 (≈8.7 psi, 0.6 bar)		0.05 (≈7.3 psi, 0.5 bar)		
Proof pressure MPa	1.05 (≈150 psi, 10.5 bar)					
Ambient temperature °C	-10 (14°F) to 60 (140°F) (no freezing)					
Port size	M5					Rc1/8
Stroke tolerance mm	+1.5 0					
Working piston speed mm/s	50 to 500					
Cushion	With rubber cushion					
Lubrication	Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)					
Allowable absorbed energy J	0.012	0.036	0.1	0.1	0.19	0.5

Stroke

Bore size (mm)	Standard stroke (mm)	Min. stroke (mm)
ø 6	5, 10, 15, 20, 25, 30, 40, 50, 60	5
ø10		
ø16		
ø20	5, 10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100	
ø25		
ø32		

*1: The custom stroke is available in 5 mm increments. However, the total length is the same as that of the next longer standard stroke.

Min. stroke with switch

Tube Bore size	1-color LED		2-color LED	
	K□H	K □ V	K □ YH	K □ YV
ø 6	5		5	
ø10				
ø16				
ø20				
ø25				
ø32				

Switch specifications

● 1-color/2-color LED

Item	2-wire proximity		3-wire proximity			2-wire reed			
	K2H/K2V	K2YH/ K2YV	K3H/K3V	K3PH/K3PV (Made to order)	K3YH/ K3YV	K0H/K0V		K5H/K5V	
Applications	Dedicated for programmable controller		For programmable controller, relay			For programmable controller, relay		Programmable controller, relay IC circuit (without indicator), serial connection	
Output method	-		NPN output	PNP output	NPN output	-			
Power supply voltage	-		10 to 28 VDC			-			
Load voltage	10 to 30 VDC		30 VDC or less			12 V/24 VDC	110 VAC	5/12/24 VDC	110 VAC
Load current	5 to 20 mA (*3)		50 mA or less			5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less
Indicator	LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		-	
Leakage current	1 mA or less		10 µA or less			0 mA			
Weight g	1 m:18 3 m:49 5 m:80	1 m: 31 3 m: 85 5 m:139	1 m:18 3 m:49 5 m:80		1 m: 31 3 m: 85 5 m:139	1 m:18 3 m:49 5 m:80			

*1: Refer to Ending Page 1 for detailed switch specifications and dimensions.
*2: Switches other than the above models, such as switches with connectors, are also available. Refer to Ending Page 1.
*3: The max. load current is 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C. (5 to 10 mA at 60°C)

Cylinder weight

(Unit: g)

Model No. / Bore size	Product weight when stroke S = 0 mm		Additional weight per S = 5mm
	SMG double acting	SMG-L double acting/with switch	
ø6	18	18	3
ø10	27	27	3
ø16	41	56	6
ø20	87	115	11
ø25	164	208	17
ø32	267	335	26

(Example) Product weight

SMG-L-16-10-K2H-D

- Product weight for 0 mm stroke ····· 56 g
- Additional weight when S = 10 mm ····· 6 g x 10/5 = 12 g
- Weight of 2 cylinder switches ····· 18 g x 2 = 36 g
- Product weight ····· 56 g + 12 g + 36 g = 104 g

Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa							
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7
ø6	Push	-	4.24	5.65	8.48	11.3	14.1	17.0	19.8
	Pull	-	3.18	4.24	6.36	8.48	10.6	12.7	14.8
ø10	Push	7.85	11.8	15.7	23.6	31.4	39.3	47.1	55.0
	Pull	6.60	9.90	13.2	19.8	26.4	33.0	39.6	46.2
ø16	Push	20.1	30.2	40.2	60.3	80.4	$1.01x10^2$	$1.21x10^2$	$1.41x10^2$
	Pull	17.3	25.9	34.6	51.8	69.1	86.4	$1.04x10^2$	$1.21x10^2$
ø20	Push	31.4	47.1	62.8	94.2	$1.26x10^2$	$1.57x10^2$	$1.88x10^2$	$2.20x10^2$
	Pull	26.4	39.6	52.8	79.2	$1.06x10^2$	$1.32x10^2$	$1.58x10^2$	$1.85x10^2$
ø25	Push	49.1	73.6	98.2	$1.47x10^2$	$1.96x10^2$	$2.45x10^2$	$2.95x10^2$	$3.44x10^2$
	Pull	41.2	61.9	82.5	$1.24x10^2$	$1.65x10^2$	$2.06x10^2$	$2.47x10^2$	$2.89x10^2$
ø32	Push	80.4	$1.21x10^2$	$1.61x10^2$	$2.41x10^2$	$3.22x10^2$	$4.02x10^2$	$4.83x10^2$	$5.63x10^2$
	Pull	69.1	$1.04x10^2$	$1.38x10^2$	$2.07x10^2$	$2.76x10^2$	$3.46x10^2$	$4.15x10^2$	$4.84x10^2$