# SMD2

## Compact cylinder

$\phi$ 6, $\phi$ 10, $\phi$ 16
$\phi$ 20, $\phi$ 25, $\phi$ 32

## Space saving structure

### Overview

This direct mount cylinder is a high rigidity/small square air cylinder with excellent installation accuracy and multi-surface direct mount. The square shaped body improves efficiency in the design stage. This cylinder meets needs such as small, high density and high precision in pneumatic system.

### Features

**Simple square design**

Space saving, simple and small square shape.

**Switch integrated**

Proximity or reed switches are integrated.

**Easy centering**

Socket and spigot on rod side enables easy alignment.

**Precise installation**

Direct mount enables precise rod axis center parallelism and perpendicularity.

**Three types of mounting style**

Three types of mounting style such as rod side mounting, head side mounting and high rigid mounting types are available.

**Two lead wire directions**

Two switch lead wire directions such as axial and radial types.

### CONTENTS

●: Standard, ◎: Option, ○: Custom order, ■:Not available

| Variation | Model no. JIS symbol | Bore size (mm) | Standard stroke length (mm) 5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | Min. stroke length (mm) (Note 1) | Max. stroke length (mm) | Custom stroke length (per mm) | Mounting style: Rod end mounting type DA | Head end mounting type DB | High rigid mounting type DC | Option: Copper and PTFE free P6 | Switch | Page |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Double acting single rod type with switch | SMD2 SMD2-L | $\phi$6, $\phi$10, $\phi$16 | ● | ● | ● | ● | ● | ● | ○ | ○ | 1 | 60 | 1 | ◎ | ◎ | ◎ | ● | ◎ | 1006 |
| | | $\phi$20, $\phi$25, $\phi$32 | ● | ● | ● | ● | ● | ● | ● | ● | | 100 | | ◎ | ◎ | ◎ | ● | | |
| Single acting extend type with switch | SMD2-X SMD2-XL | $\phi$6, $\phi$10, $\phi$16 | ● | ● | ● | ■ | ■ | ■ | ■ | ■ | 1 | 15 | 1 | ◎ | ◎ | ◎ | ● | ◎ | 1014 |
| | | $\phi$20, $\phi$25, $\phi$32 | ● | ● | ● | ■ | ■ | ■ | ■ | ■ | | 15 | | ◎ | ◎ | ◎ | ● | | |
| Single acting retract type with switch | SMD2-Y SMD2-YL | $\phi$6, $\phi$10, $\phi$16 | ● | ● | ● | ■ | ■ | ■ | ■ | ■ | 1 | 15 | 1 | ◎ | ◎ | ◎ | ● | ◎ | 1014 |
| | | $\phi$20, $\phi$25, $\phi$32 | ● | ● | ● | ■ | ■ | ■ | ■ | ■ | | 15 | | ◎ | ◎ | ◎ | ● | | |
| Double acting fine speed type with switch | SMD2-F SMD2-LF | $\phi$6, $\phi$10, $\phi$16 | ● | ● | ● | ● | ● | ● | ○ | ○ | 1 | 60 | 1 | ◎ | ◎ | ◎ | ■ | ◎ | 1026 |
| | | $\phi$20, $\phi$25, $\phi$32 | ● | ● | ● | ● | ● | ● | ● | ● | | 100 | | ◎ | ◎ | ◎ | ■ | | |
| Double acting non-rotating type with switch | SMD2-M SMD2-ML | $\phi$6, $\phi$10, $\phi$16 | ● | ● | ● | ● | ● | ● | ■ | ■ | 1 | 30 | 1 | ■ | ■ | ■ | ● | ◎ | 1030 |
| | | $\phi$20, $\phi$25, $\phi$32 | ● | ● | ● | ● | ● | ● | ● | ● | | 50 | | ■ | ■ | ■ | ● | | |

Note 1: Refer to pages 1006, 1014, 1026, 1030 for min. stroke length with switch.

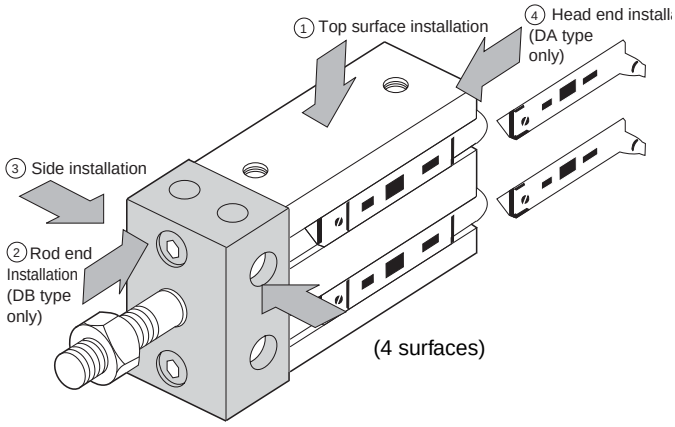
# Convenient four surfaces installation

Three types of mounting style are available with an easy operation.

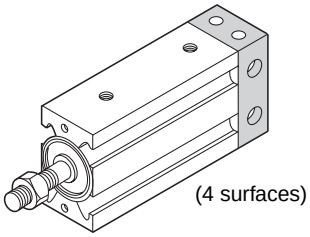
Four surfaces direct mount is possible. Small, square shaped, and compact cylinder ( $\phi$ 6 to $\phi$ 32)

## Three types of mounting style Flexible 4 direct installation surfaces

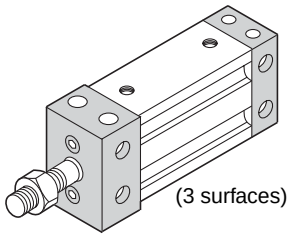
## Two types of detecting switch Axial and radial lead wire directions



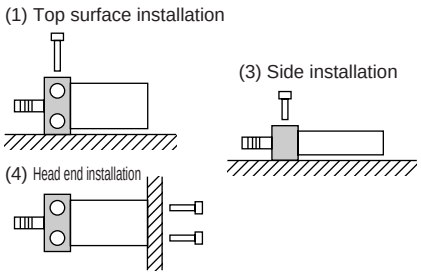

● DA rod side mounting type

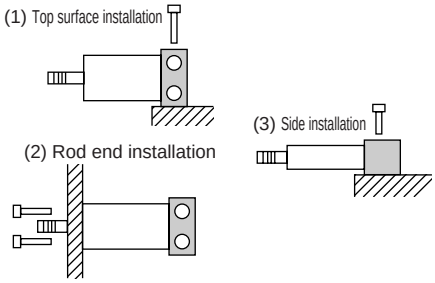


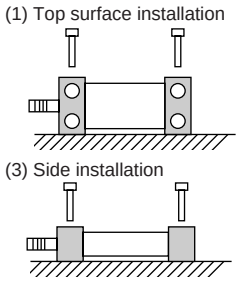

● DB head side mounting type



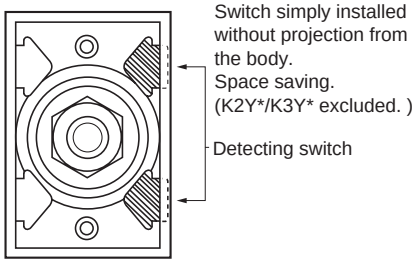

● DC high rigid mounting type



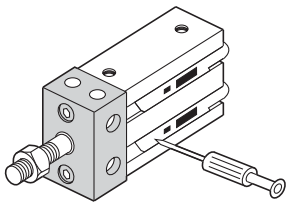




## Detecting switch simply integrated

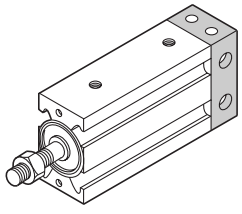



## Switch position adjustment is possible at the front



Easy position adjustment.

## Accurate alignment with socket and spigot



Socket and spigot provided at bush section enables easy alignment.
(DB type only)

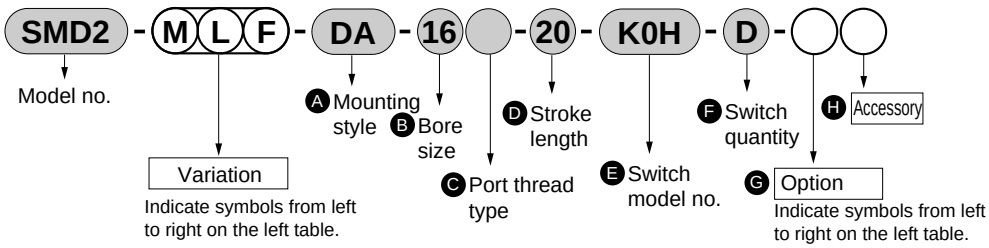
## Variation and option selection table

◎: Option
○: Available (custom order)
△: Available dipending on condition (consult with CKD)
X : Not available

| Code | | Code | Variation | | | | | | Port thread | | Option | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Double acting basic type | Single acting extend type | Single acting retract type | Non-rotating type | With cylinder switch | Fine speed type | NPT | G | Copper and PTFE free type | Clean room specifications (exhaust treatment) | Clean room specifications (vacuum treatment) | Clean room specifications (exhaust treatment) | Clean room specifications (vacuum treatment) | Customized piston rod end form |
| | | Symbol | No | X | Y | M | L | F | N | G | P6 | P7 | P71 | P72 | P73 | N** |
| Variation | Double acting basic type | Blank | | | | ◎ | ◎ | ◎ | ○ | ○ | Note 3 | ◎ | ◎ | X | X | ○ |
| | Single acting extend type | Y | | | X | ○ | ◎ | X | ○ | ○ | Note 3 | X | X | X | X | ○ |
| | Single acting retract type | X | | | | ○ | ◎ | X | ○ | ○ | Note 3 | X | X | X | X | ○ |
| | Non-rotating type | M | | | | | ◎ | ○ | ○ | ○ | Note 3 | Note 4 | Note 4 | ○ | ○ | ○ |
| | With cylinder switch | L | | | | | | ◎ | ○ | ○ | Note 3 | ◎ | ◎ | ○ | ○ | ○ |
| | Fine speed type | F | | | | | | | ○ | ○ | X | ○ | ○ | ○ | ○ | ○ |
| Port thread | NPT | N | | | | | | | | X | Note 3 | ○ | ○ | ○ | ○ | ○ |
| | G | G | | | | | | | | | Note 3 | ○ | ○ | ○ | ○ | ○ |
| Option | Copper and PTFE free type | P6 | | | | | | | | | | X | X | X | X | ○ |
| | Clean room specifications (exhaust treatment) | P7 | | | | | | | | | | | X | X | X | ○ |
| | Clean room specifications (vacuum treatment) | P71 | | | | | | | | | | | | X | X | ○ |
| | Clean room specifications (exhaust treatment) | P72 | | | | | | | | | | | | | X | ○ |
| | Clean room specifications (vacuum treatment) | P73 | | | | | | | | | | | | | | ○ |
| | Customized piston rod end form | N** | | | | | | | | | | | | | | |
| Accessory | Cylinder switch | Listed on Ending | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ○ | ○ | ◎ |
| | Rod eye | I | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | X | X | X | X | Note 1 |
| | Rod clevis | Y | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | X | X | X | X | Note 1 |
| | B1 bracket | B1 | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | X | X | X | X | ◎ |
| | B2 bracket | B2 | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | ◎ | X | X | X | X | ◎ |

Cautions
Note 1. If the size of the screw at the piston rod end is changed, this combination does not apply. Consult with CKD.
Note 2. Refer to the "Clean Component System (catalog No. CB-033SA)" for clean room specifications P7*.
Note 3. P6 specifications are available as standard. (Required no indication for P6 )
Note 4: When combining the clean specifications with the nonrotating type, the guide bar will slide separately from the piston rod.
There are dust generating sections other than the piston rod, so this will be handled with separate symbols (P72 (exhaust treatment) and P73 (vacuum sweep)).

## <Example of model number>




Model no.: Compact cylinder
● Variation: Non-rotating with switch fine speed type
Ⓐ Mounting style : Rod end mounting type
Ⓑ Bore size : ϕ 16 mm
Ⓒ Port thread type : Rc thread
Ⓓ Stroke length : 20 mm
Ⓔ Switch model no. : Reed K0H switch, lead wire 1 m
Ⓕ Switch quantity : 2
Ⓖ Option : None
Ⓗ Accessory : None

Pneumatic components

# Safety precautions

Always read this section before starting use.
Refer to Intro 71 for general details on the cylinder, and to Intro 78 for details on the cylinder.

## Compact cylinder SMD2 Series

## Design & Selection

### 1. Fine speed type SMD2-F

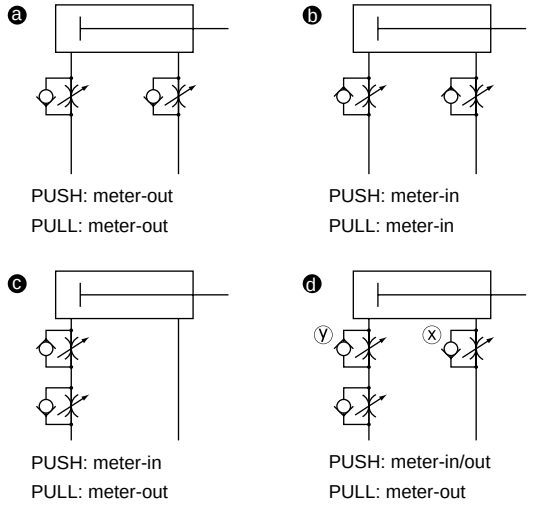
**CAUTION**

■ Use with oil-free specifications.
Lubrication may change characteristics.

■ Assemble the flow control valve near the cylinder.
Adjustments become unstable if assembled away from the cylinder.
Use the SC-M3/M5, SC3W, SCD-M3/M5, SC3WU Series speed control valve.

■ Generally, the higher air pressure, and the smaller load pressure result in the more stable operation.
Keep the load factor at 50% or less.

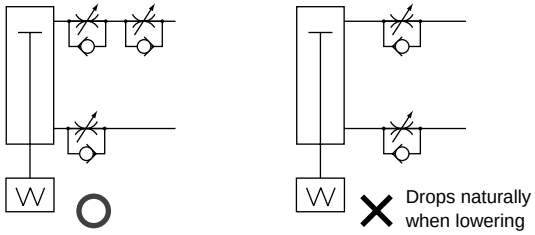
■ Stable speed control is achieved with a meter-out circuit.
When driving the single rod cylinder at fine speed with the operation direction set to PUSH, popping-out may occur if operation is started when load resistance is small. As a countermeasure, use (b), (c), or (d) circuit.Note that the (d) circuit is the most stable.



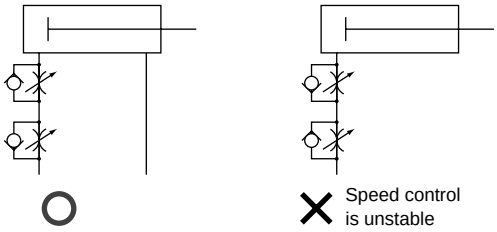

ⓓ Speed adjustment method of PUSH operation of circuit:
1. Set the speed with the x speed control valve
2. Lower the flow rate with the y speed control valve until popping out no longer occurs
3. Reconfirm speed

(Note 1) When b, c and d are compared, d circuit operation is most stable.

(Note 2) When installed vertically, the load will drop naturally if the meter-in circuit is used. Use the meter-out circuit in this case.




(Note 3) Connect the peed control valve in the parallel with the following circuit.




(Cause of popping out)

- Reduce the flow rate to reach a fine speed at the exhaust side in a mater-out circuit. This results in the same pressure level on the both sides immediately after valve switched. The thrust caused by the differential of pressurized area of piston is applied to the PUSH direction and a popping-out of piston rod occurs.

(Guide for popping out occurrence)

- Popping out occurs when: the piston rod area x air pressure> load resistance.

■ Do not apply lateral load a cylinder.
Install the cylinder to avoid the sliding guide to be twisted.
The presence of load or resistance variation may result in unstable operations.
Operation of a guide having a large difference in stationary and moving friction may become unstable.

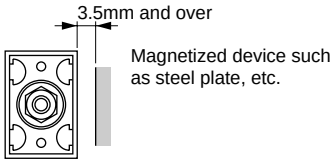
■ Avoid use with vibration.
The product would be adversely affected by vibration and operation may become unstable.

# Installation & Adjustment

## 1. Common

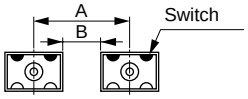
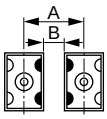
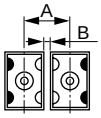
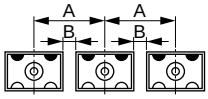
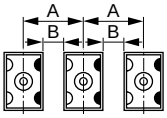
### ⚠ CAUTION

■ The cylinder may malfunction if a magnetic substance, such as a steel plate, is nearby. Move the magnetic substance to at least 3.5mm from the cylinder.
(Same clearance for all bore sizes)




■ When installing cylinders adjacently, provide the following installation pitch to prevent switches from malfunctioning.

Unit: mm

| Adjacent conditions | | | Switch model no. | ϕ6 | ϕ10 | ϕ16 | ϕ20 | ϕ25 | ϕ32 | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|
| 2 cylinders in parallel | · Horizontal installation   | A | K0, K5 | 27 | 29 | 37 | 45 | 55 | 67 | |
| | | | K2, K3 | | | | | | | |
| | | B | K0, K5 | 4.5 | | | | | | |
| | | | K2, K3 | | | | | | | |
| | · Vertical installation Install the switch on the opposite side of the cylinder at the side.   | A | K0, K5 | 18 | 21 | 25 | 33 | 41 | 46 | Note that when the cylinder is installed, the switch position cannot be adjusted if the driver length is longer than the B dimension. |
| | | | K2, K3 | 25 | 28 | 35 | 40 | 50 | 55 | |
| | | B | K0, K5 | 5.5 | 5.5 | 5.5 | 6.5 | 8.5 | 5.5 | |
| | | | K2, K3 | 11.5 | 12.5 | 14.5 | 14.5 | 17.5 | 14.5 | |
| | · Vertical installation Install switch at side of adjacent cylinder.   | A | K0, K5 | 14 | 16 | 21 | 27 | 33 | 41 | |
| | | | K2, K3 | | | | | | | |
| | | B | K0, K5 | 0.5 | | | | | | |
| | | | K2, K3 | | | | | | | |
| 3 or more cylinders in parallel | · Horizontal installation   | A | K0, K5 | 27 | 29 | 37 | 45 | 55 | 67 | |
| | | | K2, K3 | | | | | | | |
| | | B | K0, K5 | 4.5 | | | | | | |
| | | | K2, K3 | | | | | | | |
| | · Vertical installation   | A | K0, K5 | 19 | 22 | 26 | 34 | 42 | 47 | Note that when the cylinder is installed, the switch position cannot be adjusted if the driver length is longer than the B dimension. |
| | | | K2, K3 | 27 | 29 | 35 | 44 | 51 | 56 | |
| | | B | K0, K5 | 6.5 | 6.5 | 6.5 | 7.5 | 9.5 | 6.5 | |
| | | | K2, K3 | 13.5 | 13.5 | 14.5 | 17.5 | 18.5 | 15.5 | |

## 2. Single acting SMD2-X/Y

### ⚠ CAUTION

■ Do not leave the single acting cylinder in the pressurized state.
If left pressurized, the piston rod may not return with spring power when pressure is released.

## 3. Fine speed type SMD2-F

### ⚠ CAUTION

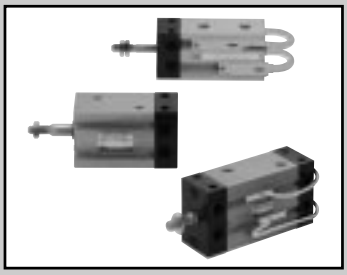
■ Adjust the core, etc., so lateral load is not applied to the cylinder.
Adjust and install so the sliding guide is not twisted.
- Operation may become unstable due to fluctuations and load resistance.
- Operation of a guide having a large difference in stationary and moving friction may become unstable.

# During Use & Maintenance

## 1. Non-rotating type SMD2-M

### ⚠ CAUTION

■ Do not place fingers between the baffle non-rotating plate and cylinder tube.
Fingers may get caught between the non-rotating plate and cylinder tube when the piston rod is pulled in. Do not place fingers here.

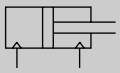


Compact cylinder, double acting single rod type

# SMD2 Series

● Bore size: ϕ 6, ϕ 10, ϕ 16, ϕ 20, ϕ 25, ϕ 32

JIS symbol



Double acting

RoHS CAD

## Specifications

| Descriptions | SMD2<br>SMD2-L (with switch) | | | | | |
|---|---|---|---|---|---|---|
| Bore size mm | ϕ6 | ϕ10 | ϕ16 | ϕ20 | ϕ25 | ϕ32 |
| Actuation | Double acting | | | | | |
| Working fluid | Compressed air | | | | | |
| Max. working pressure MPa | 0.7 | | | | | |
| Min. working pressure MPa | 0.15 | 0.1 | | | | |
| Withstanding pressure MPa | 1.05 | | | | | |
| Ambient temperature ℃ | -10 to 60 (no freezing) | | | | | |
| Port size | M5 | | | | | Rc1/8 |
| Stroke tolerance mm | +1.5<br>0 | | | | | |
| Working piston speed mm/s | 50 to 500 | | | | | |
| Cushion | Rubber cushioned | | | | | |
| Lubrication | Not required (when lubricating, use turbine oil Class 1 ISO VG32.) | | | | | |
| Allowable energy absorption J | 0.005 | 0.036 | 0.1 | 0.1 | 0.19 | 0.5 |

## Stroke length

| Bore size (mm) | Standard stroke length (mm) | Max. stroke length (mm) | Min. stroke length (mm) |
|---|---|---|---|
| ϕ6 | 5, 10, 15, 20, 25, 30 | 60 | 1 |
| ϕ10 | | | |
| ϕ16 | | | |
| ϕ20 | 5, 10, 15, 20, 25, 30, 40, 50 | 100 | |
| ϕ25 | | | |
| ϕ32 | | | |

Note 1: Custom stroke length is available per 1mm increment.

## Min. stroke length with switch

| Model | Bore size | 1 color indicator type | | 2 color indicator type | | With preventive maintenance output | |
|---|---|---|---|---|---|---|---|
| | | K*H | K*V | K*YH | K*YV | K*Y*H | K*Y*V |
| SMD2-L-DA | ϕ6 | 5 | | 5 | | 1 | |
| | ϕ10 | | | | | | |
| | ϕ16 | | | | | | |
| | ϕ20 | | | | | | |
| | ϕ25 | | | | | | |
| | ϕ32 | | | | | | |
| SMD2-L-DB/DC | ϕ6 | 15 | 5 | 15 | 10 | 10 | |
| | ϕ10 | 10 | | 15 | 10 | 10 | |
| | ϕ16 | 10 | | 10 | 10 | 10 | |
| | ϕ20 | 10 | | 10 | 5 | 5 | |
| | ϕ25 | 5 | | 5 | 5 | 5 | |
| | ϕ32 | 5 | | 5 | 5 | 5 | |

## Switch specifications

● 1 color/2 color indicator

| Descriptions | Proximity 2-wire | | Proximity 3-wire | | | Reed 2-wire | | | |
|---|---|---|---|---|---|---|---|---|---|
| | K2H/K2V | K2YH/K2YV | K3H/K3V | K3PH/K3PV (Custom order) | K3YH/K3YV | K0H/K0V | | K5H/K5V | |
| Applications | Programmable controller | | Programmable controller, relay | | | Programmable controller, relay | | Programmable controller, relay IC circuit (w/o indicator light), serial connection | |
| Output method | - | | NPN output | PNP output | NPN output | - | | | |
| Power voltage | - | | 10 to 28 VDC | | | - | | | |
| Load voltage | 10 to 30 VDC | | 30 VDC or less | | | 12 VDC /24 VDC | 110 VAC | 5/12/24 VDC | 110 VAC |
| Load current | 5 to 20mA (Note 1) | | 50mA or less | | | 5 to 50mA | 7 to 20mA | 50mA or less | 20mA or less |
| Light | LED (ON lighting) | Red/green LED (ON lighting) | LED (ON lighting) | Yellow LED (ON lighting) | Red/green LED (ON lighting) | LED (ON lighting) | | - | |
| Leakage current | 1mA or less | | 10 $\mu$A or less | | | 0mA | | | |

Note 1: Max. load current above: 20 mA at 25℃. The current will be lower than 20 mA if ambient temperature around switch is higher than 25℃. (5 to 10mA at 60℃)

● With preventive maintenance output

| Descriptions | | Proximity 3-wire | Proximity 4-wire | Proximity 3-wire | Proximity 4-wire |
|---|---|---|---|---|---|
| | | K2YFH/V | K3YFH/V | K2YMH/V | K3YMH/V |
| Applications | | Programmable controller | Programmable controller, relay | Programmable controller | Programmable controller, relay |
| Output method | | NPN output | | | |
| Light | Installation position adjustment | Red/green LED (ON lighting) | | | |
| | Preventive maintenance output | - | | Yellow LED (ON lighting) | |
| Output | Power voltage | - | 10 to 28 VDC | - | 10 to 28 VDC |
| | Load voltage | 10 to 30 VDC | 30 VDC or less | 10 to 30 VDC | 30 VDC or less |
| | Load current | 5 to 20mA | 50mA or less | 5 to 20mA | 50mA or less |
| | Leakage current | 1mA or less | 10 $\mu$A or less | 1.2mA or less | 10 $\mu$A or less |
| Preventive maintenance output | Load voltage | 30 VDC or less | | | |
| | Load current | 20mA or less | 50mA or less | 5 to 20mA or less | 50mA or less |
| | Leakage current | 10 $\mu$A or less | | | |

## Cylinder weight

Unit (g)

| Model no. / Bore size | Support type | Product weight when stroke length S = 0mm: SMD2 Double acting | SMD2-L Double acting/with switch | Additional weight per S = 5mm |
|---|---|---|---|---|
| $\phi$6 | DA | 26 | 26 | 3 |
| | DB | 25 | 25 | |
| | DC | 34 | 34 | |
| $\phi$10 | DA | 37 | 37 | 4 |
| | DB | 36 | 36 | |
| | DC | 48 | 48 | |
| $\phi$16 | DA | 70 | 87 | 6 |
| | DB | 68 | 84 | |
| | DC | 97 | 113 | |
| $\phi$20 | DA | 137 | 166 | 11 |
| | DB | 131 | 160 | |
| | DC | 178 | 207 | |
| $\phi$25 | DA | 229 | 275 | 17 |
| | DB | 220 | 265 | |
| | DC | 291 | 337 | |
| $\phi$32 | DA | 445 | 515 | 26 |
| | DB | 427 | 497 | |
| | DC | 574 | 644 | |

## Discrete cylinder switch weight

Unit (g)

| Name | Model no. | Lead wire length 1m | 3m | 5m |
|---|---|---|---|---|
| Cylinder switch | K0 | 18 | 52 | 86 |
| | K2 | 18 | 52 | 86 |
| | K3 | 18 | 52 | 86 |
| | K5 | 18 | 52 | 86 |

(Example) Product weight

SMD2-L-DA-16-10-K2-D
- Product weight at stroke length = 0mm ··· 87g
- Additional weight when S=10mm ··· 6g x 10/5 = 12g
- Weigh of two cylinder switches ··· 18g x 2 = 36g
- Product weight ··· 87g + 12g + 36g = 135g

## Clean room specifications

(Catalog No. CB-033SA)

● Dust generation preventing structure for use in clean room

SMD2 ..... P7*
SMD2 ..... P5*

## How to order

Without switch

**SMD2 — DA - 6 ○ - 15**

With switch

**SMD2-L - DA - 6 ○ - 15 - K2H - R**

Ⓐ Mounting style
Ⓑ Bore size
Ⓒ Port thread type
Ⓓ Stroke length
Ⓔ Switch model no. Note 1
Ⓕ Switch quantity

| Symbol | Descriptions |
|---|---|
| **Ⓐ Mounting style** | |
| **DA** | Rod end mounting type |
| **DB** | Head end mounting type |
| **DC** | High rigid mounting type |

| **Ⓑ Bore size (mm)** | |
|---|---|
| **6** | $\phi$6 |
| **10** | $\phi$10 |
| **16** | $\phi$16 |
| **20** | $\phi$20 |
| **25** | $\phi$25 |
| **32** | $\phi$32 |

| **Ⓒ Port thread type** | |
|---|---|
| **Blank** | Rc thread |
| **NN** | NPT thread (only $\phi$ 32) custom order |
| **GN** | G thread (only $\phi$ 32) custom order |

**Ⓓ Stroke length (mm)**

| Bore size | Stroke length Note 2 | Custom stroke length |
|---|---|---|
| $\phi$6 to $\phi$16 | **1 to 60** | **By 1 mm increment** |
| $\phi$20 to $\phi$32 | **1 to 100** | |

**Ⓔ Switch model no.**

| Axial lead wire | Radial lead wire | Contact | Indicator | Lead wire |
|---|---|---|---|---|
| **K0H*** | **K0V*** | Reed | 1 color indicator type | 2-wire |
| **K5H*** | **K5V*** | | Without indicator light | |
| **K2H*** | **K2V*** | Proximity | 1 color indicator type | 2-wire |
| **K3H*** | **K3V*** | | | 3-wire |
| **K3PH*** | **K3PV*** | | 1 color indicator type (custom order) | 3-wire |
| **K2YH*** | **K2YV*** | | 2 color indicator type | 2-wire |
| **K3YH*** | **K3YV*** | | | 3-wire |
| **K2YFH*** | **K2YFV*** | | 2 color indicator type (W/o indicator light for preventive maintenance output) | 3-wire |
| **K3YFH*** | **K3YFV*** | | | 4-wire |
| **K2YMH*** | **K2YMV*** | | 2 color indicator type (W/ indicator light for preventive maintenance output (1 color)) | 3-wire |
| **K3YMH*** | **K3YMV*** | | | 4-wire |

| ***Lead wire length** | |
|---|---|
| **Blank** | 1m (standard) |
| **3** | 3m (option) |
| **5** | 5m (option) |

| **Ⓕ Switch quantity** | |
|---|---|
| **R** | 1 on rod end |
| **H** | 1 on head end |
| **D** | Two |

## ⚠ Note on model no. selection

Note 1: For mounting style "DB" or "DC", if "X" indicated on "Switch selection table", K* H type (axial lead wire) cannot be installed. Please use K*V type (radial lead wire).

Switch selection table

| Bore size | DB (head end mounting type) | | DC (high rigid mounting type) | |
|---|---|---|---|---|
| | 5 mm stroke | 10 mm stroke | 5 mm stroke | 10 mm stroke |
| $\phi$6 | X | X | X | X |
| $\phi$10 | X | | X | |
| $\phi$16 | X | | X | |
| $\phi$20 | X | | X | |
| $\phi$25 | | | | |
| $\phi$32 | | | | |

Note 2: Refer to page 1006 for min. stroke length with switch.

Note 3: Copper and PTFE free as standard.

<Example of model number>

**SMD2-L-DA-6-15-K0H-R**

Model: Compact cylinder

Ⓐ Mounting style : Rod end mounting type
Ⓑ Bore size : $\phi$ 6mm
Ⓒ Port thread type : Rc thread
Ⓓ Stroke length : 15mm
Ⓔ Switch model no. : Reed switch K0H, lead wire length 1m
Ⓕ Switch quantity : 1 on rod end

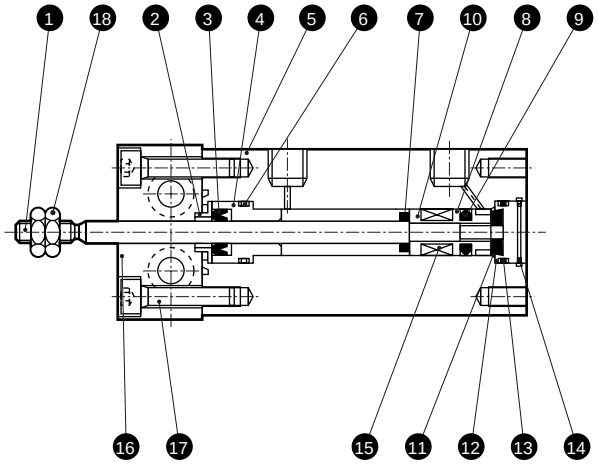
## How to order switch

**SW - K2H**

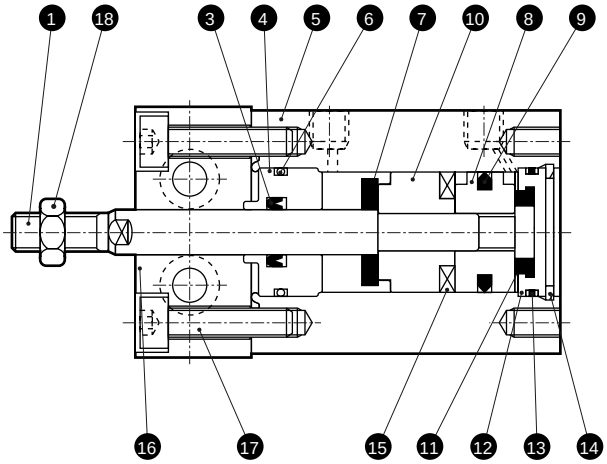
Switch model no.
(Item Ⓔ above)

## Internal structure and parts list

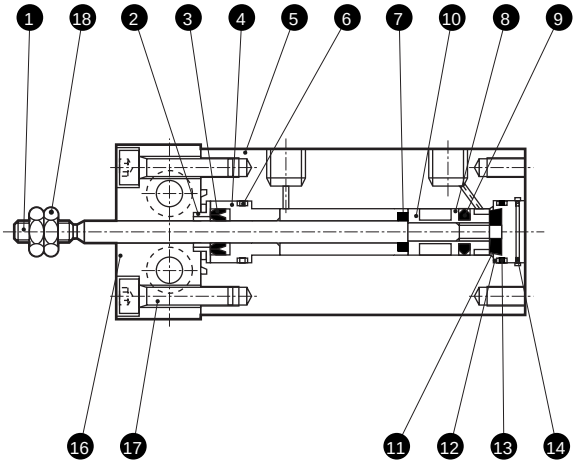
● Double acting/with switch, magnet built-in type SMD2-L
$\phi$ 6, $\phi$10



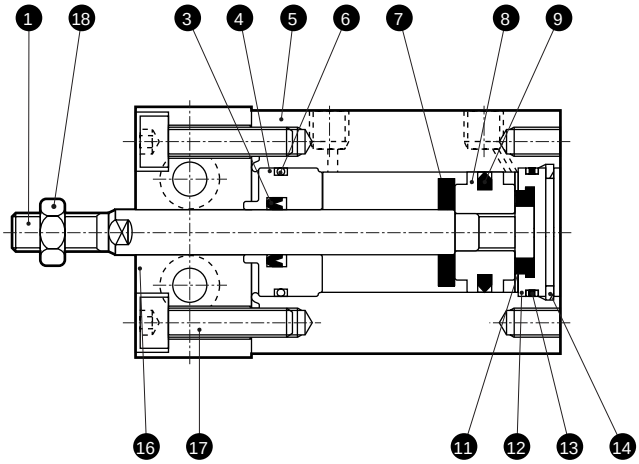

$\phi$16, $\phi$20, $\phi$25, $\phi$32




● Double acting SMD2
$\phi$ 6, $\phi$10




$\phi$16, $\phi$20, $\phi$25, $\phi$32




| No. | Parts name | Material | Remarks | No. | Parts name | Material | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | Piston rod | Stainless steel | $\phi$20, $\phi$25, $\phi$32 industrial chrome plating | 10 | Spacer | Aluminum alloy | |
| 2 | Cap | Aluminum alloy | | 11 | Cushion rubber (H) | Urethane rubber | |
| 3 | Rod packing seal | Nitrile rubber | | 12 | Base plate | Aluminum alloy | Chromate |
| 4 | Rod bushing | Aluminum alloy | Alumite | 13 | Gasket | Nitrile rubber | |
| 5 | Cylinder body | Aluminum alloy | Hard alumite | 14 | C type snap ring | Steel | Phosphoric acid zinc |
| 6 | Gasket | Nitrile rubber | | 15 | Magnet | Plastic | |
| 7 | Cushion rubber (R) | Urethane rubber | | 16 | Mount | Aluminum alloy | Black alumite |
| 8 | Piston | Aluminum alloy | | 17 | Hexagon socket head cap bolt | Alloy steel | Blackening |
| 9 | Piston packing seal | Nitrile rubber | | 18 | Hexagon nut | Steel | Nickeling |

## Repair parts list

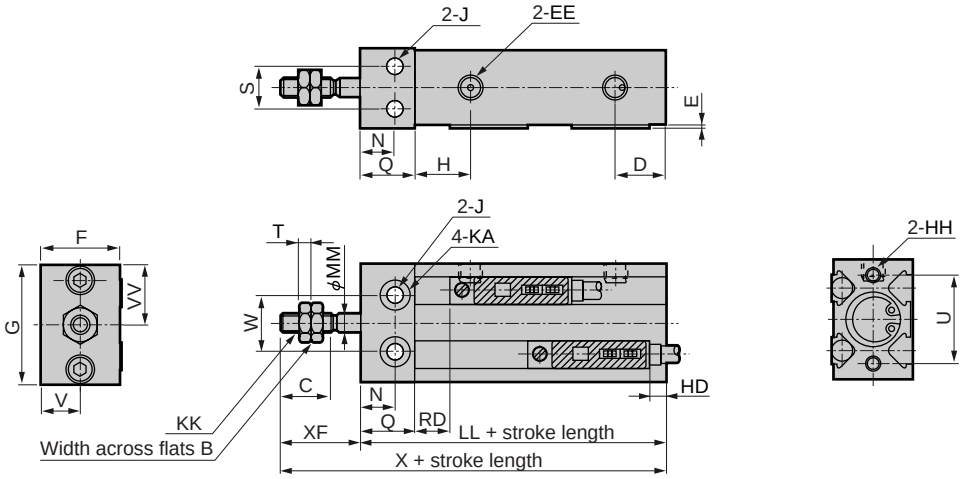
| Bore size (mm) | Kit No. | Repair parts number |
|---|---|---|
| $\phi$6 | SMD2-6K | ❸ ❼ ❾ ⓫ ⓭ |
| $\phi$10 | SMD2-10K | |
| $\phi$16 | SMD2-16K | |

| Bore size (mm) | Kit No. | Repair parts number |
|---|---|---|
| $\phi$20 | SMD2-20K | ❸ ❼ ❾ ⓫ ⓭ |
| $\phi$25 | SMD2-25K | |
| $\phi$32 | SMD2-32K | |

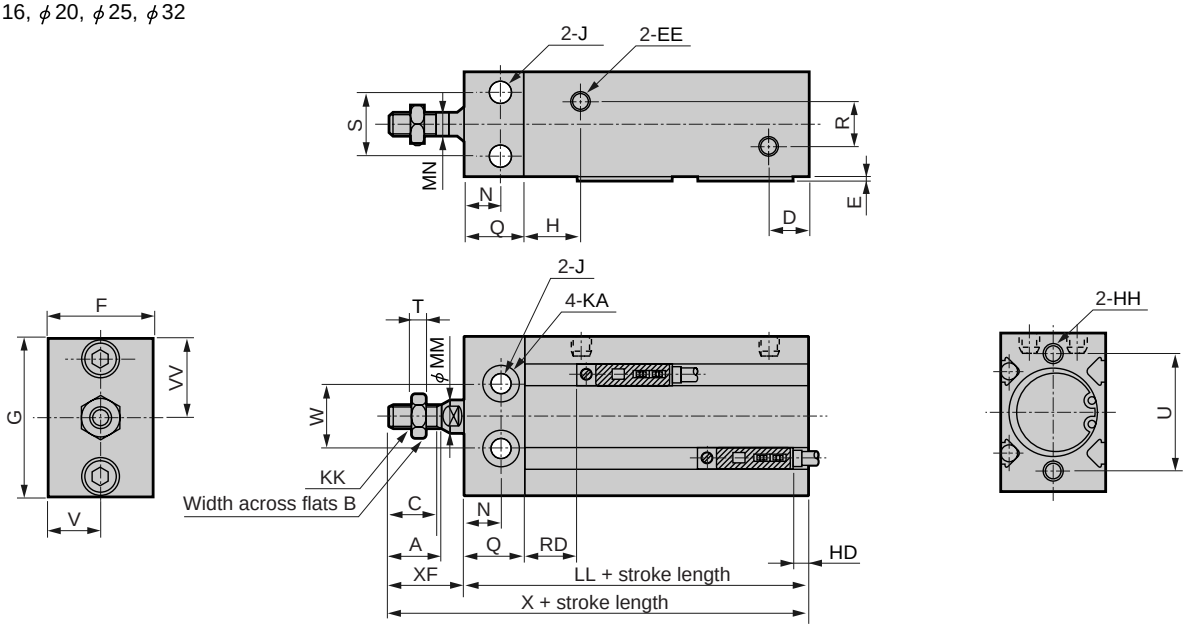
## Dimensions CAD

● Double acting/with switch, rod end mounting type SMD2-(L)-DA

$\phi$6, $\phi$10




$\phi$16, $\phi$20, $\phi$25, $\phi$32




| Symbol / Bore size (mm) | A | B | C | D | EE | F | G | H | HH | J | KA | KK | MM | MN | N | Q | R | S | T | U |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $\phi$6 | - | 5.5 | 7 | 10 | M5 | 13.4 | 22.4 | 11 | M2.5 depth 5 | 3.4 (penetrating) | 5.9 spot face depth 5.3 | M3 | 3 | - | 7 | 11 | - | 7 | 1.8 | 17 |
| $\phi$10 | - | 7 | 10 | 10 | M5 | 15.4 | 24.4 | 11 | M3 depth 5 | 3.4 (penetrating) | 5.9 spot face depth 5.5 | M4 | 4 | - | 7 | 11 | - | 9 | 2.4 | 18 |
| $\phi$16 | 12.5 | 8 | 11 | 10 | M5 | 20.4 | 32.4 | 10 | M4 depth 6 | 4.5 (penetrating) | 7.5 spot face depth 7 | M5 | 6 | 5 | 7 | 15 | 5 | 12 | 3.2 | 24 |
| $\phi$20 | 13.5 | 10 | 12 | 10 | M5 | 26.4 | 40.4 | 14 | M5 depth 8 | 5.5 (penetrating) | 9 spot face depth 8.5 | M6 | 8 | 6 | 9 | 15 | 12 | 16 | 3.6 | 30 |
| $\phi$25 | 17.5 | 13 | 15.5 | 10 | M5 | 32.4 | 50.4 | 14 | M5 depth 8 | 5.5 (penetrating) | 9 spot face depth 9.5 | M8 | 10 | 8 | 10 | 15 | 13 | 20 | 5 | 38 |
| $\phi$32 | 21 | 17 | 19.5 | 11 | Rc1/8 | 40.4 | 62.4 | 21 | M6 depth 9 | 6.6 (penetrating) | 10.5 spot face depth 12 | M10 x 1.25 | 12 | 10 | 11 | 20 | 17 | 24 | 6 | 48 |

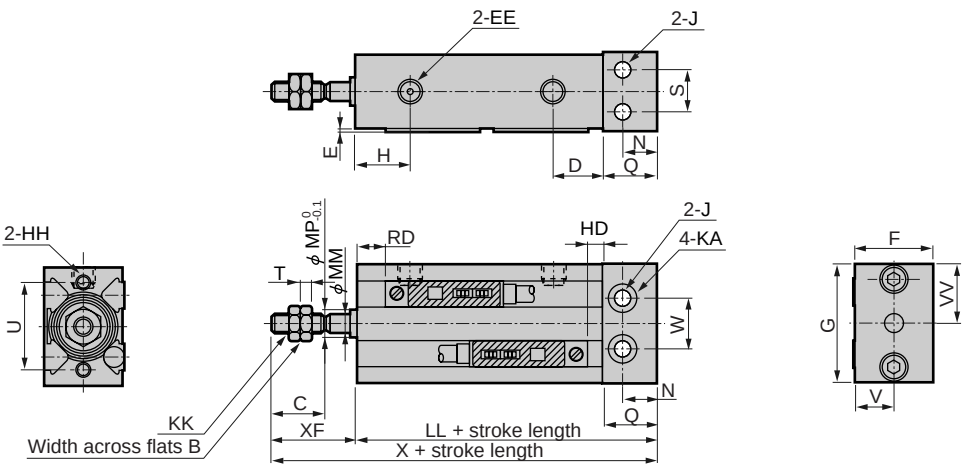
| Symbol / Bore size (mm) | V | VV | W | XF | LL W/o switch | LL W/ switch | X W/o switch | X W/ switch | E | With switch K0H/K5H HD | K0H/K5H RD | K2H/K3H HD | K2H/K3H RD | K0V/K5V HD | K0V/K5V RD | K2V/K3V HD | K2V/K3V RD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $\phi$6 | 6.7 | 11.2 | 10 | 13 | 38 | 38 | 51 | 51 | 1.0 | -2.0 | 5.0 | -3.0 | 6.0 | -5.0 | 5.0 | -6.0 | 6.0 |
| $\phi$10 | 7.7 | 12.2 | 11 | 16 | 41 | 41 | 57 | 57 | 1.0 | 0.5 | 5.5 | -1.0 | 7.0 | -2.5 | 5.5 | -4.0 | 7.0 |
| $\phi$16 | 10.2 | 16.2 | 14 | 16 | 40 | 50 | 56 | 66 | 0.5 | 1.5 | 10.0 | 0.5 | 11.0 | -1.5 | 10.0 | -2.5 | 11.0 |
| $\phi$20 | 13.2 | 20.2 | 16 | 19 | 46 | 56 | 65 | 75 | 0.5 | 5.5 | 12.5 | 4.5 | 13.5 | 2.5 | 12.5 | 1.5 | 13.5 |
| $\phi$25 | 16.2 | 25.2 | 20 | 23 | 50 | 60 | 73 | 83 | 0.5 | 8.5 | 12.5 | 7.5 | 13.5 | 5.5 | 12.5 | 4.5 | 13.5 |
| $\phi$32 | 20.2 | 31.2 | 24 | 27 | 62 | 72 | 89 | 99 | 0.5 | 9.0 | 19.0 | 8.0 | 20.0 | 6.0 | 19.0 | 5.0 | 20.0 |

Note 1: HD and RD dimensions for 5, 10 stroke will differ from these due to manufacturing.
Note 2: Negative dimension shows dimensions of projecting section of switch from main body.
Note 3: Refer to page 1036 for HD, RD and dimensions of projecting section of 2 color indicator type preventive maintenance output switch.

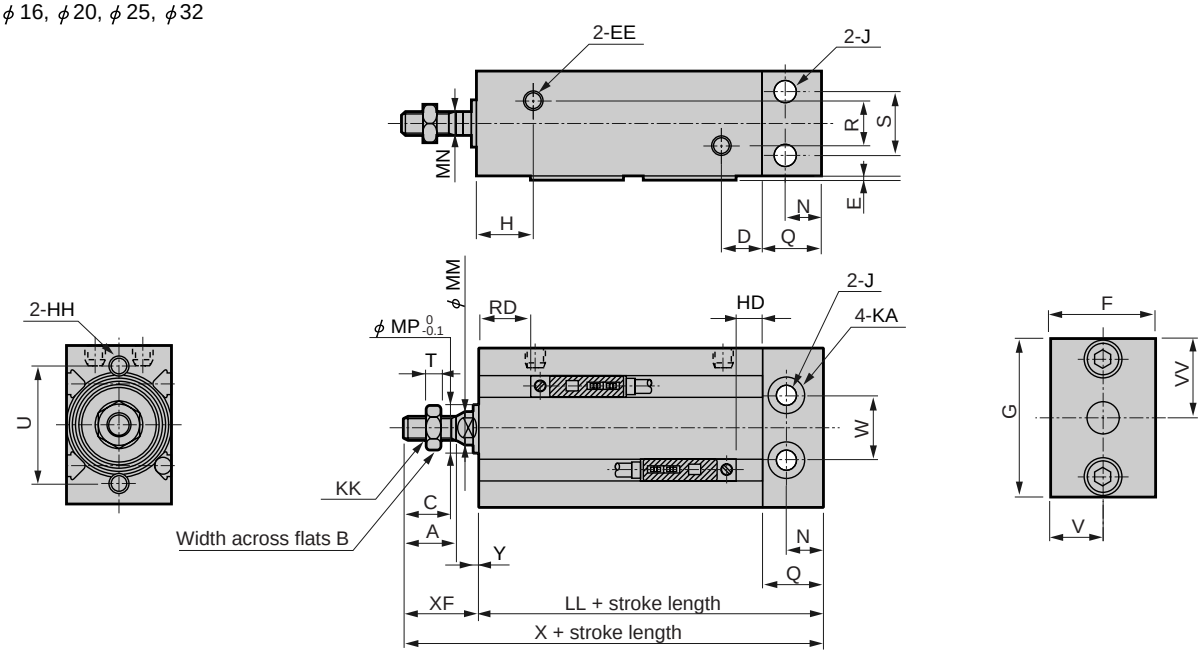
## Dimensions

● Double acting/with switch, head end mounting type SMD2-(L)-DB

$\phi$6, $\phi$10




$\phi$16, $\phi$20, $\phi$25, $\phi$32




| Symbol / Bore size (mm) | A | B | C | D | EE | F | G | H | HH | J | KA | KK | MM | MN | MP | N | Q | R | S | T | U |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $\phi$6 | - | 5.5 | 7 | 10 | M5 | 13.4 | 22.4 | 11 | M2.5 depth 5 | 3.4 (penetrating) | 5.9 spot face depth 5.3 | M3 | 3 | - | 5 | 7 | 11 | - | 7 | 1.8 | 17 |
| $\phi$10 | - | 7 | 10 | 10 | M5 | 15.4 | 24.4 | 11 | M3 depth 5 | 3.4 (penetrating) | 5.9 spot face depth 5.5 | M4 | 4 | - | 6 | 7 | 11 | - | 9 | 2.4 | 18 |
| $\phi$16 | 12.5 | 8 | 11 | 10 | M5 | 20.4 | 32.4 | 10 | M4 depth 6 | 4.5 (penetrating) | 7.5 spot face depth 7 | M5 | 6 | 5 | 8 | 7 | 15 | 5 | 12 | 3.2 | 24 |
| $\phi$20 | 13.5 | 10 | 12 | 10 | M5 | 26.4 | 40.4 | 14 | M5 depth 8 | 5.5 (penetrating) | 9 spot face depth 8.5 | M6 | 8 | 6 | 12 | 9 | 15 | 12 | 16 | 3.6 | 30 |
| $\phi$25 | 17.5 | 13 | 15.5 | 10 | M5 | 32.4 | 50.4 | 14 | M5 depth 8 | 5.5 (penetrating) | 9 spot face depth 9.5 | M8 | 10 | 8 | 14 | 10 | 15 | 13 | 20 | 5 | 38 |
| $\phi$32 | 21 | 17 | 19.5 | 11 | Rc1/8 | 40.4 | 62.4 | 21 | M6 depth 9 | 6.6 (penetrating) | 10.5 spot face depth 12 | M10 x 1.25 | 12 | 10 | 16 | 11 | 20 | 17 | 24 | 6 | 48 |

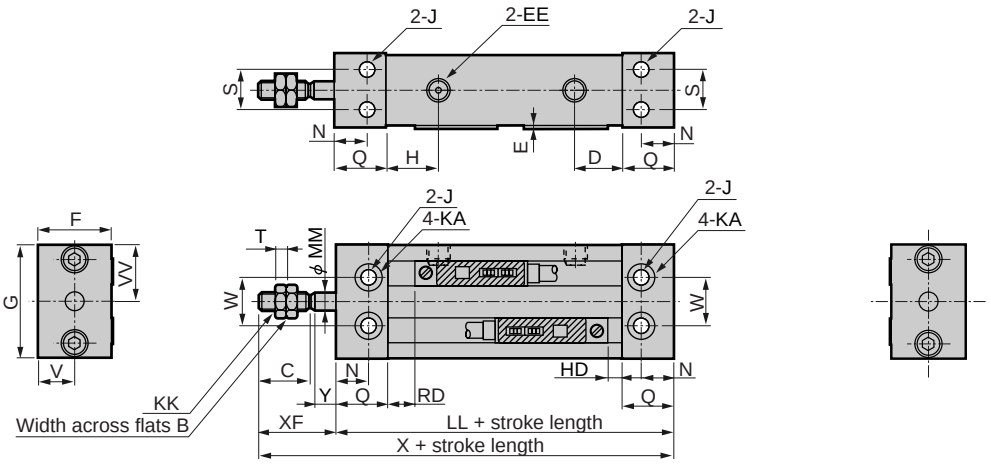
| Symbol / Bore size (mm) | V | VV | W | XF | Y | LL | | X | | With switch | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | W/o switch | W/ switch | W/o switch | W/ switch | E | K0H/K5H | | K2H/K3H | | K0V/K5V | | K2V/K3V | |
| | | | | | | | | | | | HD | RD | HD | RD | HD | RD | HD | RD |
| $\phi$6 | 6.7 | 11.2 | 10 | 14 | 1 | 38 | 38 | 52 | 52 | 1.0 | 1.5 | 5.0 | 2.5 | 6.0 | 1.5 | 5.0 | 2.5 | 6.0 |
| $\phi$10 | 7.7 | 12.2 | 11 | 17 | 1 | 41 | 41 | 58 | 58 | 1.0 | 3.5 | 5.5 | 4.5 | 7.0 | 3.5 | 5.5 | 4.5 | 7.0 |
| $\phi$16 | 10.2 | 16.2 | 14 | 16 | 1 | 40 | 50 | 56 | 66 | 0.5 | 5.0 | 10.0 | 6.0 | 11.0 | 5.0 | 10.0 | 6.0 | 11.0 |
| $\phi$20 | 13.2 | 20.2 | 16 | 19 | 1.5 | 46 | 56 | 65 | 75 | 0.5 | 8.5 | 12.5 | 9.5 | 13.5 | 8.5 | 12.5 | 9.5 | 13.5 |
| $\phi$25 | 16.2 | 25.2 | 20 | 23 | 2 | 50 | 60 | 73 | 83 | 0.5 | 11.5 | 12.5 | 12.5 | 13.5 | 11.5 | 12.5 | 12.5 | 13.5 |
| $\phi$32 | 20.2 | 31.2 | 24 | 27 | 2 | 62 | 72 | 89 | 99 | 0.5 | 12.0 | 19.0 | 13.5 | 20.0 | 12.0 | 19.0 | 13.5 | 20.0 |

Note 1: HD and RD dimensions for 5, 10 stroke will differ from these due to manufacturing.
Note 2: Negative dimension indicates dimensions of projecting section of switch from main body.
Note 3: For 5, 10 mm stroke cylinders, use K*V switch because K*H switch cannot be installed.
Note 4: For 5 mm stroke cylinder, use K*V switch because K*H switch cannot be installed.
Note 5: Refer to page 1037 for HD/RD and dimensions of projecting section of 2 color indicator type preventive maintenance output switch.

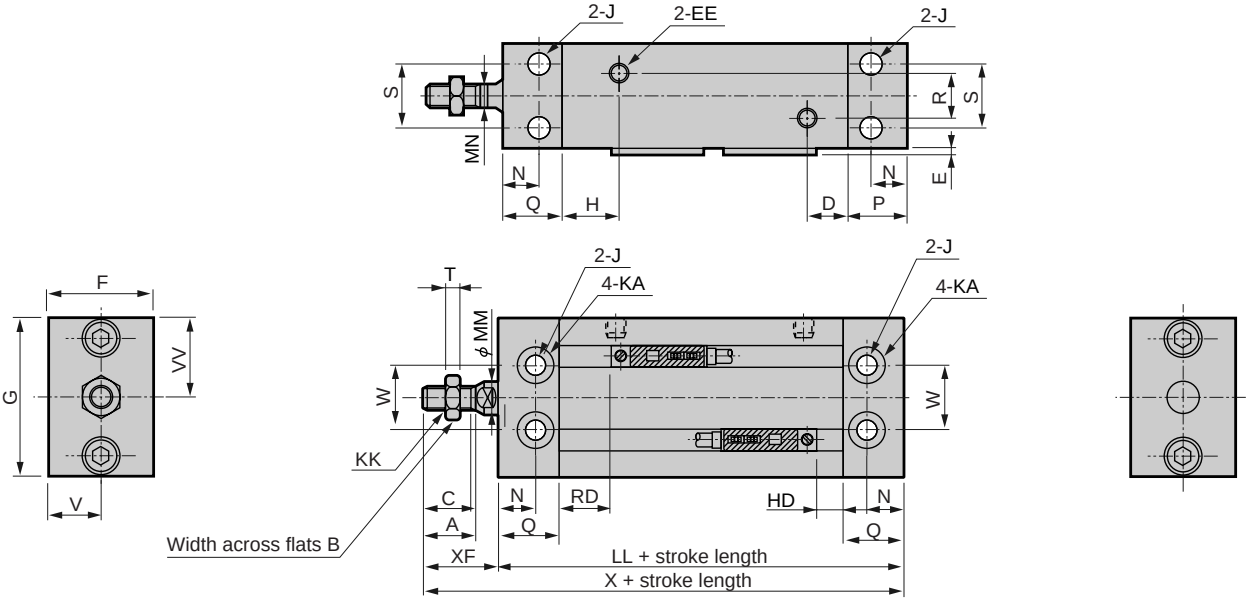
## Dimensions

● Double acting/with switch, high rigid mounting type SMD2-(L)-DC

$\phi$6, $\phi$10



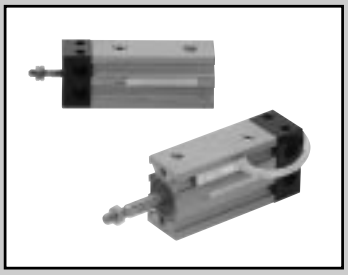

$\phi$16, $\phi$20, $\phi$25, $\phi$32




| Symbol / Bore size (mm) | A | B | C | D | EE | F | G | H | HH | J | KA | KK | MM | MN | N | Q | R | S | T | U |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $\phi$6 | - | 5.5 | 7 | 10 | M5 | 13.4 | 22.4 | 11 | M2.5 depth 5 | 3.4 (penetrating) | 5.9 spot face depth 5.3 | M3 | 3 | - | 7 | 11 | - | 7 | 1.8 | 17 |
| $\phi$10 | - | 7 | 10 | 10 | M5 | 15.4 | 24.4 | 11 | M3 depth 5 | 3.4 (penetrating) | 5.9 spot face depth 5.5 | M4 | 4 | - | 7 | 11 | - | 9 | 2.4 | 18 |
| $\phi$16 | 12.5 | 8 | 11 | 10 | M5 | 20.4 | 32.4 | 10 | M4 depth 6 | 4.5 (penetrating) | 7.5 spot face depth 7 | M5 | 6 | 5 | 7 | 15 | 5 | 12 | 3.2 | 24 |
| $\phi$20 | 13.5 | 10 | 12 | 10 | M5 | 26.4 | 40.4 | 14 | M5 depth 8 | 5.5 (penetrating) | 9 spot face depth 8.5 | M6 | 8 | 6 | 9 | 15 | 12 | 16 | 3.6 | 30 |
| $\phi$25 | 17.5 | 13 | 15.5 | 10 | M5 | 32.4 | 50.4 | 14 | M5 depth 8 | 5.5 (penetrating) | 9 spot face depth 9.5 | M8 | 10 | 8 | 10 | 15 | 13 | 20 | 5 | 38 |
| $\phi$32 | 21 | 17 | 19.5 | 11 | Rc1/8 | 40.4 | 62.4 | 21 | M6 depth 9 | 6.6 (penetrating) | 10.5 spot face depth 12 | M10 x 1.25 | 12 | 10 | 11 | 20 | 17 | 24 | 6 | 48 |

| Symbol / Bore size (mm) | V | VV | W | XF | LL W/o switch | LL W/ switch | X W/o switch | X W/ switch | With switch E | K0H/K5H HD | K0H/K5H RD | K2H/K3H HD | K2H/K3H RD | K0V/K5V HD | K0V/K5V RD | K2V/K3V HD | K2V/K3V RD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $\phi$6 | 6.7 | 11.2 | 10 | 13 | 49 | 49 | 62 | 62 | 1.0 | 1.5 | 5.0 | 2.5 | 6.0 | 1.5 | 5.0 | 2.5 | 6.0 |
| $\phi$10 | 7.7 | 12.2 | 11 | 16 | 52 | 52 | 68 | 68 | 1.0 | 3.5 | 5.5 | 4.5 | 7.0 | 3.5 | 5.5 | 4.5 | 7.0 |
| $\phi$16 | 10.2 | 16.2 | 14 | 16 | 55 | 65 | 71 | 81 | 0.5 | 5.0 | 10.0 | 6.0 | 11.0 | 5.0 | 10.0 | 6.0 | 11.0 |
| $\phi$20 | 13.2 | 20.2 | 16 | 19 | 61 | 71 | 80 | 90 | 0.5 | 8.5 | 12.5 | 9.5 | 13.5 | 8.5 | 12.5 | 9.5 | 13.5 |
| $\phi$25 | 16.2 | 25.2 | 20 | 23 | 65 | 75 | 88 | 98 | 0.5 | 11.5 | 12.5 | 12.5 | 13.5 | 11.5 | 12.5 | 12.5 | 13.5 |
| $\phi$32 | 20.2 | 31.2 | 24 | 27 | 82 | 92 | 109 | 119 | 0.5 | 12.0 | 19.0 | 13.5 | 20.0 | 12.0 | 19.0 | 13.5 | 20.0 |

Note 1: HD and RD dimensions for 5, 10 stroke will differ from these due to manufacturing.
Note 2: Negative dimension indicates dimensions of projecting section of switch from main body.
Note 3: For 5, 10 mm stroke cylinders, use K*V switch because K*H switch cannot be installed.
Note 4: For 5 mm stroke cylinder, use K*V switch because K*H switch cannot be installed.
Note 5: Refer to page 1038 for HD/RD and dimensions of projecting section of 2 color indicator type preventive maintenance output switch.



Compact cylinder, single acting extend type/with switch
single acting retract type/with switch

# SMD2-$^{X}_{Y}$ Series

● Bore size: ϕ6, ϕ10, ϕ16, ϕ20, ϕ25, ϕ32

JIS symbol

Single acting, extend type　　Single acting, retract type

RoHS　CAD

## Specifications

| Descriptions | | SMD2-X, SMD2-Y<br>SMD2-XL, SMD2-YL (with switch) | | | | | |
|---|---|---|---|---|---|---|---|
| Bore size | mm | ϕ6 | ϕ10 | ϕ16 | ϕ20 | ϕ25 | ϕ32 |
| Actuation | SMD2-X (L) | Single acting, extend type | | | | | |
| | SMD2-Y (L) | Single acting, retract type | | | | | |
| Working fluid | | Compressed air | | | | | |
| Max. working pressure | MPa | 0.7 | | | | | |
| Min. working pressure MPa | SMD2-X (L) | 0.3 | 0.2 | | | | 0.15 |
| | SMD2-Y (L) | 0.35 | | | | | |
| Withstanding pressure | MPa | 1.05 | | | | | |
| Ambient temperature | ℃ | -10 to 60 (no freezing) | | | | | |
| Port size | | M5 | | | | | Rc1/8 |
| Stroke tolerance | mm | $^{+1.5}_{0}$ | | | | | |
| Working piston speed | mm/s | 50 to 500 | | | | | |
| Cushion | SMD2-X (L) | Rubber cushioned at only retract side | | | | | |
| | SMD2-Y (L) | Rubber cushioned at only extend side | | | | | |
| Lubrication | | Not required (when lubricating, use turbine oil Class 1 ISO VG32.) | | | | | |
| Allowable energy absorption | J | 0.005 | 0.036 | 0.1 | 0.1 | 0.19 | 0.5 |

Note: Do not leave the single acting cylinder in the pressurized state. If left in the pressurized state, the piston rod may not return with spring force when pressure is released.

## Stroke length

| Bore size (mm) | Standard stroke length (mm) | Max. stroke length (mm) | Min. stroke length (mm) |
|---|---|---|---|
| ϕ6 | 5, 10, 15 | 15 | 1 |
| ϕ10 | | | |
| ϕ16 | | | |
| ϕ20 | | | |
| ϕ25 | | | |
| ϕ32 | | | |

Note 1: Custom stroke length is available per 1mm increment.

## Min. stroke length with switch

| Model | Bore size | 1 color indicator type | | 2 color indicator type | | With preventive maintenance output | |
|---|---|---|---|---|---|---|---|
| | | K*H | K*V | K*YH | K*YV | K*Y*H | K*Y*V |
| SMD2-XL-DA<br>SMD2-YL-DA | ϕ6 | 5 | | 5 | | 5 | |
| | ϕ10 | | | | | | |
| | ϕ16 | | | | | | |
| | ϕ20 | | | | | | |
| | ϕ25 | | | | | | |
| | ϕ32 | | | | | | |
| SMD2-XL-DB/DC | ϕ6 | 15 | 5 | 15 | 10 | 10 | |
| | ϕ10 | 10 | | 15 | 10 | 10 | |
| | ϕ16 | 10 | | 10 | 10 | 10 | |
| | ϕ20 | 10 | | 10 | 5 | 5 | |
| | ϕ25 | 5 | | 5 | 5 | 5 | |
| | ϕ32 | 5 | | 5 | 5 | 5 | |
| SMD2-YL-DB/DC | ϕ6 | 10 | 5 | 10 | 10 | 10 | |
| | ϕ10 | 10 | | 10 | 10 | 5 | |
| | ϕ16 | 5 | | 5 | 5 | 5 | |
| | ϕ20 | 5 | | 5 | 5 | 5 | |
| | ϕ25 | 5 | | 5 | 5 | 5 | |
| | ϕ32 | 5 | | 5 | 5 | 5 | |

## Switch specifications

● 1 color/2 color indicator

| Descriptions | Proximity 2-wire | | Proximity 3-wire | | | Reed 2-wire | | | |
|---|---|---|---|---|---|---|---|---|---|
| | K2H/K2V | K2YH/K2YV | K3H/K3V | K3PH/K3PV (Custom order) | K3YH/K3YV | K0H/K0V | | K5H/K5V | |
| Applications | Programmable controller | | Programmable controller, relay | | | Programmable controller, relay | | Programmable controller, relay IC circuit (without indicator light), serial connection | |
| Output method | - | | NPN output | PNP output | NPN output | - | | | |
| Power voltage | - | | 10 to 28 VDC | | | - | | | |
| Load voltage | 10 to 30 VDC | | 30 VDC or less | | | 12 VDC /24 VDC | 110 VAC | 5/12/24 VDC | 110 VAC |
| Load current | 5 to 20mA (Note 1) | | 50mA or less | | | 5 to 50mA | 7 to 20mA | 50mA or less | 20mA or less |
| Light | LED (ON lighting) | Red/green LED (ON lighting) | LED (ON lighting) | Yellow LED (ON lighting) | Red/green LED (ON lighting) | LED (ON lighting) | | - | |
| Leakage current | 1mA or less | | 10 $\mu$A or less | | | 0mA | | | |

Note 1: Max. load current above: 20 mA at 25 ℃. The current will be lower than 20 mA if ambient temperature around switch is higher than 25 ℃. (5 to 10mA at 60 ℃)

● With preventive maintenance output

| Descriptions | | Proximity 3-wire | Proximity 4-wire | Proximity 3-wire | Proximity 4-wire |
|---|---|---|---|---|---|
| | | K2YFH/V | K3YFH/V | K2YMH/V | K3YMH/V |
| Applications | | Programmable controller | Programmable controller, relay | Programmable controller | Programmable controller, relay |
| Output method | | NPN output | | | |
| Light | Installation position adjustment section | Red/green LED (ON lighting) | | | |
| | Preventive maintenance output | - | | Yellow LED (ON lighting) | |
| Output | Power voltage | - | 10 to 28 VDC | - | 10 to 28 VDC |
| | Load voltage | 10 to 30 VDC | 30 VDC or less | 10 to 30 VDC | 30 VDC or less |
| | Load current | 5 to 20mA | 50mA or less | 5 to 20mA | 50mA or less |
| | Leakage current | 1mA or less | 10 $\mu$A or less | 1.2mA or less | 10 $\mu$A or less |
| Preventive maintenance output | Load voltage | 30 VDC or less | | | |
| | Load current | 20mA or less | 50mA or less | 5 to 20mA or less | 50mA or less |
| | Leakage current | 10 $\mu$A or less | | | |

## SMD2-$^{X}_{Y}$ cylinder weight

(Weight with switch is with a 2 piece by cylinder switch lead wire length 1m.) Unit (g)

| Stroke length (mm) | | 5 | | 10 | | 15 | |
|---|---|---|---|---|---|---|---|
| Bore size (mm) | Support type | W/o switch | With switch | W/o switch | With switch | W/o switch | With switch |
| $\phi$6 | DA | 33 | 69 | 36 | 105 | 39 | 141 |
| | DB | 32 | 68 | 35 | 104 | 38 | 140 |
| | DC | 41 | 77 | 44 | 113 | 47 | 149 |
| $\phi$10 | DA | 46 | 82 | 50 | 118 | 54 | 154 |
| | DB | 45 | 81 | 49 | 117 | 53 | 153 |
| | DC | 57 | 93 | 61 | 129 | 65 | 165 |
| $\phi$16 | DA | 85 | 138 | 91 | 174 | 97 | 210 |
| | DB | 83 | 135 | 89 | 171 | 95 | 207 |
| | DC | 112 | 128 | 118 | 164 | 124 | 200 |
| $\phi$20 | DA | 164 | 229 | 175 | 265 | 186 | 301 |
| | DB | 158 | 223 | 169 | 259 | 180 | 295 |
| | DC | 205 | 270 | 216 | 306 | 227 | 342 |
| $\phi$25 | DA | 273 | 355 | 290 | 391 | 307 | 427 |
| | DB | 264 | 345 | 281 | 381 | 298 | 417 |
| | DC | 335 | 417 | 352 | 453 | 369 | 489 |
| $\phi$32 | DA | 512 | 618 | 538 | 654 | 564 | 690 |
| | DB | 494 | 600 | 620 | 636 | 546 | 672 |
| | DC | 641 | 747 | 667 | 783 | 693 | 819 |

## Discrete cylinder switch weight

Unit (g)

| Name | Model no. | Lead wire length | | |
|---|---|---|---|---|
| | | 1m | 3m | 5m |
| Cylinder switch | K0 | 18 | 52 | 86 |
| | K2 | 18 | 52 | 86 |
| | K3 | 18 | 52 | 86 |
| | K5 | 18 | 52 | 86 |

## SMD2-X/SMD2-Y spring load

Unit: N

| Bore size (mm) | Stroke length (mm) | Stroke length 0 | Full stroke length during operation | Bore size (mm) | Stroke length (mm) | Stroke length 0 | Full stroke length during operation |
|---|---|---|---|---|---|---|---|
| $\phi$6 | 5 | 3.42 | 4.02 | $\phi$20 | 5 | 13.7 | 15.8 |
| | 10 | 2.83 | | | 10 | 11.7 | |
| | 15 | 2.25 | | | 15 | 9.7 | |
| $\phi$10 | 5 | 6.13 | 7.25 | $\phi$25 | 5 | 33.3 | 38.0 |
| | 10 | 5.03 | | | 10 | 28.7 | |
| | 15 | 3.92 | | | 15 | 24.0 | |
| $\phi$16 | 5 | 12.6 | 15.3 | $\phi$32 | 5 | 34.4 | 39.5 |
| | 10 | 9.99 | | | 10 | 29.4 | |
| | 15 | 7.35 | | | 15 | 24.5 | |

## How to order

Without switch

**SMD2-X — DA - 6 ○ - 15**

With switch

**SMD2-XL - DA - 6 ○ - 15 - K2H - R**

Ⓐ Model no.

| Symbol | Descriptions |
|---|---|
| **Ⓐ Model no.** | |
| **SMD2-X** | Single acting extend type |
| **SMD2-Y** | Single acting retract type |

Ⓑ Mounting style

| | |
|---|---|
| **DA** | Rod end mounting type |
| **DB** | Head end mounting type |
| **DC** | High rigid mounting type |

Ⓒ Bore size (mm)

| | |
|---|---|
| **6** | $\phi$6 |
| **10** | $\phi$10 |
| **16** | $\phi$16 |
| **20** | $\phi$20 |
| **25** | $\phi$25 |
| **32** | $\phi$32 |

Ⓓ Port thread type

| | |
|---|---|
| **Blank** | Rc thread |
| **NN** | NPT thread (only $\phi$32) custom order |
| **GN** | G thread (only $\phi$32) custom order |

Ⓔ Stroke length (mm)

| Bore size | Stroke length Note 2 | Custom stroke length |
|---|---|---|
| $\phi$6 to $\phi$32 | **1 to 15** | **1 mm increment** |

Ⓕ Switch model no. Note 1

| Axial lead wire | Radial lead wire | Contact | Indicator | Lead wire |
|---|---|---|---|---|
| **K0H*** | **K0V*** | Reed | 1 color indicator type | 2-wire |
| **K5H*** | **K5V*** | | Without indicator light | |
| **K2H*** | **K2V*** | Proximity | 1 color indicator type | 2-wire |
| **K3H*** | **K3V*** | | | 3-wire |
| **K3PH*** | **K3PV*** | Proximity | 1 color indicator type (custom order) | 3-wire |
| **K2YH*** | **K2YV*** | | 2 color indicator type | 2-wire |
| **K3YH*** | **K3YV*** | | | 3-wire |
| **K2YFH*** | **K2YFV*** | | 2 color indicator type (W/o indicator light for preventive maintenance output) | 3-wire |
| **K3YFH*** | **K3YFV*** | | | 4-wire |
| **K2YMH*** | **K2YMV*** | | 2 color indicator type (W/ indicator light for preventive maintenance output (1 color)) | 3-wire |
| **K3YMH*** | **K3YMV*** | | | 4-wire |

***Lead wire length**

| | |
|---|---|
| **Blank** | 1m (standard) |
| **3** | 3m (option) |
| **5** | 5m (option) |

Ⓖ Switch quantity

| | |
|---|---|
| **R** | 1 on rod end |
| **H** | 1 on head end |
| **D** | Two |

## Note on model no. selection

Note 1: For mounting style "DB" or "DC", if "X" indicated on "Switch selection table", K* H type (axial lead wire) cannot be installed. Please use K*V type (radial lead wire).

Switch selection table

SMD2-XL (single acting extend type with switch)

| Bore size | DB (head end mounting type) | | DC (high rigid mounting type) | |
|---|---|---|---|---|
| | 5 mm stroke | 10 mm stroke | 5 mm stroke | 10 mm stroke |
| $\phi$6 | X | X | X | X |
| $\phi$10 | X | | X | |
| $\phi$16 | X | | X | |
| $\phi$20 | X | | X | |
| $\phi$25 | | | | |
| $\phi$32 | | | | |

SMD2-YL (single acting retract type)

| Bore size | DB (head end mounting type) | | DC (high rigid mounting type) | |
|---|---|---|---|---|
| | 5 mm stroke | 10 mm stroke | 5 mm stroke | 10 mm stroke |
| $\phi$6 | X | | X | |
| $\phi$10 | X | | X | |
| $\phi$16 | | | | |
| $\phi$20 | | | | |
| $\phi$25 | | | | |
| $\phi$32 | | | | |

Note 2: Refer to page 1014 for min. stroke length with switch.

Note 3: Copper and PTFE free as standard.

Ⓖ Switch quantity

## How to order switch

**SW - K2H**

Switch model no. (Item Ⓕ above)

<Example of model number>

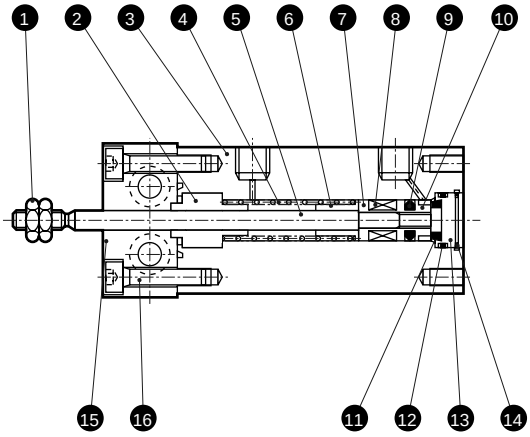
**SMD2-XL-DA-6-15-K0H-R**

Model: Compact cylinder

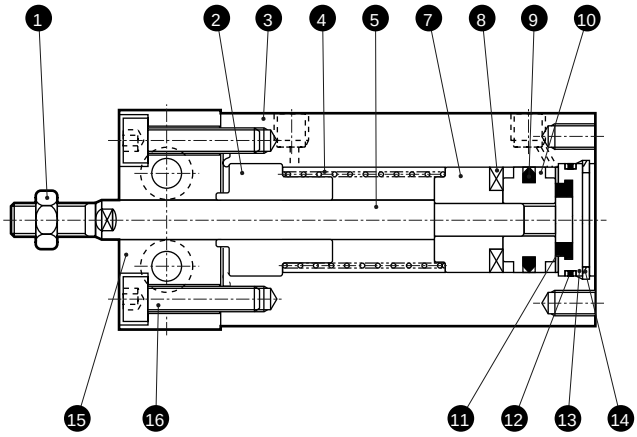
Ⓐ Model no. : Single acting extend type
Ⓑ Mounting style : Rod end mounting type
Ⓒ Bore size : $\phi$ 6mm
Ⓓ Port thread type : Rc thread
Ⓔ Stroke length : 15mm
Ⓕ Switch model no. : Reed switch K0H, lead wire length 1m
Ⓖ Switch quantity : 1 on rod end

## Internal structure and parts list

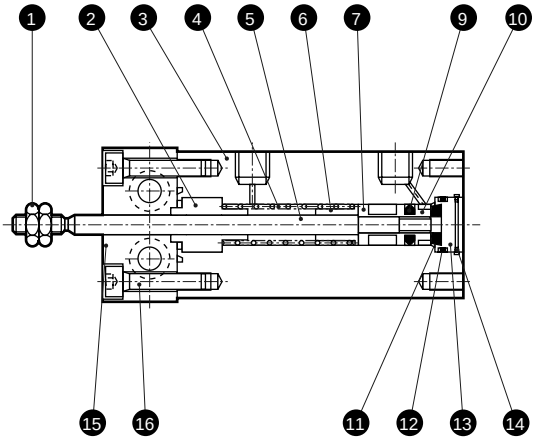
● Single acting extend type/with switch, magnet built-in type SMD2-XL
$\phi$6, $\phi$10



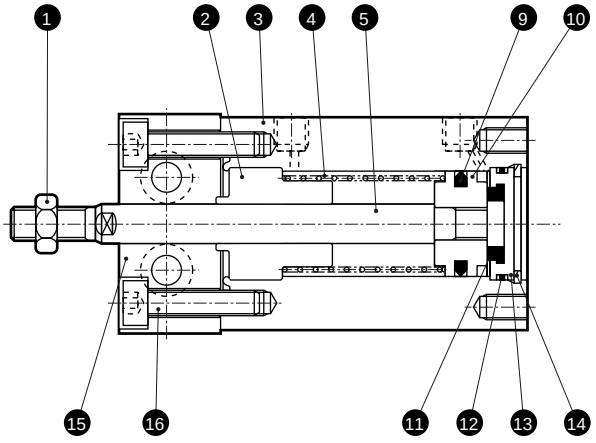

$\phi$16, $\phi$20, $\phi$25, $\phi$32




● Single acting extend type SMD2-X
$\phi$6, $\phi$10




$\phi$16, $\phi$20, $\phi$25, $\phi$32




| No. | Parts name | Material | Remarks |
|---|---|---|---|
| 1 | Hexagon nut | Steel | Nickeling |
| 2 | Rod bushing | Aluminum alloy | Alumite |
| 3 | Cylinder body | Aluminum alloy | Hard alumite |
| 4 | Spring | Steel | Electrode position coating |
| 5 | Piston rod | Stainless steel | $\phi$20, $\phi$25, $\phi$32 Industrial chrome plating |
| 6 | Spring holder | Aluminum alloy | |
| 7 | Spacer | Aluminum alloy | |
| 8 | Magnet | Plastic | |

| No. | Parts name | Material | Remarks |
|---|---|---|---|
| 9 | Piston packing seal | Nitrile rubber | |
| 10 | Piston | Aluminum alloy | |
| 11 | Cushion rubber (H) | Urethane rubber | |
| 12 | Gasket | Nitrile rubber | |
| 13 | Base plate | Aluminum alloy | Chromate |
| 14 | C type snap ring | Steel | Phosphoric acid zinc |
| 15 | Mount | Aluminum alloy | Black alumite |
| 16 | Hexagon socket head cap bolt | Alloy steel | Blackening |

## Repair parts list

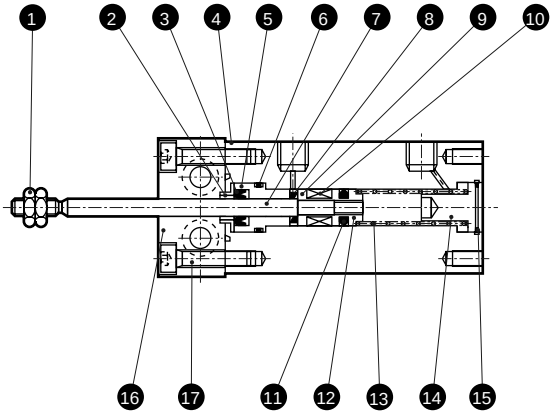
| Bore size (mm) | Kit No. | Repair parts number |
|---|---|---|
| $\phi$6 | SMD2-X-6K | ⑨ ⑪ ⑫ |
| $\phi$10 | SMD2-X-10K | |
| $\phi$16 | SMD2-X-16K | |

| Bore size (mm) | Kit No. | Repair parts number |
|---|---|---|
| $\phi$20 | SMD2-X-20K | ⑨ ⑪ ⑫ |
| $\phi$25 | SMD2-X-25K | |
| $\phi$32 | SMD2-X-32K | |

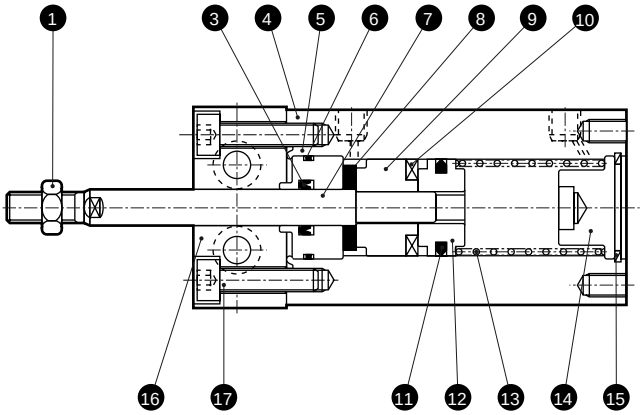
## Internal structure and parts list

● Single acting retract type/with switch, magnet built-in type SMD2-YL

$\phi$ 6, $\phi$10

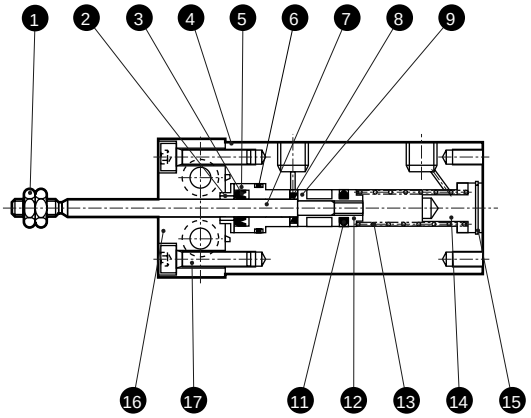



$\phi$16, $\phi$20, $\phi$25, $\phi$32

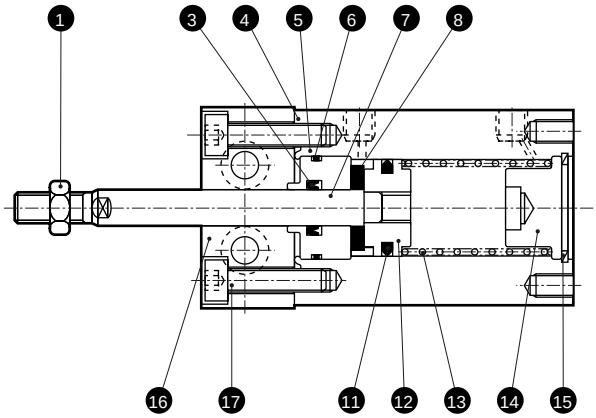



● Single acting, retract type SMD2-Y

$\phi$ 6, $\phi$10




$\phi$16, $\phi$20, $\phi$25, $\phi$32




| No. | Parts name | Material | Remarks | No. | Parts name | Material | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | Hexagon nut | Steel | Nickeling | 9 | Spacer | Aluminum alloy | |
| 2 | Cap | Aluminum alloy | | 10 | Magnet | Plastic | |
| 3 | Rod packing seal | Nitrile rubber | | 11 | Piston packing seal | Nitrile rubber | |
| 4 | Cylinder body | Aluminum alloy | Hard alumite | 12 | Piston | Aluminum alloy | |
| 5 | Rod bushing | Aluminum alloy | Alumite | 13 | Spring | Steel | Electrode position coating |
| 6 | Gasket | Nitrile rubber | | 14 | Base plate | Aluminum alloy | Chromate |
| 7 | Piston rod | Stainless steel | $\phi$ 20,$\phi$ 25,$\phi$ 32 industrial chrome plating | 15 | C type snap ring | Steel | Phosphoric acid zinc |
| | | | | 16 | Mount | Aluminum alloy | Black alumite |
| 8 | Cushion rubber (R) | Urethane rubber | | 17 | Hexagon socket head cap bolt | Alloy steel | Blackening |

## Repair parts list

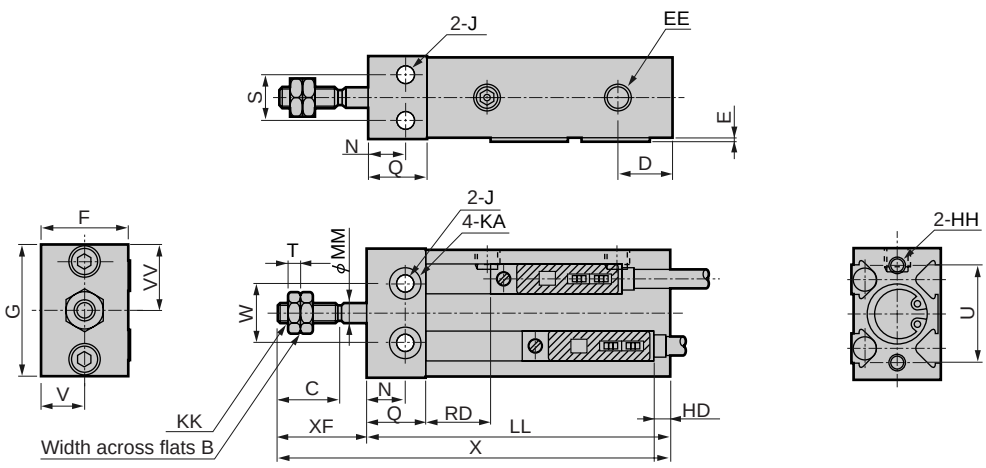
| Bore size (mm) | Kit No. | Repair parts number |
|---|---|---|
| $\phi$6 | SMD2-Y-6K | ❸ ❽ ⓫ |
| $\phi$10 | SMD2-Y-10K | |
| $\phi$16 | SMD2-Y-16K | |

| Bore size (mm) | Kit No. | Repair parts number |
|---|---|---|
| $\phi$20 | SMD2-Y-20K | ❸ ❽ ⓫ |
| $\phi$25 | SMD2-Y-25K | |
| $\phi$32 | SMD2-Y-32K | |

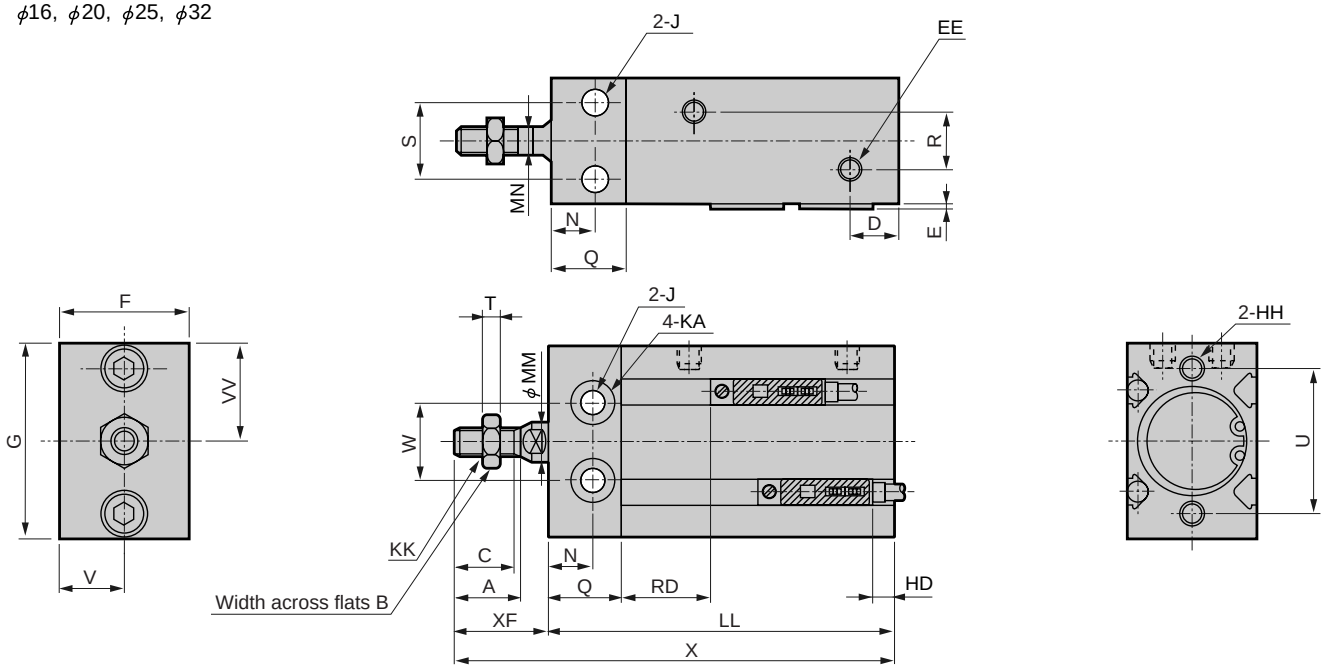
## Dimensions

● Single acting extend type/with switch, rod end mounting type SMD2-X(L)-DA

$\phi$ 6, $\phi$10




$\phi$16, $\phi$20, $\phi$25, $\phi$32




| Symbol / Bore size (mm) | A | B | C | D | EE | F | G | HH | J | KA | KK | MM | MN | N | Q | R | S | T | U | V | VV |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $\phi$6 | - | 5.5 | 7 | 10 | M5 | 13.4 | 22.4 | M2.5 depth 5 | 3.4 (penetrating) | 5.9 spot face depth 5.3 | M3 | 3 | - | 7 | 11 | - | 7 | 1.8 | 17 | 6.7 | 11.2 |
| $\phi$10 | - | 7 | 10 | 10 | M5 | 15.4 | 24.4 | M3 depth 5 | 3.4 (penetrating) | 5.9 spot face depth 5.5 | M4 | 4 | - | 7 | 11 | - | 9 | 2.4 | 18 | 7.7 | 12.2 |
| $\phi$16 | 12.5 | 8 | 11 | 10 | M5 | 20.4 | 32.4 | M4 depth 6 | 4.5 (penetrating) | 7.5 spot face depth 7 | M5 | 6 | 5 | 7 | 15 | 5 | 12 | 3.2 | 24 | 10.2 | 16.2 |
| $\phi$20 | 13.5 | 10 | 12 | 10 | M5 | 26.4 | 40.4 | M5 depth 8 | 5.5 (penetrating) | 9 spot face depth 8.5 | M6 | 8 | 6 | 9 | 15 | 12 | 16 | 3.6 | 30 | 13.2 | 20.2 |
| $\phi$25 | 17.5 | 13 | 15.5 | 10 | M5 | 32.4 | 50.4 | M5 depth 8 | 5.5 (penetrating) | 9 spot face depth 9.5 | M8 | 10 | 8 | 10 | 15 | 13 | 20 | 5 | 38 | 16.2 | 25.2 |
| $\phi$32 | 21 | 17 | 19.5 | 11 | Rc1/8 | 40.4 | 62.4 | M6 depth 9 | 6.6 (penetrating) | 10.5 spot face depth 12 | M10 x 1.25 | 12 | 10 | 11 | 20 | 17 | 24 | 6 | 48 | 20.2 | 31.2 |

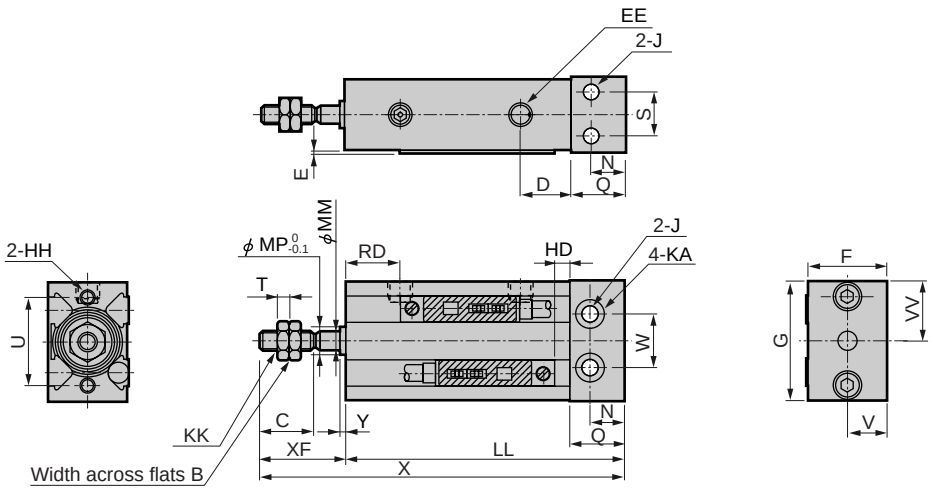
| Symbol / Bore size (mm) | W | XF | LL | | | | | | X | | | | | | E | With switch | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 5st | | 10st | | 15st | | 5st | | 10st | | 15st | | | K0H/K5H | | K2H/K3H | | K0V/K5V | | K2V/K3V | |
| | | | W/o SW | W/ SW | W/o SW | W/ SW | W/o SW | W/ SW | W/o SW | W/ SW | W/o SW | W/ SW | W/o SW | W/ SW | | HD | RD | HD | RD | HD | RD | HD | RD |
| $\phi$6 | 10 | 13 | 48 | 48 | 53 | 53 | 58 | 58 | 61 | 61 | 66 | 66 | 71 | 71 | 1.0 | -2.0 | 10.0 | -3.0 | 11.0 | -5.0 | 10.0 | -6.0 | 11.0 |
| $\phi$10 | 11 | 16 | 51 | 51 | 56 | 56 | 61 | 61 | 67 | 67 | 72 | 72 | 77 | 77 | 1.0 | 0.5 | 10.5 | -1.0 | 12.0 | -2.5 | 10.5 | -4.0 | 12.0 |
| $\phi$16 | 14 | 16 | 50 | 60 | 55 | 65 | 60 | 70 | 66 | 76 | 71 | 81 | 76 | 86 | 0.5 | 1.5 | 15.0 | 0.5 | 16.0 | -1.5 | 15.0 | -2.5 | 16.0 |
| $\phi$20 | 16 | 19 | 56 | 66 | 61 | 71 | 66 | 76 | 75 | 85 | 80 | 90 | 85 | 95 | 0.5 | 5.5 | 17.5 | 4.5 | 18.5 | 2.5 | 17.5 | 1.5 | 18.5 |
| $\phi$25 | 20 | 23 | 60 | 70 | 65 | 75 | 70 | 80 | 83 | 93 | 88 | 98 | 93 | 103 | 0.5 | 8.5 | 17.5 | 7.5 | 18.5 | 5.5 | 17.5 | 4.5 | 18.5 |
| $\phi$32 | 24 | 27 | 72 | 82 | 77 | 87 | 82 | 92 | 99 | 109 | 104 | 114 | 109 | 119 | 0.5 | 9.0 | 24.0 | 8.0 | 25.0 | 6.0 | 24.0 | 5.0 | 25.0 |

Note 1: HD and RD dimensions for 5, 10 stroke will differ from these due to manufacturing.
Note 2: Negative dimension indicates dimensions of projecting section of switch from main body.
Note 3: Refer to page 1036 for HD, RD and dimensions of projecting section of 2 color indicator type preventive maintenance output switch.

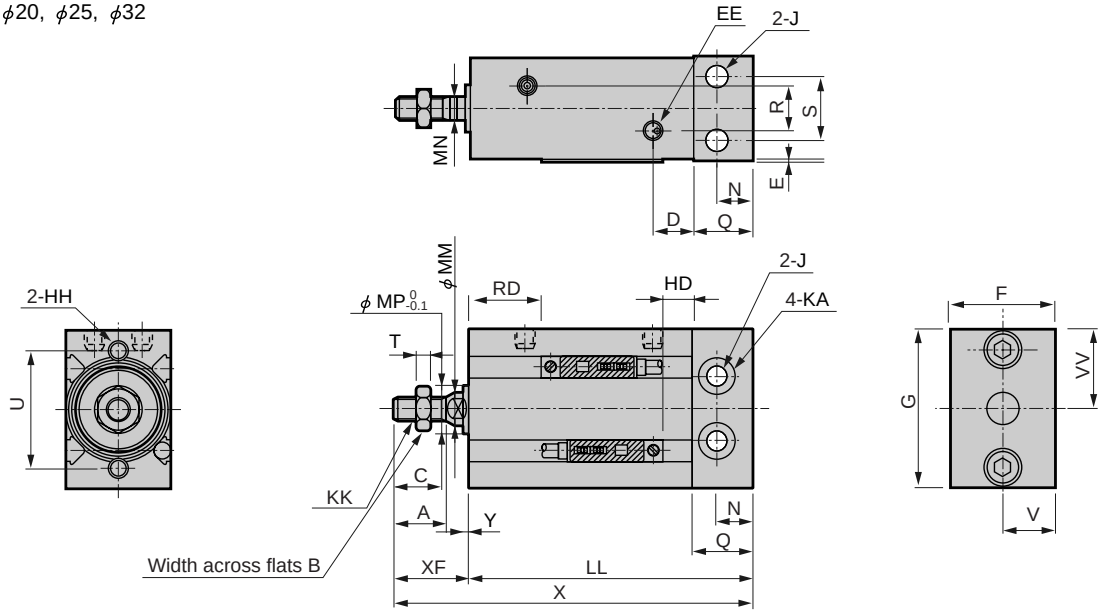
## Dimensions

● Single acting extend type/with switch, head end mounting type SMD2-X(L)-DB

$\phi$6, $\phi$10




$\phi$16, $\phi$20, $\phi$25, $\phi$32




| Symbol / Bore size (mm) | A | B | C | D | EE | F | G | HH | J | KA | KK | MM | MN | MP | N | Q | R | S | T | U | V | VV |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $\phi$6 | - | 5.5 | 7 | 10 | M5 | 13.4 | 22.4 | M2.5 depth 5 | 3.4 (penetrating) | 5.9 spot face depth 5.3 | M3 | 3 | - | 5 | 7 | 11 | - | 7 | 1.8 | 17 | 6.7 | 11.2 |
| $\phi$10 | - | 7 | 10 | 10 | M5 | 15.4 | 24.4 | M3 depth 5 | 3.4 (penetrating) | 5.9 spot face depth 5.5 | M4 | 4 | - | 6 | 7 | 11 | - | 9 | 2.4 | 18 | 7.7 | 12.2 |
| $\phi$16 | 12.5 | 8 | 11 | 10 | M5 | 20.4 | 32.4 | M4 depth 6 | 4.5 (penetrating) | 7.5 spot face depth 7 | M5 | 6 | 5 | 8 | 7 | 15 | 5 | 12 | 3.2 | 24 | 10.2 | 16.2 |
| $\phi$20 | 13.5 | 10 | 12 | 10 | M5 | 26.4 | 40.4 | M5 depth 8 | 5.5 (penetrating) | 9 spot face depth 8.5 | M6 | 8 | 6 | 12 | 9 | 15 | 12 | 16 | 3.6 | 30 | 13.2 | 20.2 |
| $\phi$25 | 17.5 | 13 | 15.5 | 10 | M5 | 32.4 | 50.4 | M5 depth 8 | 5.5 (penetrating) | 9 spot face depth 9.5 | M8 | 10 | 8 | 14 | 10 | 15 | 13 | 20 | 5 | 38 | 16.2 | 25.2 |
| $\phi$32 | 21 | 17 | 19.5 | 11 | Rc1/8 | 40.4 | 62.4 | M6 depth 9 | 6.6 (penetrating) | 10.5 spot face depth 12 | M10 x 1.25 | 12 | 10 | 16 | 11 | 20 | 17 | 24 | 6 | 48 | 20.2 | 31.2 |

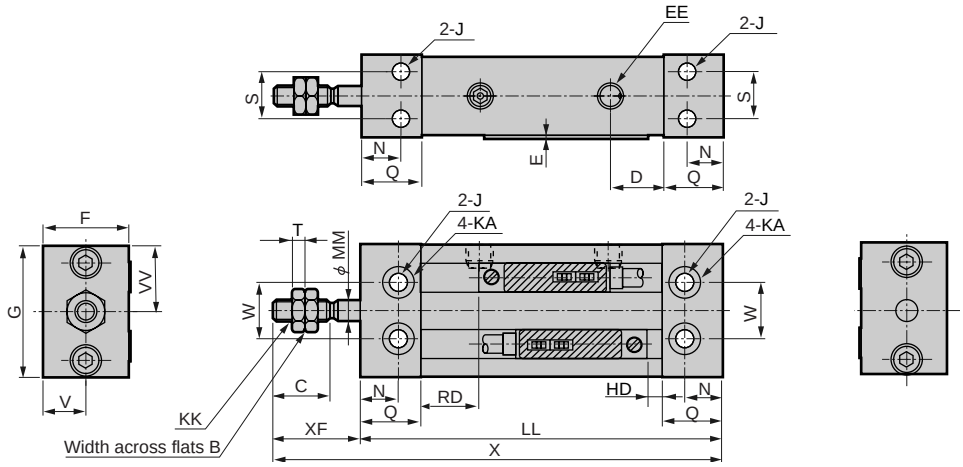
| Symbol / Bore size (mm) | W | XF | LL 5st W/o SW | LL 5st W/ SW | LL 10st W/o SW | LL 10st W/ SW | LL 15st W/o SW | LL 15st W/ SW | X 5st W/o SW | X 5st W/ SW | X 10st W/o SW | X 10st W/ SW | X 15st W/o SW | X 15st W/ SW | With switch E | K0H/K5H HD | K0H/K5H RD | K2H/K3H HD | K2H/K3H RD | K0V/K5V HD | K0V/K5V RD | K2V/K3V HD | K2V/K3V RD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $\phi$6 | 10 | 14 | 48 | 48 | 53 | 53 | 58 | 58 | 62 | 62 | 67 | 67 | 72 | 72 | 1.0 | 1.5 | 10.0 | 2.5 | 11.0 | 1.5 | 10.0 | 2.5 | 11.0 |
| $\phi$10 | 11 | 17 | 51 | 51 | 56 | 56 | 61 | 61 | 68 | 68 | 73 | 73 | 78 | 78 | 1.0 | 3.5 | 10.5 | 4.5 | 12.0 | 3.5 | 10.5 | 4.5 | 12.0 |
| $\phi$16 | 14 | 16 | 50 | 60 | 55 | 65 | 60 | 70 | 66 | 76 | 71 | 81 | 76 | 86 | 0.5 | 5.0 | 15.0 | 6.0 | 16.0 | 5.0 | 15.0 | 6.0 | 16.0 |
| $\phi$20 | 16 | 19 | 56 | 66 | 61 | 71 | 66 | 76 | 75 | 85 | 80 | 90 | 85 | 95 | 0.5 | 8.5 | 17.5 | 9.5 | 18.5 | 8.5 | 17.5 | 9.5 | 18.5 |
| $\phi$25 | 20 | 23 | 60 | 70 | 65 | 75 | 70 | 80 | 83 | 93 | 88 | 98 | 93 | 103 | 0.5 | 11.5 | 17.5 | 12.5 | 18.5 | 11.5 | 17.5 | 12.5 | 18.5 |
| $\phi$32 | 24 | 27 | 72 | 82 | 77 | 87 | 82 | 92 | 99 | 109 | 104 | 114 | 109 | 119 | 0.5 | 12.0 | 24.0 | 13.5 | 25.0 | 12.0 | 24.0 | 13.5 | 25.0 |

Note 1: HD and RD dimensions for 5, 10 stroke will differ from these due to manufacturing.
Note 2: Negative dimension indicates dimensions of projecting section of switch from main body.
Note 3: For 5, 10 mm stroke cylinders, use K*V switch because K*H switch cannot be installed.
Note 4: For 5 mm stroke cylinder, use K*V switch because K*H switch cannot be installed.
Note 5: Refer to page 1037 for HD/RD and dimensions of projecting section of 2 color indicator type preventive maintenance output switch.

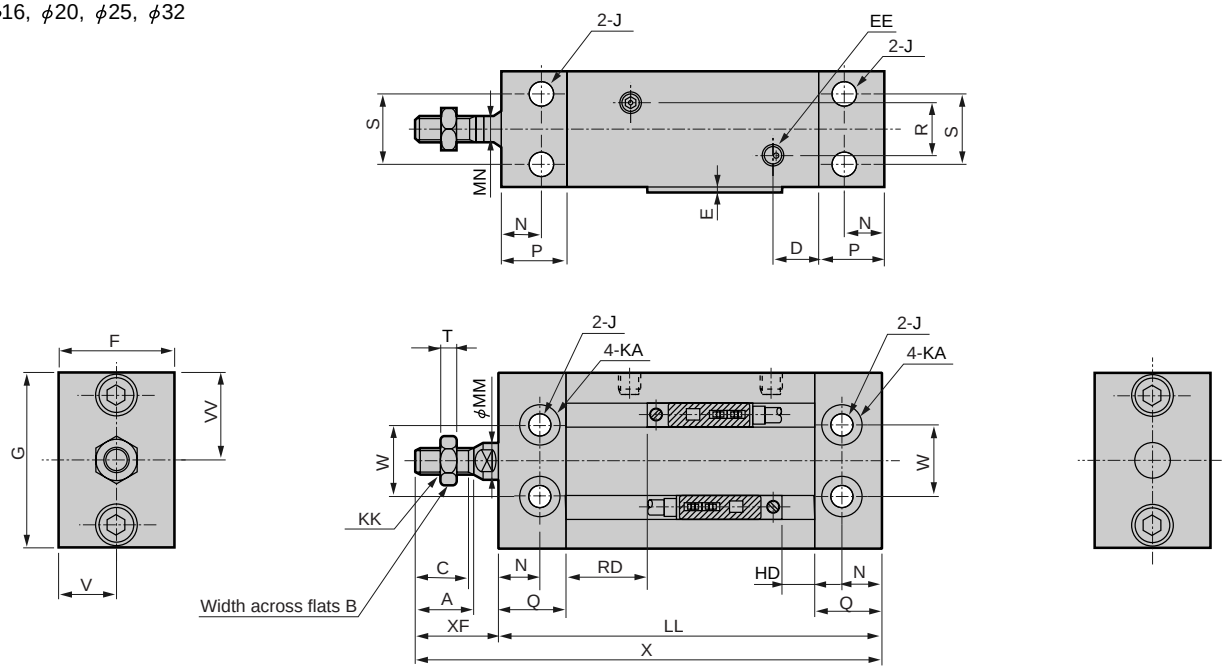
## Dimensions

● Single acting extend type/with switch, high rigid mounting type SMD2-X(L)-DC

$\phi$6, $\phi$10




$\phi$16, $\phi$20, $\phi$25, $\phi$32




| Symbol / Bore size (mm) | A | B | C | D | EE | F | G | HH | J | KA | KK | MM | MN | N | Q | R | S | T | U | V | VV |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $\phi$6 | - | 5.5 | 7 | 10 | M5 | 13.4 | 22.4 | M2.5 depth 5 | 3.4 (penetrating) | 5.9 spot face depth 5.3 | M3 | 3 | - | 7 | 11 | - | 7 | 1.8 | 17 | 6.7 | 11.2 |
| $\phi$10 | - | 7 | 10 | 10 | M5 | 15.4 | 24.4 | M3 depth 5 | 3.4 (penetrating) | 5.9 spot face depth 5.5 | M4 | 4 | - | 7 | 11 | - | 9 | 2.4 | 18 | 7.7 | 12.2 |
| $\phi$16 | 12.5 | 8 | 11 | 10 | M5 | 20.4 | 32.4 | M4 depth 6 | 4.5 (penetrating) | 7.5 spot face depth 7 | M5 | 6 | 5 | 7 | 15 | 5 | 12 | 3.2 | 24 | 10.2 | 16.2 |
| $\phi$20 | 13.5 | 10 | 12 | 10 | M5 | 26.4 | 40.4 | M5 depth 8 | 5.5 (penetrating) | 9 spot face depth 8.5 | M6 | 8 | 6 | 9 | 15 | 12 | 16 | 3.6 | 30 | 13.2 | 20.2 |
| $\phi$25 | 17.5 | 13 | 15.5 | 10 | M5 | 32.4 | 50.4 | M5 depth 8 | 5.5 (penetrating) | 9 spot face depth 9.5 | M8 | 10 | 8 | 10 | 15 | 13 | 20 | 5 | 38 | 16.2 | 25.2 |
| $\phi$32 | 21 | 17 | 19.5 | 11 | Rc1/8 | 40.4 | 62.4 | M6 depth 9 | 6.6 (penetrating) | 10.5 spot face depth 12 | M10 x 1.25 | 12 | 10 | 11 | 20 | 17 | 24 | 6 | 48 | 20.2 | 31.2 |

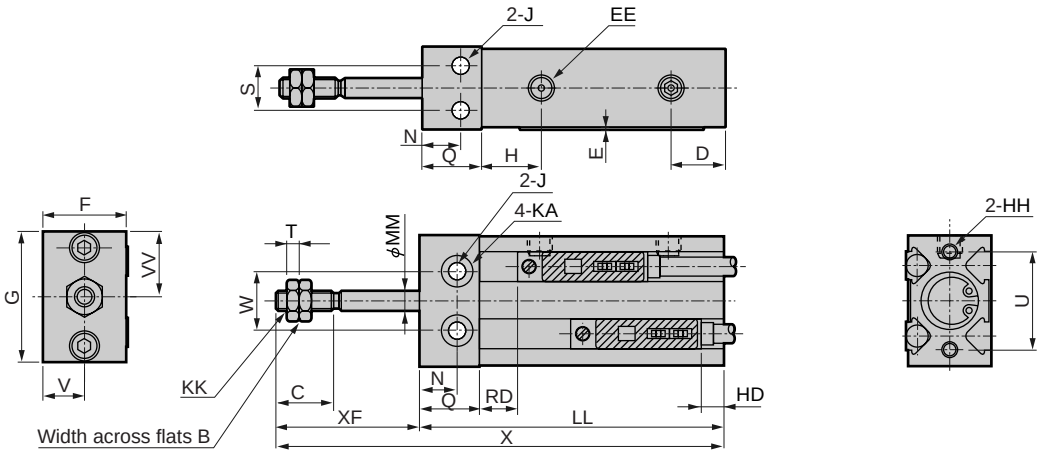
| Symbol / Bore size (mm) | W | XF | LL | | | | | | X | | | | | | E | With switch | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | 5st | | 10st | | 15st | | 5st | | 10st | | 15st | | | K0H/K5H | | K2H/H3H | | K0V/K5V | | K2V/K3V | |
| | | | W/o SW | W/ SW | W/o SW | W/ SW | W/o SW | W/ SW | W/o SW | W/ SW | W/o SW | W/ SW | W/o SW | W/ SW | | HD | RD | HD | RD | HD | RD | HD | RD |
| $\phi$6 | 10 | 13 | 59 | 59 | 64 | 64 | 69 | 69 | 72 | 72 | 77 | 77 | 82 | 82 | 1.0 | 1.5 | 10.0 | 2.5 | 11.0 | 1.5 | 10.0 | 2.5 | 11.0 |
| $\phi$10 | 11 | 16 | 62 | 62 | 67 | 67 | 72 | 72 | 78 | 78 | 83 | 83 | 88 | 88 | 1.0 | 3.5 | 10.5 | 4.5 | 12.0 | 3.5 | 10.5 | 4.5 | 12.0 |
| $\phi$16 | 14 | 16 | 65 | 75 | 70 | 80 | 75 | 85 | 81 | 91 | 86 | 96 | 91 | 101 | 0.5 | 5.0 | 15.0 | 6.0 | 16.0 | 5.0 | 15.0 | 6.0 | 16.0 |
| $\phi$20 | 16 | 19 | 71 | 81 | 76 | 86 | 81 | 91 | 90 | 100 | 95 | 105 | 100 | 110 | 0.5 | 8.5 | 17.5 | 9.5 | 18.5 | 8.5 | 17.5 | 9.5 | 18.5 |
| $\phi$25 | 20 | 23 | 75 | 85 | 80 | 90 | 85 | 95 | 98 | 108 | 103 | 113 | 108 | 118 | 0.5 | 11.5 | 17.5 | 12.5 | 18.5 | 11.5 | 17.5 | 12.5 | 18.5 |
| $\phi$32 | 24 | 27 | 92 | 102 | 97 | 107 | 102 | 112 | 119 | 129 | 124 | 134 | 129 | 139 | 0.5 | 12.0 | 24.0 | 13.5 | 25.0 | 12.0 | 24.0 | 13.5 | 25.0 |

Note 1: HD and RD dimensions for 5, 10 stroke will differ from these due to manufacturing.
Note 2: Negative dimension indicates dimensions of projecting section of switch from main body.
Note 3: For 5, 10 mm stroke cylinders, use K*V switch because K*H switch cannot be installed.
Note 4: For 5 mm stroke cylinder, use K*V switch because K*H switch cannot be installed.
Note 5: Refer to page 1038 for HD/RD and dimensions of projecting section of 2 color indicator type preventive maintenance output switch.

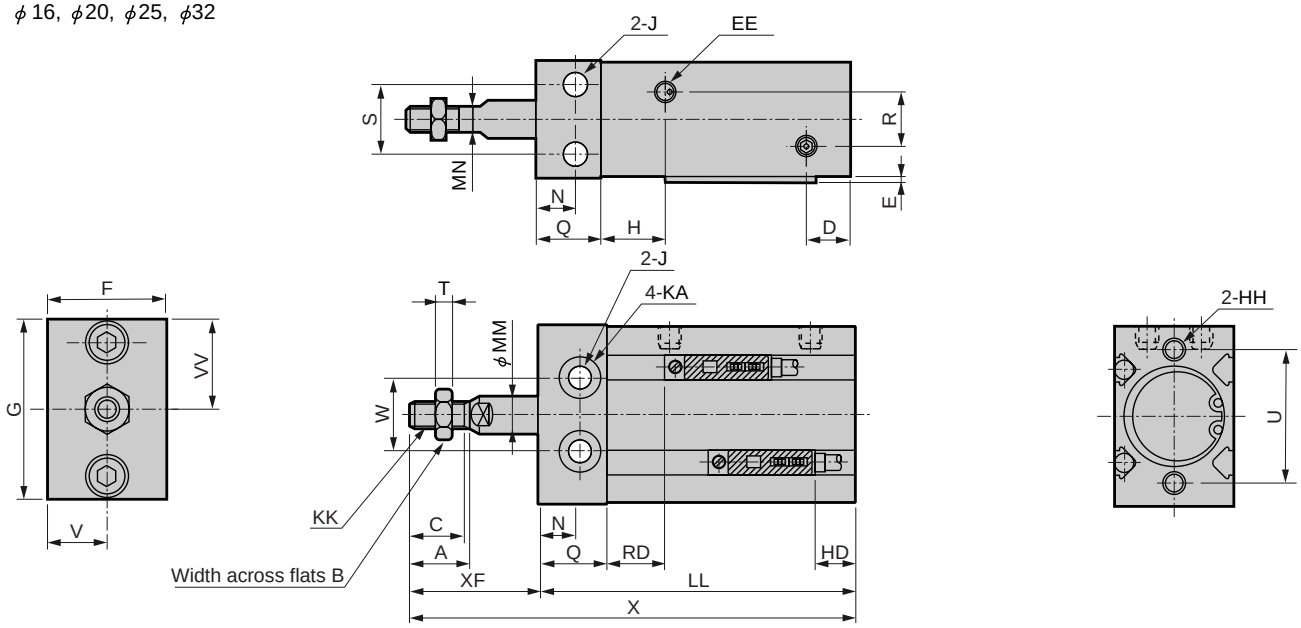
## Dimensions

● Single acting retract type/with switch, rod end mounting type SMD2-Y(L)-DA

$\phi$6, $\phi$10




$\phi$16, $\phi$20, $\phi$25, $\phi$32




| Symbol / Bore size (mm) | A | B | C | D | EE | F | G | H | HH | J | KA | KK | MM | MN | N | Q | R | S | T | U | V | VV | W | XF 5st | XF 10st | XF 15st |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $\phi$6 | - | 5.5 | 11 | 7 | M5 | 13.4 | 22.4 | 11 | M2.5 depth 5 | 3.4 (penetrating) | 5.9 spot face depth 5.3 | M3 | 3 | - | 7 | 11 | - | 7 | 1.8 | 17 | 6.7 | 11.2 | 10 | 18 | 23 | 28 |
| $\phi$10 | - | 7 | 11 | 10 | M5 | 15.4 | 24.4 | 11 | M3 depth 5 | 3.4 (penetrating) | 5.9 spot face depth 5.5 | M4 | 4 | - | 7 | 11 | - | 9 | 2.4 | 18 | 7.7 | 12.2 | 11 | 21 | 26 | 31 |
| $\phi$16 | 12.5 | 8 | 10 | 11 | M5 | 20.4 | 32.4 | 10 | M4 depth 6 | 4.5 (penetrating) | 7.5 spot face depth 7 | M5 | 6 | 5 | 7 | 15 | 5 | 12 | 3.2 | 24 | 10.2 | 16.2 | 14 | 21 | 26 | 31 |
| $\phi$20 | 13.5 | 10 | 14 | 12 | M5 | 26.4 | 40.4 | 14 | M5 depth 8 | 5.5 (penetrating) | 9 spot face depth 8.5 | M6 | 8 | 6 | 9 | 15 | 12 | 16 | 3.6 | 30 | 13.2 | 20.2 | 16 | 24 | 29 | 34 |
| $\phi$25 | 17.5 | 13 | 14 | 15.5 | M5 | 32.4 | 50.4 | 14 | M5 depth 8 | 5.5 (penetrating) | 9 spot face depth 9.5 | M8 | 10 | 8 | 10 | 15 | 13 | 20 | 5 | 38 | 16.2 | 25.2 | 20 | 38 | 33 | 38 |
| $\phi$32 | 21 | 17 | 21 | 19.5 | Rc1/8 | 40.4 | 62.4 | 21 | M6 depth 9 | 6.6 (penetrating) | 10.5 spot face depth 12 | M10 x 1.25 | 12 | 10 | 11 | 20 | 17 | 24 | 6 | 48 | 20.2 | 31.2 | 24 | 32 | 37 | 42 |

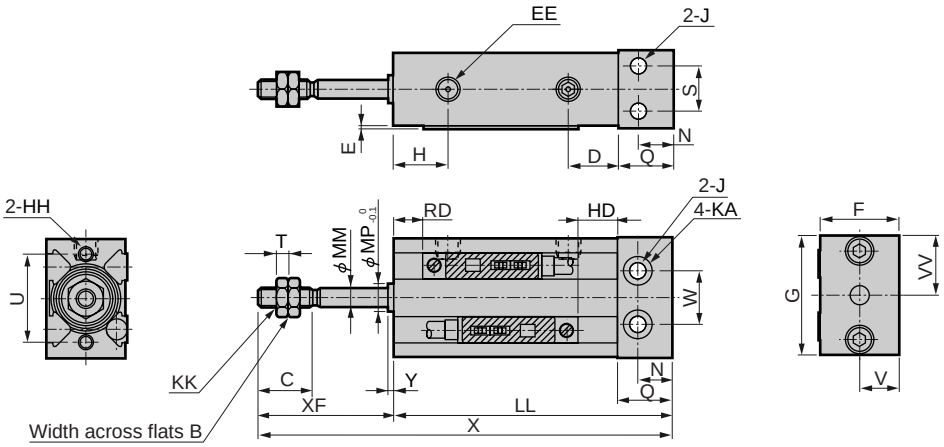
| Symbol / Bore size (mm) | LL 5st W/o SW | LL 5st W/ SW | LL 10st W/o SW | LL 10st W/ SW | LL 15st W/o SW | LL 15st W/ SW | X 5st W/o SW | X 5st W/ SW | X 10st W/o SW | X 10st W/ SW | X 15st W/o SW | X 15st W/ SW | E | With switch K0H/K5H HD | K0H/K5H RD | K2H/K3H HD | K2H/K3H RD | K0V/K5V HD | K0V/K5V RD | K2V/K3V HD | K2V/K3V RD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $\phi$6 | 48 | 48 | 53 | 53 | 58 | 58 | 66 | 66 | 76 | 76 | 86 | 86 | 1.0 | 3.0 | 5.0 | 2.0 | 6.0 | 0.0 | 5.0 | -1.0 | 6.0 |
| $\phi$10 | 51 | 51 | 56 | 56 | 61 | 61 | 72 | 72 | 82 | 82 | 92 | 92 | 1.0 | 5.5 | 5.5 | 4.0 | 7.0 | 2.5 | 5.5 | 1.0 | 7.0 |
| $\phi$16 | 50 | 60 | 55 | 65 | 60 | 70 | 71 | 81 | 81 | 91 | 91 | 101 | 0.5 | 6.5 | 10.0 | 5.5 | 11.0 | 3.5 | 10.0 | 2.5 | 11.0 |
| $\phi$20 | 56 | 60 | 61 | 71 | 66 | 76 | 80 | 90 | 90 | 100 | 100 | 110 | 0.5 | 10.5 | 12.5 | 9.5 | 13.5 | 7.5 | 12.5 | 6.5 | 13.5 |
| $\phi$25 | 60 | 70 | 65 | 75 | 70 | 80 | 88 | 98 | 98 | 108 | 108 | 118 | 0.5 | 13.5 | 12.5 | 12.5 | 13.5 | 10.5 | 12.5 | 9.5 | 13.5 |
| $\phi$32 | 72 | 82 | 77 | 87 | 82 | 92 | 104 | 114 | 114 | 124 | 124 | 134 | 0.5 | 14.0 | 19.0 | 13.0 | 20.0 | 11.0 | 19.0 | 10.0 | 20.0 |

Note 1: HD and RD dimensions for 5, 10 stroke will differ from these due to manufacturing.
Note 2: Negative dimension indicates dimensions of projecting section of switch from main body.
Note 3: Refer to page 1036 for HD, RD and dimensions of projecting section of 2 color indicator type preventive maintenance output switch.

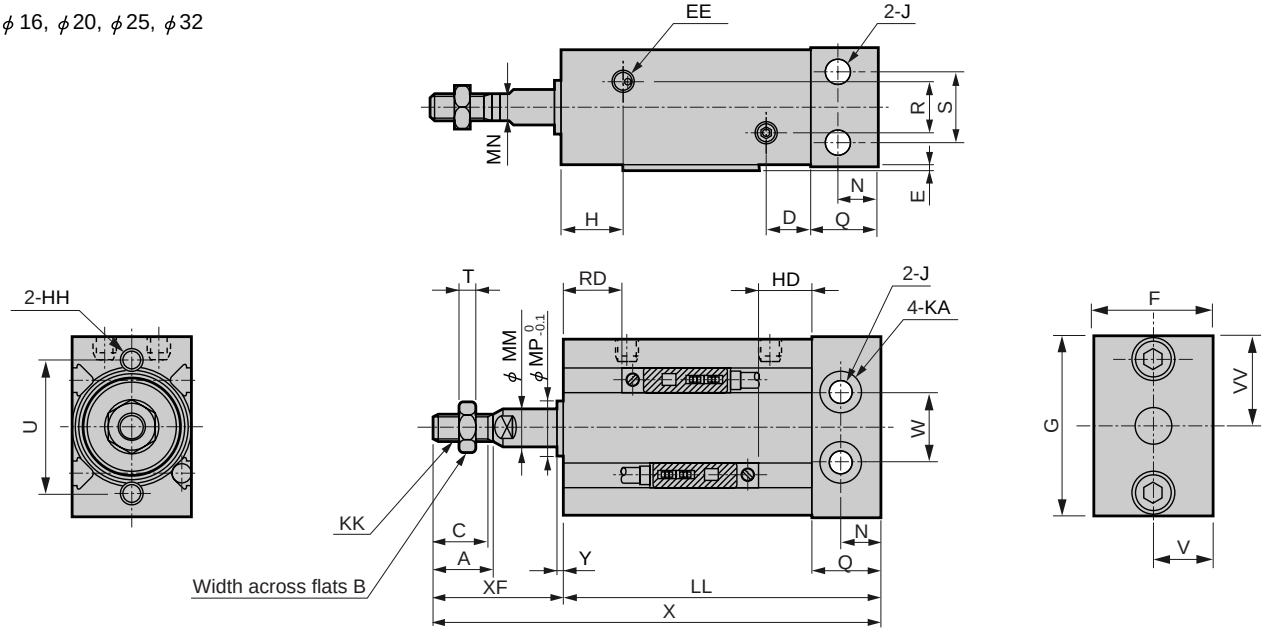
## Dimensions

● Single acting retract type/with switch, head end mounting type SMD2-Y(L)-DB

$\phi$ 6, $\phi$10




$\phi$ 16, $\phi$20, $\phi$25, $\phi$32




| Symbol / Bore size (mm) | A | B | C | EE | F | G | H | HH | J | KA | KK | MM | MN | MP | N | Q | R | S | T | U | V | VV | W | XF 5st | XF 10st | XF 15st |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $\phi$6 | - | 5.5 | 7 | M5 | 13.4 | 22.4 | 11 | M2.5 depth 5 | 3.4 (penetrating) | 5.9 spot face depth 5.3 | M3 | 3 | - | 5 | 7 | 11 | - | 7 | 1.8 | 17 | 6.7 | 11.2 | 10 | 19 | 24 | 29 |
| $\phi$10 | - | 7 | 10 | M5 | 15.4 | 24.4 | 11 | M3 depth 5 | 3.4 (penetrating) | 5.9 spot face depth 5.5 | M4 | 4 | - | 6 | 7 | 11 | - | 9 | 2.4 | 18 | 7.7 | 12.2 | 11 | 22 | 27 | 32 |
| $\phi$16 | 12.5 | 8 | 11 | M5 | 20.4 | 32.4 | 10 | M4 depth 6 | 4.5 (penetrating) | 7.5 spot face depth 7 | M5 | 6 | 5 | 8 | 7 | 15 | 5 | 12 | 3.2 | 24 | 10.2 | 16.2 | 14 | 21 | 26 | 31 |
| $\phi$20 | 13.5 | 10 | 12 | M5 | 26.4 | 40.4 | 14 | M5 depth 8 | 5.5 (penetrating) | 9 spot face depth 8.5 | M6 | 8 | 6 | 12 | 9 | 15 | 12 | 16 | 3.6 | 30 | 13.2 | 20.2 | 16 | 24 | 29 | 34 |
| $\phi$25 | 17.5 | 13 | 15.5 | M5 | 32.4 | 50.4 | 14 | M5 depth 8 | 5.5 (penetrating) | 9 spot face depth 9.5 | M8 | 10 | 8 | 14 | 10 | 15 | 13 | 20 | 5 | 38 | 16.2 | 25.2 | 20 | 28 | 33 | 38 |
| $\phi$32 | 21 | 17 | 19.5 | Rc1/8 | 40.4 | 62.4 | 21 | M6 depth 9 | 6.6 (penetrating) | 10.5 spot face depth 12 | M10 x 1.25 | 12 | 10 | 16 | 11 | 20 | 17 | 24 | 6 | 48 | 20.2 | 31.2 | 24 | 32 | 37 | 42 |

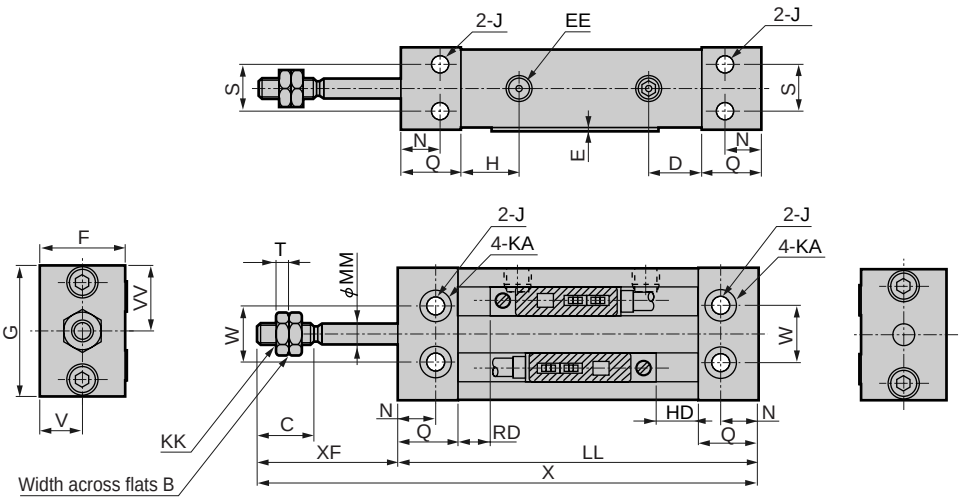
| Symbol / Bore size (mm) | Y | LL 5st W/o SW | LL 5st W/ SW | LL 10st W/o SW | LL 10st W/ SW | LL 15st W/o SW | LL 15st W/ SW | X 5st W/o SW | X 5st W/ SW | X 10st W/o SW | X 10st W/ SW | X 15st W/o SW | X 15st W/ SW | With switch E | K0H/K5H HD | K0H/K5H RD | K2H/K3H HD | K2H/K3H RD | K0V/K5V HD | K0V/K5V RD | K2V/K3V HD | K2V/K3V RD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $\phi$6 | 1 | 48 | 48 | 53 | 53 | 58 | 58 | 67 | 67 | 77 | 77 | 87 | 87 | 1.0 | 6.5 | 5.0 | 7.5 | 6.0 | 6.5 | 5.0 | 7.5 | 6.0 |
| $\phi$10 | 1 | 51 | 51 | 56 | 56 | 61 | 61 | 73 | 73 | 83 | 83 | 83 | 93 | 1.0 | 8.5 | 5.5 | 9.5 | 7.0 | 8.5 | 5.5 | 9.5 | 7.0 |
| $\phi$16 | 1 | 50 | 60 | 55 | 65 | 60 | 70 | 71 | 81 | 81 | 91 | 91 | 101 | 0.5 | 10.0 | 10.0 | 11.0 | 11.0 | 10.0 | 10.0 | 11.0 | 11.0 |
| $\phi$20 | 1.5 | 56 | 60 | 61 | 71 | 66 | 76 | 80 | 90 | 90 | 100 | 100 | 110 | 0.5 | 13.5 | 12.5 | 14.5 | 13.5 | 13.5 | 12.5 | 14.5 | 13.5 |
| $\phi$25 | 2 | 60 | 70 | 65 | 75 | 70 | 80 | 88 | 98 | 98 | 108 | 108 | 118 | 0.5 | 16.5 | 12.5 | 17.5 | 13.5 | 16.5 | 12.5 | 17.5 | 13.5 |
| $\phi$32 | 2 | 72 | 82 | 77 | 87 | 82 | 92 | 104 | 114 | 114 | 124 | 124 | 134 | 0.5 | 17.0 | 19.0 | 18.5 | 20.0 | 17.0 | 19.0 | 18.5 | 20.0 |

Note 1: HD and RD dimensions for 5, 10 stroke will differ from these due to manufacturing.
Note 2: Negative dimension shows dimensions of projecting section of switch from main body.
Note 3: For 5 mm stroke, use K*V switch because K*H switch cannot be installed.
Note 4: Refer to page 1038 for HD/RD and dimensions of projecting section of 2 color indicator type preventive maintenance output switch.

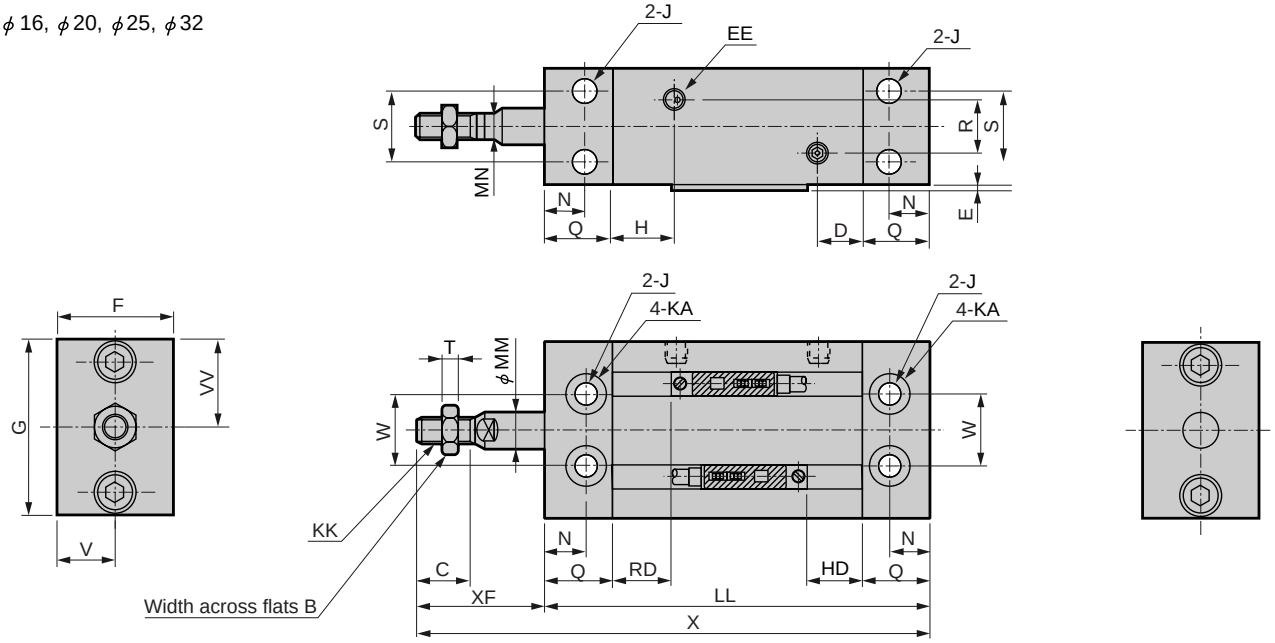
## Dimensions

● Single acting retract type with switch, high rigid mounting type SMD2-Y(L)-DC

$\phi$ 6, $\phi$10



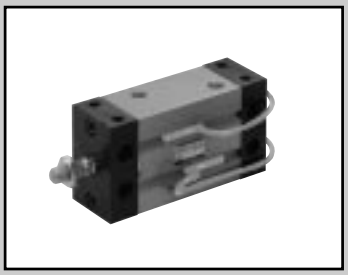

$\phi$ 16, $\phi$ 20, $\phi$ 25, $\phi$ 32




| Symbol / Bore size (mm) | A | B | C | EE | F | G | H | HH | J | KA | KK | MM | MN | N | Q | R | S | T | U | V | VV | W | XF 5st | XF 10st | XF 15st |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $\phi$6 | - | 5.5 | 7 | M5 | 13.4 | 22.4 | 11 | M2.5 depth 5 | 3.4 (penetrating) | 5.9 spot face depth 5.3 | M3 | 3 | - | 7 | 11 | - | 7 | 1.8 | 17 | 6.7 | 11.2 | 10 | 18 | 23 | 28 |
| $\phi$10 | - | 7 | 10 | M5 | 15.4 | 24.4 | 11 | M3 depth 5 | 3.4 (penetrating) | 5.9 spot face depth 5.5 | M4 | 4 | - | 7 | 11 | - | 9 | 2.4 | 18 | 7.7 | 12.2 | 11 | 21 | 26 | 31 |
| $\phi$16 | 12.5 | 8 | 11 | M5 | 20.4 | 32.4 | 10 | M4 depth 6 | 4.5 (penetrating) | 7.5 spot face depth 7 | M5 | 6 | 5 | 7 | 15 | 5 | 12 | 3.2 | 24 | 10.2 | 16.2 | 14 | 21 | 26 | 31 |
| $\phi$20 | 13.5 | 10 | 12 | M5 | 26.4 | 40.4 | 14 | M5 depth 8 | 5.5 (penetrating) | 9 spot face depth 8.5 | M6 | 8 | 6 | 9 | 15 | 12 | 16 | 3.6 | 30 | 13.2 | 20.2 | 16 | 24 | 29 | 34 |
| $\phi$25 | 17.5 | 13 | 15.5 | M5 | 32.4 | 50.4 | 14 | M5 depth 8 | 5.5 (penetrating) | 9 spot face depth 8.5 | M8 | 10 | 8 | 10 | 15 | 13 | 20 | 5 | 38 | 16.2 | 25.2 | 20 | 28 | 33 | 38 |
| $\phi$32 | 21 | 17 | 19.5 | Rc1/8 | 40.4 | 62.4 | 21 | M6 depth 9 | 6.6 (penetrating) | 10.5 spot face depth 12 | M10 x 1.25 | 12 | 10 | 11 | 20 | 17 | 24 | 6 | 48 | 20.2 | 31.2 | 24 | 32 | 37 | 42 |

| Symbol / Bore size (mm) | LL 5st W/o SW | LL 5st W/ SW | LL 10st W/o SW | LL 10st W/ SW | LL 15st W/o SW | LL 15st W/ SW | X 5st W/o SW | X 5st W/ SW | X 10st W/o SW | X 10st W/ SW | X 15st W/o SW | X 15st W/ SW | With switch E | K0H/K5H HD | K0H/K5H RD | K2H/K3H HD | K2H/K3H RD | K0V/K5V HD | K0V/K5V RD | K2V/K3V HD | K2V/K3V RD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $\phi$6 | 59 | 59 | 64 | 64 | 69 | 69 | 77 | 77 | 87 | 87 | 97 | 97 | 1.0 | 6.5 | 5.0 | 7.5 | 6.0 | 6.5 | 5.0 | 7.5 | 6.0 |
| $\phi$10 | 62 | 62 | 67 | 67 | 72 | 72 | 83 | 83 | 93 | 93 | 103 | 103 | 1.0 | 8.5 | 5.5 | 9.5 | 7.0 | 8.5 | 5.5 | 9.5 | 7.0 |
| $\phi$16 | 65 | 75 | 70 | 80 | 75 | 85 | 86 | 96 | 96 | 106 | 106 | 116 | 0.5 | 10.0 | 10.0 | 11.0 | 11.0 | 10.0 | 10.0 | 11.0 | 11.0 |
| $\phi$20 | 71 | 81 | 76 | 86 | 81 | 91 | 95 | 105 | 105 | 115 | 115 | 125 | 0.5 | 13.5 | 12.5 | 14.5 | 13.5 | 13.5 | 12.5 | 14.5 | 13.5 |
| $\phi$25 | 75 | 85 | 80 | 90 | 85 | 95 | 103 | 113 | 113 | 123 | 123 | 133 | 0.5 | 16.5 | 12.5 | 17.5 | 13.5 | 16.5 | 12.5 | 17.5 | 13.5 |
| $\phi$32 | 92 | 102 | 97 | 107 | 102 | 112 | 124 | 134 | 134 | 144 | 144 | 154 | 0.5 | 17.0 | 19.0 | 18.5 | 20.0 | 17.0 | 19.0 | 18.5 | 20.0 |

Note 1: HD and RD dimensions for 5, 10 stroke will differ from these due to manufacturing.
Note 2: Negative dimension indicates dimensions of projecting section of switch from main body.
Note 3: For 5 mm stroke cylinder, use K*V switch because K*H switch cannot be installed.
Note 4: Refer to page 1038 for HD/RD and dimensions of projecting section of 2 color indicator type preventive maintenance output switch.

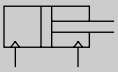


Compact cylinder, fine speed type

# SMD2-F Series

● Bore size: ϕ6, ϕ10, ϕ16, ϕ20, ϕ25, ϕ32

JIS symbol SMD2



Double acting

RoHS CAD

## Specifications

| Descriptions | SMD2-F/SMD2-LF (with switch) | | | | | |
|---|---|---|---|---|---|---|
| Bore size mm | ϕ6 | ϕ10 | ϕ16 | ϕ20 | ϕ25 | ϕ32 |
| Actuation | Double acting | | | | | |
| Working fluid | Compressed air | | | | | |
| Max. working pressure MPa | 0.70 | | | | | |
| Min. working pressure MPa | 0.15 | 0.10 | | | | |
| Withstanding pressure MPa | 1.05 | | | | | |
| Ambient temperature ℃ | 5 to 60 | | | | | |
| Port size | M5 | | | | | Rc 1/8 |
| Stroke tolerance mm | +1.5<br>0 | | | | | |
| Working piston speed mm/s | 1 to 200 | | | | | |
| Cushion | Rubber cushioned | | | | | |
| Lubrication | Must be oil free | | | | | |
| Allowable energy absorption J | 0.005 | 0.036 | 0.1 | 0.1 | 0.19 | 0.5 |

## Stroke length

| Model no. | Bore size (mm) | Standard stroke length (mm) | Max. stroke length (mm) | Min. stroke length (mm) |
|---|---|---|---|---|
| SMD2-F<br>SMD2-LF | ϕ6, ϕ10, ϕ16 | 5, 10, 15,<br>20, 25, 30 | 60 | 1 |
| | ϕ20, ϕ25, ϕ32 | 5, 10, 15, 20,<br>25, 30, 40, 50 | 100 | |

Note 1: Custom stroke length is available per 1mm increment.

## Min. stroke length with switch

| Model | Bore size | 1 color indicator type | | 2 color indicator type | | With preventive maintenance output | |
|---|---|---|---|---|---|---|---|
| | | K*H | K*V | K*YH | K*YV | K*Y*H | K*Y*V |
| SMD2-LF-DA | ϕ6 | 5 | | 5 | | 1 | |
| | ϕ10 | | | | | | |
| | ϕ16 | | | | | | |
| | ϕ20 | | | | | | |
| | ϕ25 | | | | | | |
| | ϕ32 | | | | | | |
| SMD2-LF-DB/DC | ϕ6 | 15 | 5 | 15 | 10 | 10 | |
| | ϕ10 | 10 | | 15 | 10 | 10 | |
| | ϕ16 | 10 | | 10 | 10 | 10 | |
| | ϕ20 | 10 | | 10 | 5 | 5 | |
| | ϕ25 | 5 | | 5 | 5 | 5 | |
| | ϕ32 | 5 | | 5 | 5 | 5 | |

## Clean room specifications

(Catalog No. CB-033SA)

● Dust generation preventing structure for use in clean room

SMD2 ..... P7*

## Switch specifications

● 1 color/2 color indicator

| Descriptions | Proximity 2-wire | | Proximity 3-wire | | | Reed 2-wire | | | |
|---|---|---|---|---|---|---|---|---|---|
| | K2H/K2V | K2YH/K2YV | K3H/K3V | K3PH/K3PV (Custom order) | K3YH/K3YV | K0H/K0V | | K5H/K5V | |
| Applications | Programmable controller | | Programmable controller, relay | | | Programmable controller, relay | | Programmable controller, relay IC circuit (without indicator light), serial connection | |
| Output method | - | | NPN output | PNP output | NPN output | - | | | |
| Power voltage | - | | 10 to 28 VDC | | | - | | | |
| Load voltage | 10 to 30 VDC | | 30 VDC or less | | | 12 VDC /24 VDC | 110 VAC | 5/12/24 VDC | 110 VAC |
| Load current | 5 to 20mA (Note 1) | | 50mA or less | | | 5 to 50mA | 7 to 20mA | 50mA or less | 20mA or less |
| Light | LED (ON lighting) | Red/green LED (ON lighting) | LED (ON lighting) | Yellow LED (ON lighting) | Red/green LED (ON lighting) | LED (ON lighting) | | - | |
| Leakage current | 1mA or less | | 10 μA or less | | | 0mA | | | |

Note 1: Max load current above: 20 mA at 25 ℃. The current will be lower than 20 mA if ambient temperature around switch is higher than 25℃. (5 to 10mA at 60℃)

● With preventive maintenance output

| Descriptions | | Proximity 3-wire | Proximity 4-wire | Proximity 3-wire | Proximity 4-wire |
|---|---|---|---|---|---|
| | | K2YFH/V | K3YFH/V | K2YMH/V | K3YMH/V |
| Applications | | Programmable controller | Programmable controller, relay | Programmable controller | Programmable controller, relay |
| Output method | | NPN output | | | |
| Light | Installation position adjustment section | Red/green LED (ON lighting) | | | |
| | Preventive maintenance output | - | | Yellow LED (ON lighting) | |
| Output | Power voltage | - | 10 to 28 VDC | - | 10 to 28 VDC |
| | Load voltage | 10 to 30 VDC | 30 VDC or less | 10 to 30 VDC | 30 VDC or less |
| | Load current | 5 to 20mA | 50mA or less | 5 to 20mA | 50mA or less |
| | Leakage current | 1mA or less | 10 μA or less | 1.2mA or less | 10 μA or less |
| Preventive maintenance output | Load voltage | 30 VDC or less | | | |
| | Load current | 20mA or less | 50mA or less | 5 to 20mA or less | 50mA or less |
| | Leakage current | 10 μA or less | | | |

## Weight

It is the same as the double acting/single rod type SMD2 series. Refer to page 1007.

## Dimensions

It is the same as the double acting/single rod type SMD2 series. Refer to pages 1010 to 1012.

## How to order

Without switch

**SMD2-F - DA - 6 ○ - 15**

With switch

**SMD2-LF - DA - 6 ○ - 15 - K2H - R**

Ⓑ Bore size

Ⓐ Mounting style

Ⓒ Port thread type

Ⓓ Stroke length

Ⓔ Switch model no. Note 1

Ⓕ Switch quantity

| Symbol | Descriptions |
|---|---|
| **Ⓐ Mounting style** | |
| **DA** | Rod end mounting type |
| **DB** | Head end mounting type |
| **DC** | High rigid mounting type |

| **Ⓑ Bore size (mm)** | |
|---|---|
| **6** | $\phi$ 6 |
| **10** | $\phi$ 10 |
| **16** | $\phi$ 16 |
| **20** | $\phi$ 20 |
| **25** | $\phi$ 25 |
| **32** | $\phi$ 32 |

| **Ⓒ Port thread type** | |
|---|---|
| **Blank** | Rc thread |
| **NN** | NPT thread (only $\phi$ 32) (custom order) |
| **GN** | G thread (only $\phi$ 32) (custom order) |

| **Ⓓ Stroke length (mm)** | | |
|---|---|---|
| **Bore size** | **Stroke length Note 2** | **Custom stroke length** |
| $\phi$6 to $\phi$16 | **1 to 60** | **1 mm increment** |
| $\phi$20 to $\phi$32 | **1 to 100** | |

**Ⓔ Switch model no.**

| Axial lead wire | Radial lead wire | Contact | Indicator | Lead wire |
|---|---|---|---|---|
| **K0H*** | **K0V*** | Reed | 1 color indicator type | 2-wire |
| **K5H*** | **K5V*** | | Without indicator light | |
| **K2H*** | **K2V*** | Proximity | 1 color indicator type | 2-wire |
| **K3H*** | **K3V*** | | | 3-wire |
| **K3PH*** | **K3PV*** | | 1 color indicator type (custom order) | 3-wire |
| **K2YH*** | **K2YV*** | Proximity | 2 color indicator type | 2-wire |
| **K3YH*** | **K3YV*** | | | 3-wire |
| **K2YFH*** | **K2YFV*** | | 2 color indicator type (W/o indicator light for preventive maintenance output) | 3-wire |
| **K3YFH*** | **K3YFV*** | | | 4-wire |
| **K2YMH*** | **K2YMV*** | | 2 color indicator type (W/ indicator light for preventive maintenance output (1 color)) | 3-wire |
| **K3YMH*** | **K3YMV*** | | | 4-wire |

| ***Lead wire length** | |
|---|---|
| **Blank** | 1m (standard) |
| **3** | 3m (option) |
| **5** | 5m (option) |

| **Ⓕ Switch quantity** | |
|---|---|
| **R** | 1 on rod end |
| **H** | 1 on head end |
| **D** | Two |

## Note on model no. selection

Note 1: For mounting style "DB" or "DC", if "X" indicated on "Switch selection table", K* H type (axial lead wire) cannot be installed. Please use K*V type (radial lead wire).

Switch selection table

| Bore size | DB (head end mounting type) | | DC (high rigid mounting type) | |
|---|---|---|---|---|
| | 5 mm stroke | 10 mm stroke | 5 mm stroke | 10 mm stroke |
| $\phi$6 | X | X | X | X |
| $\phi$10 | X | | X | |
| $\phi$16 | X | | X | |
| $\phi$20 | X | | X | |
| $\phi$25 | | | | |
| $\phi$32 | | | | |

Note 2: Refer to page 1026 for min. stroke length with switch.

<Example of model number>

**SMD2-LF-DA-6-15-K0H-R**

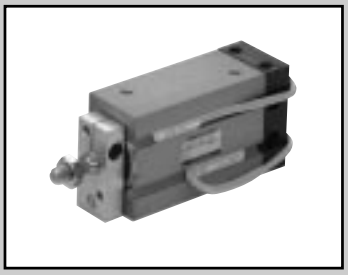
Model: Compact cylinder fine speed type

Ⓐ Mounting style : Rod end mounting type
Ⓑ Bore size : $\phi$ 6mm
Ⓒ Port thread type : Rc thread
Ⓓ Stroke length : 15mm
Ⓔ Switch model no. : Reed switch K0H, lead wire length 1m
Ⓕ Switch quantity : 1 on rod end

## How to order switch

**SW - K2H**

Switch model no. (Item Ⓔ above)

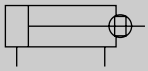


Compact cylinder, double acting non-rotating type

# SMD2-M Series

● Bore size: ϕ6, ϕ10, ϕ16, ϕ20, ϕ25, ϕ32

JIS symbol SMD2-M



Double acting non-rotating type

## Specifications

| Descriptions | SMD2-M SMD2-ML (with switch) | | | | | |
|---|---|---|---|---|---|---|
| Bore size mm | ϕ6 | ϕ10 | ϕ16 | ϕ20 | ϕ25 | ϕ32 |
| Actuation | Double acting | | | | | |
| Working fluid | Compressed air | | | | | |
| Max. working pressure MPa | 0.7 | | | | | |
| Min. working pressure MPa | 0.15 | 0.1 | | | | |
| Withstanding pressure MPa | 1.05 | | | | | |
| Ambient temperature ℃ | -10 to 60 (no freezing) | | | | | |
| Port size | M5 | | | | | Rc1/8 |
| Stroke tolerance mm | $^{+1.5}_{0}$ | | | | | |
| Working piston speed mm/s | 50 to 500 | | | | | |
| Cushion | Rubber cushioned | | | | | |
| Lubrication | Not required (when lubricating, use turbine oil Class 1 ISO VG32.) | | | | | |
| Revolvable angle tolerance Note | ±0.8° | | | ±0.5° | | |
| Allowable torque N·m | 0.008 | 0.025 | 0.088 | 0.17 | 0.33 | 0.67 |
| Allowable energy absorption J | 0.005 | 0.036 | 0.1 | 0.1 | 0.19 | 0.5 |

Note: Value for stroke 0 (excluding piston rod deflection)

## Stroke length

| Bore size (mm) | Standard stroke length (mm) | Max. stroke length (mm) | Min. stroke length (mm) |
|---|---|---|---|
| ϕ6 | 5, 10, 15, 20, 25, 30 | 30 | 1 |
| ϕ10 | | | |
| ϕ16 | | | |
| ϕ20 | 5, 10, 15, 20, 25, 30, 40, 50 | 50 | |
| ϕ25 | | | |
| ϕ32 | | | |

Note 1: Custom stroke length is available per 1mm increment.

## Min. stroke length with switch

| Model | Bore size | 1 color indicator type | | 2 color indicator type | | With preventive maintenance output | |
|---|---|---|---|---|---|---|---|
| | | K*H | K*V | K*YH | K*YV | K*Y*H | K*Y*V |
| SMD2-ML | ϕ6 | 15 | 5 | 15 | 10 | 10 | |
| | ϕ10 | 10 | | 15 | 10 | 10 | |
| | ϕ16 | 10 | | 10 | 10 | 10 | |
| | ϕ20 | 10 | | 10 | 5 | 5 | |
| | ϕ25 | 5 | | 5 | 5 | 5 | |
| | ϕ32 | 5 | | 5 | 5 | 5 | |

## Switch specifications

● 1 color/2 color indicator

| Descriptions | Proximity 2-wire | | Proximity 3-wire | | | Reed 2-wire | | | |
|---|---|---|---|---|---|---|---|---|---|
| | K2H/K2V | K2YH/K2YV | K3H/K3V | K3PH/K3PV (Custom order) | K3YH/K3YV | K0H/K0V | | K5H/K5V | |
| Applications | Programmable controller | | Programmable controller, relay | | | Programmable controller, relay | | Programmable controller, relay IC circuit (without indicator light), serial connection | |
| Output method | - | | NPN output | PNP output | NPN output | - | | | |
| Power voltage | - | | 10 to 28 VDC | | | - | | | |
| Load voltage | 10 to 30 VDC | | 30 VDC or less | | | 12 VDC /24 VDC | 110 VAC | 5/12/24 VDC | 110 VAC |
| Load current | 5 to 20mA (Note 1) | | 50mA or less | | | 5 to 50mA | 7 to 20mA | 50mA or less | 20mA or less |
| Light | LED (ON lighting) | Red/green LED (ON lighting) | LED (ON lighting) | Yellow LED (ON lighting) | Red/green LED (ON lighting) | LED (ON lighting) | | - | |
| Leakage current | 1mA or less | | 10μA or less | | | 0mA | | | |

Note 1: Max. load current above: 20 mA at 25℃. The current will be lower than 20 mA if ambient temperature around switch is higher than 25℃. (5 to 10mA at 60℃)

● With preventive maintenance output

| Descriptions | | Proximity 3-wire | Proximity 4-wire | Proximity 3-wire | Proximity 4-wire |
|---|---|---|---|---|---|
| | | K2YFH/V | K3YFH/V | K2YMH/V | K3YMH/V |
| Applications | | Programmable controller | Programmable controller, relay | Programmable controller | Programmable controller, relay |
| Output method | | NPN output | | | |
| Light | Installation position adjustment section | Red/green LED (ON lighting) | | | |
| | Preventive maintenance output | - | | Yellow LED (ON lighting) | |
| Output | Power voltage | - | 10 to 28 VDC | - | 10 to 28 VDC |
| | Load voltage | 10 to 30 VDC | 30 VDC or less | 10 to 30 VDC | 30 VDC or less |
| | Load current | 5 to 20mA | 50mA or less | 5 to 20mA | 50mA or less |
| | Leakage current | 1mA or less | 10μA or less | 1.2mA or less | 10μA or less |
| Preventive maintenance output | Load voltage | 30 VDC or less | | | |
| | Load current | 20mA or less | 50mA or less | 5 to 20mA or less | 50mA or less |
| | Leakage current | 10μA or less | | | |

## Cylinder weight

Unit (g)

| Model no. / Bore size (mm) | Product weight when stroke length S = 0mm: SMD2-M double acting | SMD2-ML double acting/with switch | Additional weight per S = 5mm |
|---|---|---|---|
| φ6 | 30 | 30 | 3 |
| φ10 | 43 | 43 | 4 |
| φ16 | 79 | 95 | 7 |
| φ20 | 146 | 175 | 12 |
| φ25 | 251 | 296 | 18 |
| φ32 | 486 | 556 | 26 |

(Example) Product weight

SMD2-ML-16-10-K2-D

- Product weight when stroke length = 0mm ··· 95g
- Additional weight when S=10mm ··· 7g x 10/5 = 14g
- Weigh of two cylinder switches ··· 18g x 2 = 36g
- Product weight ··· 95g + 14g + 36g = 145g

## Discrete cylinder switch weight

Unit (g)

| Name | Model no. | Lead wire length 1m | 3m | 5m |
|---|---|---|---|---|
| Cylinder switch | K0 | 18 | 52 | 86 |
| | K2 | 18 | 52 | 86 |
| | K3 | 18 | 52 | 86 |
| | K5 | 18 | 52 | 86 |

## How to order

Without switch

**SMD2-M — 6 ◯ - 15**

With switch

**SMD2-ML - 6 ◯ - 15 - K2H - R**

Ⓐ Bore size

Ⓑ Port thread type

Ⓒ Stroke length

Ⓓ Switch model no.
Note 1

Ⓔ Switch quantity

| Symbol | Descriptions |
|---|---|
| **Ⓐ Bore size (mm)** | |
| **6** | ϕ6 |
| **10** | ϕ10 |
| **16** | ϕ16 |
| **20** | ϕ20 |
| **25** | ϕ25 |
| **32** | ϕ32 |
| **Ⓑ Port thread type** | |
| **Blank** | Rc thread |
| **NN** | NPT thread (only ϕ 32) (custom order) |
| **GN** | G thread (only ϕ 32) (custom order) |
| **Ⓒ Stroke length (mm)** | |
| **Bore size** | **Stroke length Note 2** / **Custom stroke length** |
| ϕ6 to ϕ 16 | **1 to 30** / **1 mm increment** |
| ϕ20 to ϕ 32 | **1 to 50** |

**Ⓓ Switch model no.**

| Axial lead wire | Radial lead wire | Contact | Indicator | Lead wire |
|---|---|---|---|---|
| **K0H*** | **K0V*** | Reed | 1 color indicator type / Without indicator light | 2-wire |
| **K5H*** | **K5V*** | | | |
| **K2H*** | **K2V*** | Proximity | 1 color indicator type | 2-wire |
| **K3H*** | **K3V*** | | | 2-wire |
| **K3PH*** | **K3PV*** | | 1 color indicator type (custom order) | 3-wire |
| **K2YH*** | **K2YV*** | Proximity | 2 color indicator type | 2-wire |
| **K3YH*** | **K3YV*** | | | 3-wire |
| **K2YFH*** | **K2YFV*** | | 2 color indicator type (W/o indicator light for preventive maintenance output) | 3-wire |
| **K3YFH*** | **K3YFV*** | | | 4-wire |
| **K2YMH*** | **K2YMV*** | | 2 color indicator type (W/ indicator light for preventive maintenance output (1 color)) | 3-wire |
| **K3YMH*** | **K3YMV*** | | | 4-wire |

| ***Lead wire length** | |
|---|---|
| **Blank** | 1m (standard) |
| **3** | 3m (option) |
| **5** | 5m (option) |
| **Ⓔ Switch quantity** | |
| **R** | 1 on rod end |
| **H** | 1 on head end |
| **D** | Two |

### Note on model no. selection

Note 1: For the item indicated by "X" on the switch selection guide, K*H type (axial lead wire) switch cannot be installed. Use K*V type (radial lead wire) switch.

Switch selection table

| Bore size | 5 mm stroke | 10 mm stroke |
|---|---|---|
| ϕ 6 | X | X |
| ϕ 10 | X | |
| ϕ 16 | X | |
| ϕ 20 | X | |
| ϕ 25 | | |
| ϕ 32 | | |

Note 2: Refer to page 1030 for min. stroke length with switch.

Note 3: Copper and PTFE free as standard.

<Example of model number>

**SMD2-ML-6-15-K0H-R**

Model: Compact cylinder

Ⓐ Bore size : ϕ 6mm

Ⓑ Port thread type : Rc thread

Ⓒ Stroke length : 15mm

Ⓓ Switch model no. : Reed switch K0H, lead wire length 1m

Ⓔ Switch quantity : 1 on rod end

### How to order switch

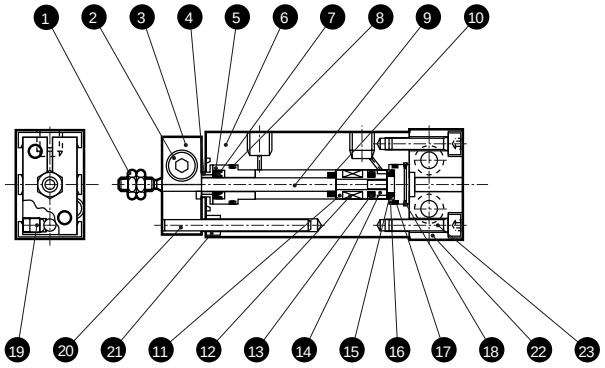
**SW - K2H**

Switch model no.
(Item Ⓓ above)

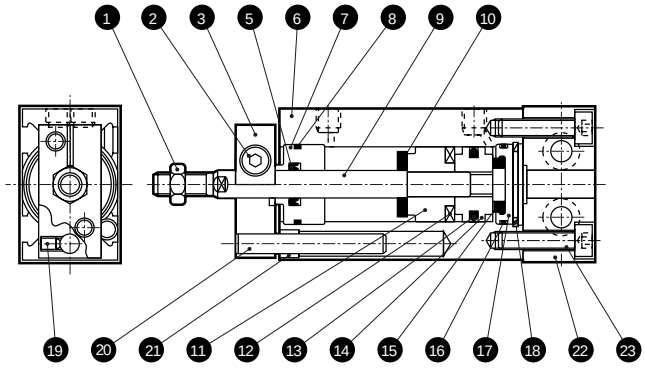
## Internal structure and parts list

● Double acting non-rotating type (with switch) SMD2-ML

$\phi$6, $\phi$10



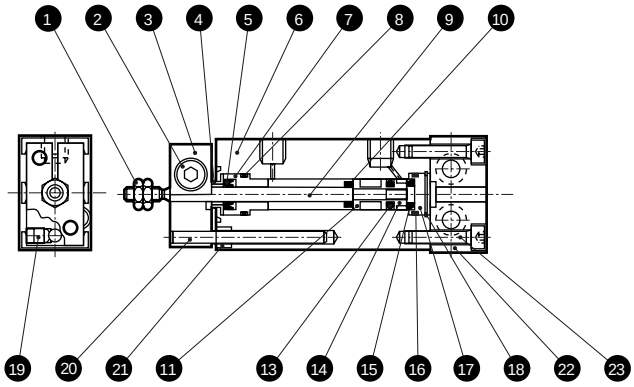

$\phi$16, $\phi$20, $\phi$25, $\phi$32



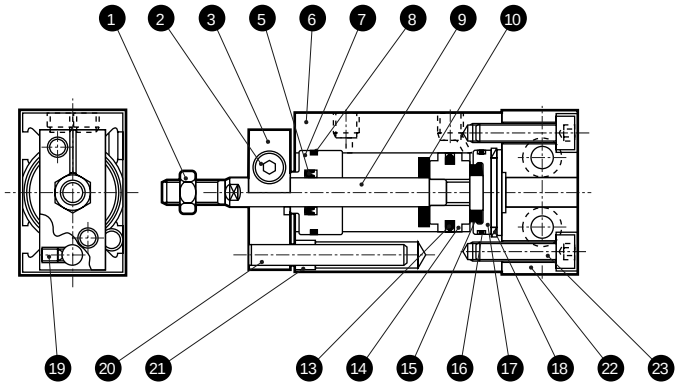

Note: Do not move the position of baffle plate (3) when using.
Moving the position results in insufficient performance of non-rotation function.

● Double acting non-rotating type SMD2-M

$\phi$6, $\phi$10




$\phi$6, $\phi$20, $\phi$25, $\phi$32




Note: Do not move the position of baffle plate (3) when using.
Moving the position results in insufficient performance of non-rotation function.

| No. | Parts name | Material | Remarks | No. | Parts name | Material | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | Hexagon nut | Steel | Nickeling | 12 | Magnet | Plastic | |
| 2 | Hexagon socket head cap bolt | Alloy steel | Blackening | 13 | Piston packing seal | Nitrile rubber | |
| 3 | Non-rotating plate | Aluminum alloy | Chromate | 14 | Piston | Aluminum alloy | |
| 4 | Cap | Aluminum alloy | | 15 | Cushion rubber (H) | Urethane rubber | |
| 5 | Rod packing seal | Nitrile rubber | | 16 | Gasket | Nitrile rubber | |
| 6 | Cylinder body | Aluminum alloy | Hard alumite | 17 | Base plate | Aluminum alloy | Chromate |
| 7 | Rod bushing | Aluminum alloy | Alumite | 18 | C type snap ring | Steel | Phosphoric acid zinc |
| 8 | Gasket | Nitrile rubber | | 19 | Hexagon socket set screw | Alloy steel | Blackening |
| 9 | Piston rod | Stainless steel | $\phi$20,$\phi$25,$\phi$32 industrial chrome plating | 20 | Guide bar | Stainless steel | $\phi$32 industrial chrome plating |
| | | | | 21 | Non-rotating bush | Placental | |
| 10 | Cushion rubber (R) | Urethane rubber | | 22 | Mount | Aluminum alloy | Black alumite |
| 11 | Spacer | Aluminum alloy | | 23 | Hexagon socket head cap bolt | Alloy steel | Blackening |

## Repair parts list

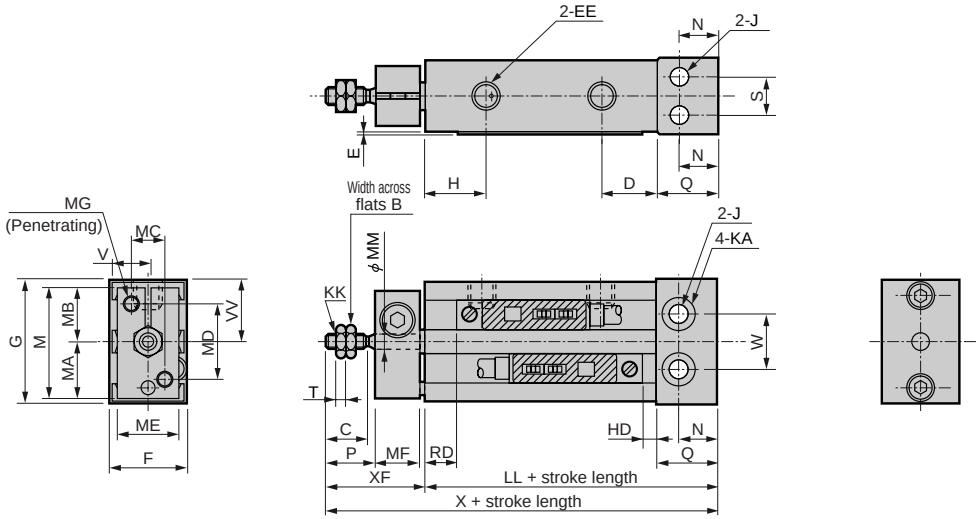
| Bore size (mm) | Kit No. | Repair parts number |
|---|---|---|
| $\phi$6 | SMD2-6K | ❺ ❿ ⓭ ⓯ ⓰ |
| $\phi$10 | SMD2-10K | |
| $\phi$16 | SMD2-16K | |

| Bore size (mm) | Kit No. | Repair parts number |
|---|---|---|
| $\phi$20 | SMD2-20K | ❺ ❿ ⓭ ⓯ ⓰ |
| $\phi$25 | SMD2-25K | |
| $\phi$32 | SMD2-32K | |

## Dimensions CAD

● Double acting non-rotating type (with switch) SMD2-M (L)

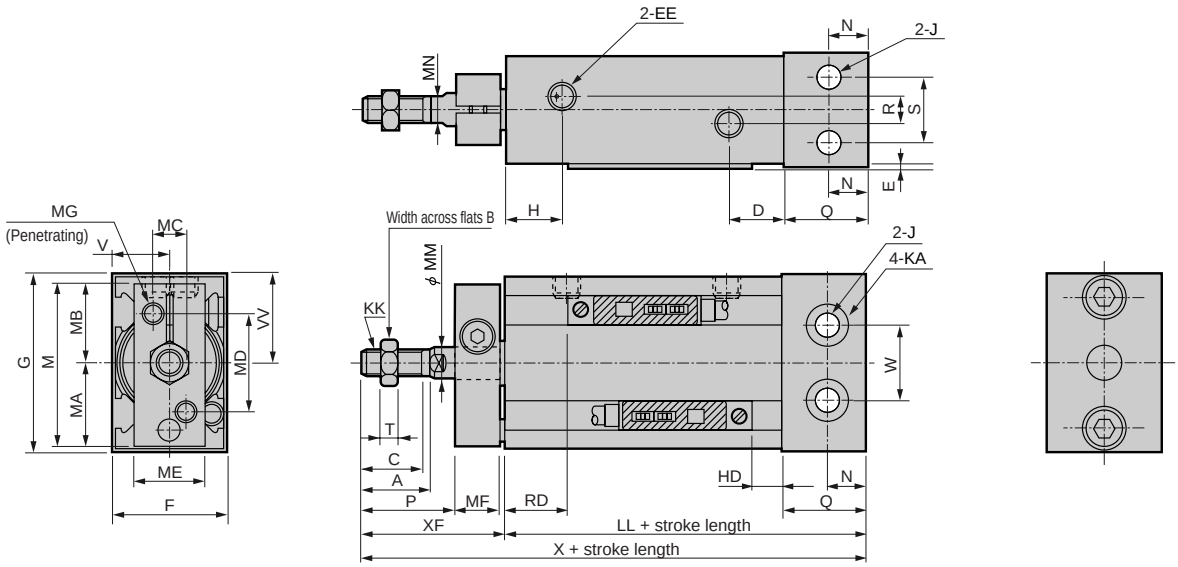
$\phi$6, $\phi$10




● For 6 mm bore size and 5 and 10 mm stroke, K*H switch cannot be installed. Use K*V switch.
● For 10 mm bore size and 5 mm stroke, K*H switch cannot be installed. Use K*V switch.

● Double acting non-rotating type (with switch) SMD2-M (L)

$\phi$6, $\phi$20, $\phi$25, $\phi$32




● For 16, 20 mm bore size and 5 mm stroke, K*H switch cannot be installed. Use K*V switch.

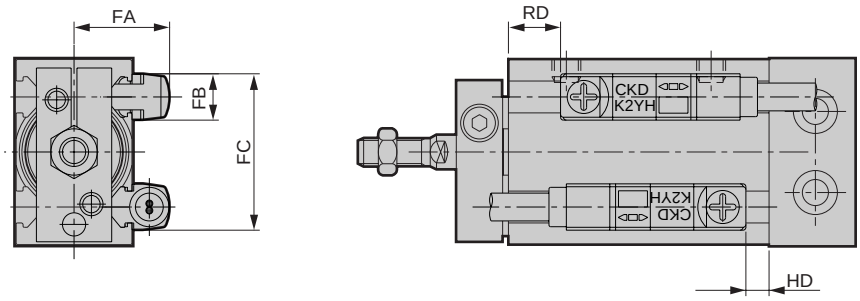
| Symbol / Bore size (mm) | A | B | C | D | EE | F | G | H | J | KA | KK | M | MA | MB | MC | MD | ME | MF | MG | MM | MN | N | P | Q | R | S | T | V | VV | W | XF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $\phi$6 | - | 5.5 | 7 | 10 | M5 | 13.4 | 22.4 | 11 | 3.4 (penetrating) | 5.9 spot face depth 5.3 | M3 | 20 | 10.5 | 9.5 | 6 | 14 | 11 | 8 | M3 | 3 | - | 7 | 10 | 11 | - | 7 | 1.8 | 6.7 | 11.2 | 10 | 19 |
| $\phi$10 | - | 7 | 10 | 10 | M5 | 15.4 | 24.4 | 11 | 3.4 (penetrating) | 5.9 spot face depth 5.5 | M4 | 22 | 11.5 | 10.5 | 7 | 15 | 12 | 8 | M3 | 4 | - | 7 | 13 | 11 | - | 9 | 2.4 | 7.7 | 12.2 | 11 | 22 |
| $\phi$16 | 12.5 | 8 | 11 | 10 | M5 | 20.4 | 32.4 | 10 | 4.5 (penetrating) | 7.5 spot face depth 7 | M5 | 30 | 15.5 | 14.5 | 6 | 18 | 13 | 8 | M4 | 6 | 5 | 7 | 17 | 15 | 5 | 12 | 3.2 | 10.2 | 16.2 | 14 | 26 |
| $\phi$20 | 13.5 | 10 | 12 | 10 | M5 | 26.4 | 40.4 | 14 | 5.5 (penetrating) | 9 spot face depth 8.5 | M6 | 33 | 19.5 | 13.5 | 8 | 20 | 15 | 8 | M4 | 8 | 6 | 9 | 20 | 15 | 12 | 16 | 3.6 | 13.2 | 20.2 | 16 | 29 |
| $\phi$25 | 17.5 | 13 | 15.5 | 10 | M5 | 32.4 | 50.4 | 14 | 5.5 (penetrating) | 9 spot face depth 9.5 | M8 | 43.5 | 24.5 | 19 | 10 | 28 | 20 | 10 | M5 | 10 | 8 | 10 | 22 | 15 | 13 | 20 | 5 | 16.2 | 25.2 | 20 | 33 |
| $\phi$32 | 21 | 17 | 19.5 | 11 | Rc1/8 | 40.4 | 62.4 | 21 | 6.6 (penetrating) | 10.5 spot face depth 12 | M10 x 1.25 | 51.5 | 30.5 | 21 | 12 | 32 | 25 | 12 | M5 | 12 | 10 | 11 | 29 | 20 | 17 | 24 | 6 | 20.2 | 31.2 | 24 | 42 |

| Symbol / Bore size (mm) | LL | | X | | With switch | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Without SW | With SW | Without SW | With SW | E | K0H/K5H | | K2H/K3H | | K0V/K5V | | K2V/K3V | |
| | | | | | | HD | RD | HD | RD | HD | RD | HD | RD |
| $\phi$6 | 38 | 38 | 57 | 57 | 1.0 | 1.5 | 5.0 | 2.5 | 6.0 | 1.5 | 5.0 | 2.5 | 6.0 |
| $\phi$10 | 41 | 41 | 63 | 63 | 1.0 | 3.5 | 5.5 | 4.5 | 7.0 | 3.5 | 5.5 | 4.5 | 7.0 |
| $\phi$16 | 40 | 50 | 66 | 76 | 0.5 | 5.0 | 10.0 | 6.0 | 11.0 | 5.0 | 10.0 | 6.0 | 11.0 |
| $\phi$20 | 46 | 56 | 75 | 85 | 0.5 | 8.5 | 12.5 | 9.5 | 13.5 | 8.5 | 12.5 | 9.5 | 13.5 |
| $\phi$25 | 50 | 60 | 83 | 93 | 0.5 | 11.5 | 12.5 | 12.5 | 13.5 | 11.5 | 12.5 | 12.5 | 13.5 |
| $\phi$32 | 62 | 72 | 104 | 114 | 0.5 | 12.0 | 19.0 | 13.5 | 20.0 | 12.0 | 19.0 | 13.5 | 20.0 |

Note 1: HD and RD dimensions for 5, 10 stroke will differ from these due to manufacturing.
Note 2: For 5 and 10 mm stroke, use K*V switch because K*H switch cannot be installed.
Note 3: For 5 mm stroke, use K*V switch because K*H switch cannot be installed.
Note 4: Refer to page 1035 for HD/RD and dimensions of projecting section of 2 color indicator type preventive maintenance output switch.

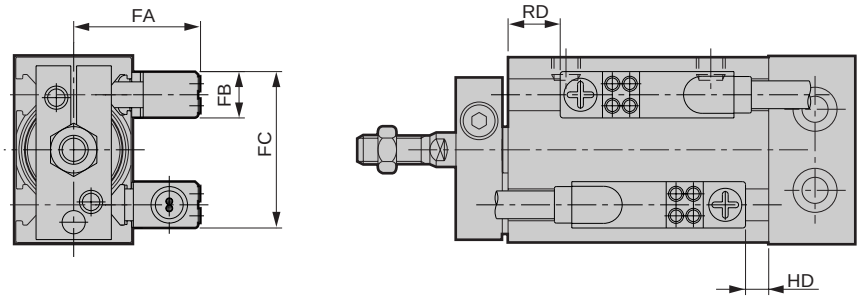
## Dimensions (2 color indicator type, preventive maintenance output switch)

● SMD2-ML (with switch: K2YH/V, K3YH/V)




| Bore size (mm) | FA | FB | FC | RD | HD |
|---|---|---|---|---|---|
| ϕ 6 | 13.5 | 8.0 | 18.0 | 4.0 | 0.5 |
| ϕ 10 | 14.5 | 8.0 | 21.0 | 5.0 | 2.5 |
| ϕ 16 | 16.5 | 8.0 | 27.0 | 9.0 | 4.0 |
| ϕ 20 | 19.5 | 8.0 | 29.0 | 12.0 | 7.0 |
| ϕ 25 | 22.5 | 8.0 | 32.0 | 12.0 | 11.0 |
| ϕ 32 | 26.5 | 8.0 | 34.0 | 18.5 | 11.5 |

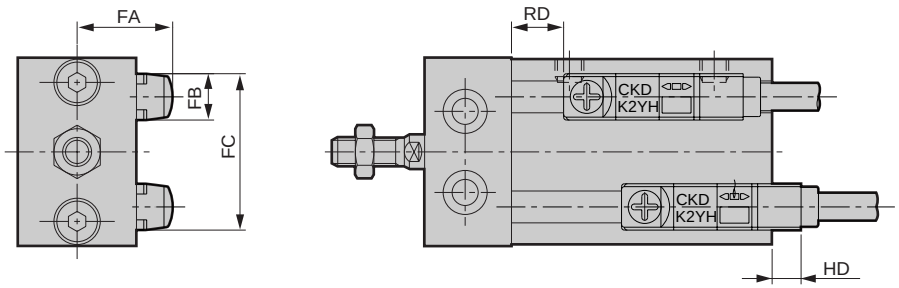
● SMD2-ML (with switch: K2YFH/V, K3YFH/V, K2YMH/V, K3YMH/V)




| Bore size (mm) | FA | FB | FC | RD | HD |
|---|---|---|---|---|---|
| ϕ6 | 19.0 | 8.0 | 18.0 | 4.0 | 0.5 |
| ϕ10 | 20.0 | 8.0 | 21.0 | 5.0 | 2.5 |
| ϕ16 | 22.0 | 8.0 | 27.0 | 9.0 | 4.0 |
| ϕ20 | 25.0 | 8.0 | 29.0 | 12.0 | 7.0 |
| ϕ25 | 28.0 | 8.0 | 32.0 | 12.0 | 11.0 |
| ϕ32 | 32.0 | 8.0 | 34.0 | 18.5 | 11.5 |

## SMD2 series common dimensions of types with switches (2 color indicator type, preventive maintenance output switch)

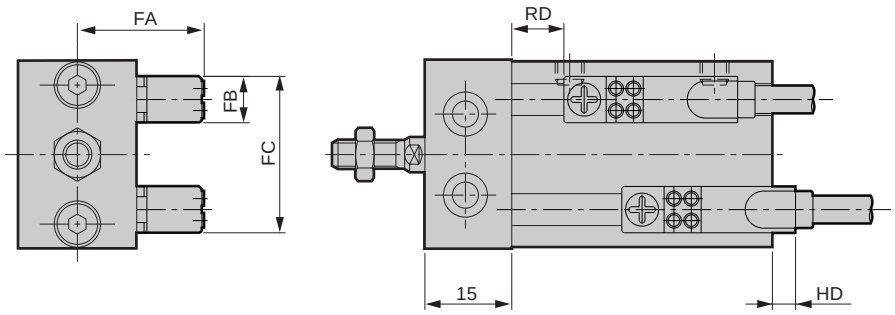
● SMD2-L-DA (with switch: K2YH/V, K3YH/V)
-XL
-YL




| Bore size (mm) | FA | FB | FC | RD | | HD | |
|---|---|---|---|---|---|---|---|
| | | | | SMD2-L SMD2-YL | SMD2-XL | SMD2-L SMD2-XL | SMD2-YL |
| $\phi$6 | 13.5 | 8.0 | 18.0 | 4.0 | 9.0 | 8.5 | 3.5 |
| $\phi$10 | 14.5 | 8.0 | 21.0 | 5.0 | 10.0 | 6.5 | 1.5 |
| $\phi$16 | 16.5 | 8.0 | 27.0 | 9.0 | 14.0 | 5.0 | 0.0 |
| $\phi$20 | 19.5 | 8.0 | 29.0 | 12.0 | 17.0 | 2.0 | -3.0 |
| $\phi$25 | 22.5 | 8.0 | 32.0 | 12.0 | 17.0 | -2.0 | -7.0 |
| $\phi$32 | 26.5 | 8.0 | 34.0 | 18.5 | 23.5 | -2.5 | -7.5 |

Note: If the HD dimensions are negative, the lead-in dimensions from the cylinder end are indicated.

● SMD2-L-DA (with switch: K2YFH/V, K3YFH/V, K2YMH/V, K3YMH/V)
-XL
-YL

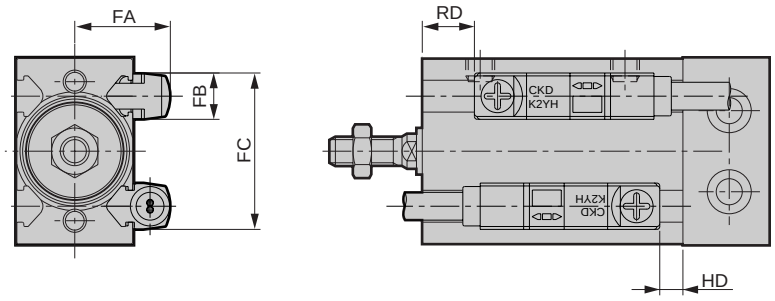



| Bore size (mm) | FA | FB | FC | RD | | HD | |
|---|---|---|---|---|---|---|---|
| | | | | SMD2-L SMD2-YL | SMD2-XL | SMD2-L SMD2-XL | SMD2-YL |
| $\phi$6 | 19.0 | 8.0 | 18.0 | 4.0 | 9.0 | 7.5 | 2.5 |
| $\phi$10 | 20.0 | 8.0 | 21.0 | 5.0 | 10.0 | 5.5 | 0.5 |
| $\phi$16 | 22.0 | 8.0 | 27.0 | 9.0 | 14.0 | 4.0 | -1.0 |
| $\phi$20 | 25.0 | 8.0 | 29.0 | 12.0 | 17.0 | 1.0 | -4.0 |
| $\phi$25 | 28.0 | 8.0 | 32.0 | 12.0 | 17.0 | -3.0 | -8.0 |
| $\phi$32 | 32.0 | 8.0 | 34.0 | 18.5 | 23.5 | -3.5 | -8.5 |

Note: If the HD dimensions are negative, the lead-in dimensions from the cylinder end are indicated.

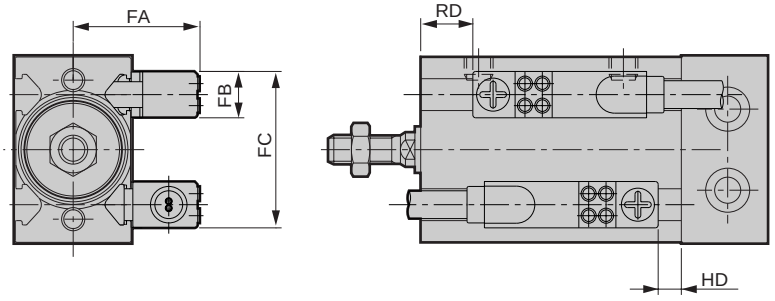
## SMD2 series common dimensions of types with switches (2 color indicator type, preventive maintenance output switch)

● SMD2-L-DB (with switch: K2YH/V , K3YH/V)
-XL
-YL




| Bore size (mm) | FA | FB | FC | RD | | HD | |
|---|---|---|---|---|---|---|---|
| | | | | SMD2-L SMD2-YL | SMD2-XL | SMD2-L SMD2-XL | SMD2-YL |
| ϕ6 | 13.5 | 8.0 | 18.0 | 4.0 | 9.0 | 0.5 | 5.5 |
| ϕ10 | 14.5 | 8.0 | 21.0 | 5.0 | 10.0 | 2.5 | 7.5 |
| ϕ16 | 16.5 | 8.0 | 27.0 | 9.0 | 14.0 | 4.0 | 9.0 |
| ϕ20 | 19.5 | 8.0 | 29.0 | 12.0 | 17.0 | 7.0 | 12.0 |
| ϕ25 | 22.5 | 8.0 | 32.0 | 12.0 | 17.0 | 11.0 | 16.0 |
| ϕ32 | 26.5 | 8.0 | 34.0 | 18.5 | 23.5 | 11.5 | 16.5 |

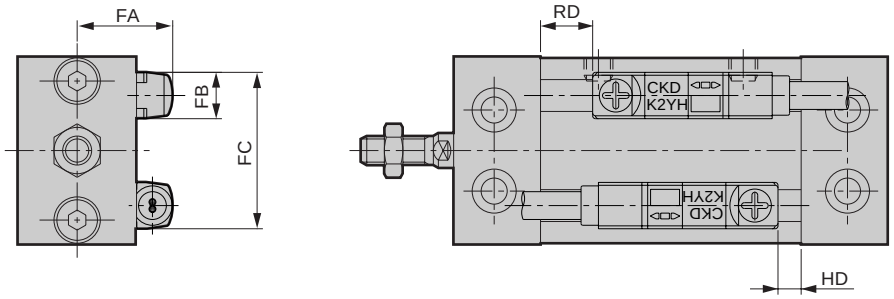
● SMD2-L-DB (with switch: K2YFH/V, K3YFH/V, K2YMH/V, K3YMH/V)
-XL
-YL




| Bore size (mm) | FA | FB | FC | RD | | HD | |
|---|---|---|---|---|---|---|---|
| | | | | SMD2-L SMD2-YL | SMD2-XL | SMD2-L SMD2-XL | SMD2-YL |
| ϕ6 | 19.0 | 8.0 | 18.0 | 4.0 | 9.0 | 0.5 | 5.5 |
| ϕ10 | 20.0 | 8.0 | 21.0 | 5.0 | 10.0 | 2.5 | 7.5 |
| ϕ16 | 22.0 | 8.0 | 27.0 | 9.0 | 14.0 | 4.0 | 9.0 |
| ϕ20 | 25.0 | 8.0 | 29.0 | 12.0 | 17.0 | 7.0 | 12.0 |
| ϕ25 | 28.0 | 8.0 | 32.0 | 12.0 | 17.0 | 11.0 | 16.0 |
| ϕ32 | 32.0 | 8.0 | 34.0 | 18.5 | 23.5 | 11.5 | 16.5 |

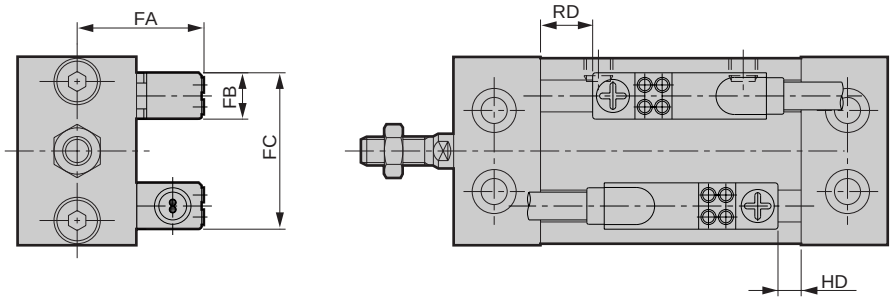
## SMD2 series common dimensions of types with switches (2 color indicator type, preventive maintenance output switch)

● SMD2-L-DC (with switch: K2YH/V, K3YH/V)
-XL
-YL




| Bore size (mm) | FA | FB | FC | RD | | HD | |
|---|---|---|---|---|---|---|---|
| | | | | SMD2-L SMD2-YL | SMD2-XL | SMD2-L SMD2-XL | SMD2-YL |
| ϕ 6 | 13.5 | 8.0 | 18.0 | 4.0 | 9.0 | 0.5 | 5.5 |
| ϕ 10 | 14.5 | 8.0 | 21.0 | 5.0 | 10.0 | 2.5 | 7.5 |
| ϕ 16 | 16.5 | 8.0 | 27.0 | 9.0 | 14.0 | 4.0 | 9.0 |
| ϕ 20 | 19.5 | 8.0 | 29.0 | 12.0 | 17.0 | 7.0 | 12.0 |
| ϕ 25 | 22.5 | 8.0 | 32.0 | 12.0 | 17.0 | 11.0 | 16.0 |
| ϕ 32 | 26.5 | 8.0 | 34.0 | 18.5 | 23.5 | 11.5 | 16.5 |

● SMD2-L-DC (with switch: K2YFH/V, K3YFH/V, K2YMH/V, K3YMH/V)
-XL
-YL




| Bore size (mm) | FA | FB | FC | RD | | HD | |
|---|---|---|---|---|---|---|---|
| | | | | SMD2-L SMD2-YL | SMD2-XL | SMD2-L SMD2-XL | SMD2-YL |
| ϕ6 | 19.0 | 8.0 | 18.0 | 4.0 | 9.0 | 0.5 | 5.5 |
| ϕ10 | 20.0 | 8.0 | 21.0 | 5.0 | 10.0 | 2.5 | 7.5 |
| ϕ16 | 22.0 | 8.0 | 27.0 | 9.0 | 14.0 | 4.0 | 9.0 |
| ϕ20 | 25.0 | 8.0 | 29.0 | 12.0 | 17.0 | 7.0 | 12.0 |
| ϕ25 | 28.0 | 8.0 | 32.0 | 12.0 | 17.0 | 11.0 | 16.0 |
| ϕ32 | 32.0 | 8.0 | 34.0 | 18.5 | 23.5 | 11.5 | 16.5 |