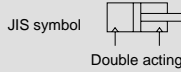


Compact cylinder, double acting/single rod

# SMD2 Series

• Bore size: 6, 10, 16, 20, 25, 32 mm



CAD DATA AVAILABLE.

## Specifications

Descriptions	SMD2 SMD2-L (with switch)						
	6 dia.	10 dia.	16 dia.	20 dia.	25 dia.	32 dia.	
Bore size	mm	6 dia.	10 dia.	16 dia.	20 dia.	25 dia.	32 dia.
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	°C	-10 to 60 (to be unfrozen)					
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 lubrication, use turbine oil Class 1 ISOVG32.)						
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)
6 dia.	5, 10, 15, 20, 25, 30	60	5
10 dia.			
16 dia.			
20 dia.			
25 dia.	5, 10, 15, 20, 25, 30, 40, 50	100	
32 dia.			

## Min. stroke length of types with switch

Model	Bore size	1 color indicator		2 color indicator		With preventive maintenance output	
		K * H	K * V	K * YH	K * YV	K * Y * H	K * Y * V
SMD2-L-DA	6 dia.	5		5	5	5	
	10 dia.						
	16 dia.						
	20 dia.						
	25 dia.						
SMD2-L-DB/DC	6 dia.	15	5	15	10	10	
	10 dia.	10		15	10	10	
	16 dia.	10		10	10	10	
	20 dia.	10		10	5	5	
	25 dia.	5		5	5	5	
	32 dia.	5		5	5	5	

### Switch specifications

- One color/bi-color indicator type

Descriptions	Proximity 2 wire		Proximity 3 wire		Reed 2 wire			
	K2H/K2V	K2YH/K2YV	K3H/K3V	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	
Power voltage	-		DC10 to 28V		-			
Load voltage	DC10 to 30V		DC30V or less		DC12V/24V	AC110V	DC5/12/24V	AC110V
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)	Red/green LED (ON lighting)	LED (ON lighting)		-	

Note 1: Max. load current above 20mA is the value at 25 °C. When ambient temperature around switches is higher than 25 °C, the value is lower than 20mA. (5 to 10mA at 60 °C.)

- Equipped 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		
Light	Installation position adjustment	Red/green LED (ON lighting)							
	Preventive maintenance output	-		-		Yellow LED (ON lighting)			
Output	Current voltage	-		DC10 to 28V		-		DC10 to 28V	
	Load voltage	DC10 to 30V		DC30V or less		DC10 to 30V		DC30V or less	
	Load current	DC5 to 20mA		DC50mA or less		DC5 to 20mA		DC50mA or less	
Preventive maintenance output	Load voltage	DC30V or less							
	Load current	DC20mA or less		DC50mA or less		DC5 to 20mA or less		DC50mA or less	

### Cylinder mass

Unit (g)

Model No.	product mass when stroke length S=0mm		Additional mass per S=5mm
	SMD2 Double acting	SMD2-L Double acting with sw.	
6 dia.	DA	26	3
	DB	25	
	DC	34	
10 dia.	DA	37	4
	DB	36	
	DC	48	
16 dia.	DA	70	6
	DB	68	
	DC	97	
20 dia.	DA	137	11
	DB	131	
	DC	178	
25 dia.	DA	229	17
	DB	220	
	DC	291	
32 dia.	DA	445	26
	DB	427	
	DC	574	

### Mass of discrete cylinder switch

Unit (g)

Name	Model	Lead wire length		
		1m	3m	5m
Cylinder switch	K0	18	52	86
	K2	18	52	86
	K3	18	52	86
	K5	18	52	86

(E. g.) product mass

- SMD2-L-DA-16-10-K2-D
- Product mass at stroke length =0mm is 87g
  - Additional mass at S=10mm is 6g X 10/5 =12g
  - Mass of two cylinder switches is 18g X 2 =36g
  - Product mass is 87g + 12g + 36g = 135g

SCP \* 2

CMK2

CMA2

SCM

SCA2

SCS

CKV2

CAV2/COV \* 2

CAT

MDC2

MVC

SMD2

MSD/MSDG

SSD

SSD (large)

FC \*

ULKP/ULK

JSK2/JSK2

JSC3 (medium)

JSC3 (large)

JSB3

UCAC

ST/STL

LCS

LCY

STR2

UCA2

STK

USSD

USC

MFC

GLC

SHC

CAC3

HCM

HCA

MRL2

SRL2

SRG

SRM

SRT

SRB2

Space saving structure  
Compact cylinder

# SMD2 Series

How to order  
Without switch

**SMD2** - **DA** - **6** - **15**

With switch

**SMD2-L** - **DA** - **6** - **15** - **K2H** - **R**

**A** Mounting style

**B** Bore size

**C** Stroke length

**D** Switch model No.

Note 1, Note 2

**E** Switch quantity

Symbol	Descriptions
<b>A Mounting style</b>	
DA	Rod side mounting type
DB	Head side mounting type
DC	High rigid mounting type

<b>B Bore size (mm)</b>	
6	6 dia.
10	10 dia.
16	16 dia.
20	20 dia.
25	25 dia.
32	32 dia.

<b>C Stroke length (mm)</b>							
Bore size		6	10	16	20	25	32
5	5	●	●	●	●	●	●
10	10	●	●	●	●	●	●
15	15	●	●	●	●	●	●
20	20	●	●	●	●	●	●
25	25	●	●	●	●	●	●
30	30	●	●	●	●	●	●
40	40				●	●	●
50	50				●	●	●

<b>D Switch model No.</b>					
Axial lead wire	Radial lead wire	Contact	Indicator	Lead wire	
K0H *	K0V *	Reed	1 color indicator	2 wire	
K5H *	K5V *				
K2H *	K2V *				
K3H *	K3V *	Proximity	1 color indicator	3 wire	
K2YH *	K2YV *				
K3YH *	K3YV *				
K2YFH *	K2YFV *		With preventive maintenance output	2 color indicator	2 wire
K3YFH *	K3YFV *				
K2YMH *	K2YMV *				
K3YMH *	K3YMV *			3 wire	
				4 wire	

<b>*Lead wire length</b>	
Blank	1m (standard)
3	3m (option)
5	5m (option)

<b>E Switch quantity</b>	
R	One on rod side
H	One on head side
D	Two

## ⚠ Cautions for 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 side mounting type)		DC (high rigid mounting type)	
	5 mm stroke	10 mm stroke	5 mm stroke	10 mm stroke
6 dia.	X	X	X	X
10 dia.	X		X	
16 dia.	X		X	
20 dia.	X		X	
25 dia.				
32 dia.				

Note 2: Available other than **D** switch model No. (custom order)  
Please refer to Ending 1 about details.

Note 3: Copper and PTFE free specifications provided as standard.

<Example of model number>

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

Model: Compact cylinder

**A** Mounting style : Rod side mounting type

**B** Bore size : 6 mm

**C** Stroke length : 15 mm

**D** Switch model No : Reed switch K0H, lead wire length 1m

**E** Switch quantity : One on rod side

How to order switch

**SW** - **K2H \***

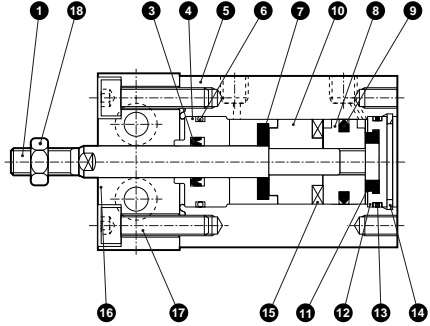
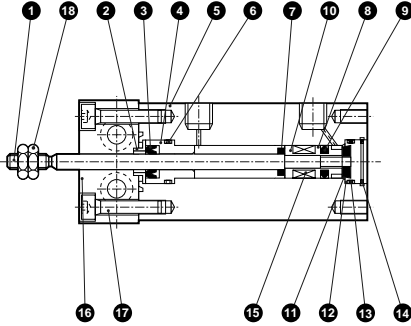
**D**

Switch model No.  
(Above **D**)

## Internal structure and parts list

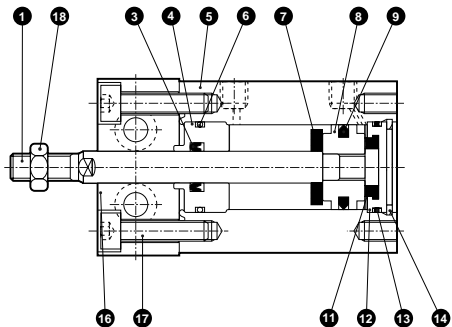
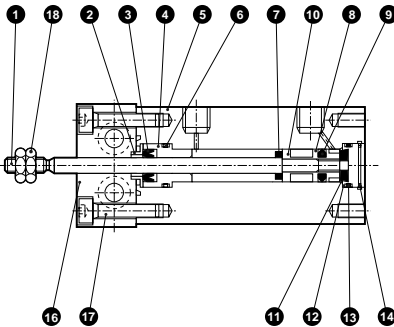
• Double acting with switch/magnet built-in type SMD2-L  
6, 10 mm bore

16, 20, 25, 32 mm bore



• Double acting SMD2  
6, 10 mm bore

16, 20, 25, 32 mm bore




No.	Parts name	Material	Remarks	No.	Parts name	Material	Remarks
1	Piston rod	Stainless steel	20, 25, 32 dia., industrial chrome plated	10	Spacer	Aluminum alloy	
2	Cap	Aluminum alloy		11	Cushion rubber (H)	Urethane rubber	
3	Rod packing seal	Nitrile rubber		12	Bottom plate	Aluminum alloy	Chromate
4	Rod bushing	Aluminum alloy	Alumite	13	Gasket	Nitrile rubber	
5	Tube	Aluminum alloy	Hard alumite disposal	14	C model snap ring	Tool steel	Phosphate coating
6	Gasket	Nitrile rubber		15	Piston magnet	Plastic magnet	
7	Cushion rubber (R)	Urethane rubber		16	Mount	Aluminum alloy	Black alumite
8	Piston	Aluminum alloy		17	Hexagon socket head cap screw	Steel	Blackening
9	Piston packing seal	Nitrile rubber		18	Hexagon nut	Carbon steel	Nickeling

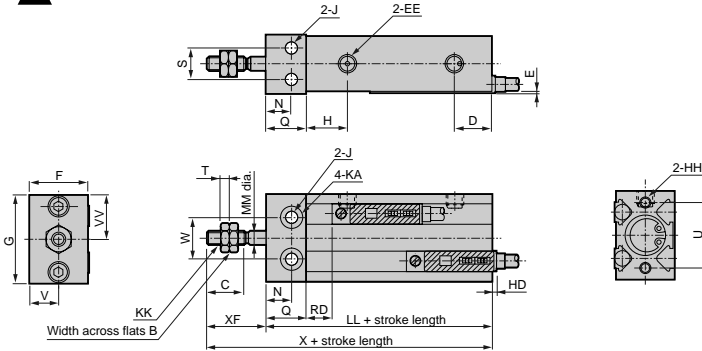
### Repair parts list

Bore size (mm)	Kit number	Repair parts number	Bore size (mm)	Kit number	Repair parts number
6 dia.	SMD2-6K		20 dia.	SMD2-20K	
10 dia.	SMD2-10K	3 7 9 11 13	25 dia.	SMD2-25K	3 7 9 11 13
16 dia.	SMD2-16K		32 dia.	SMD2-32K	

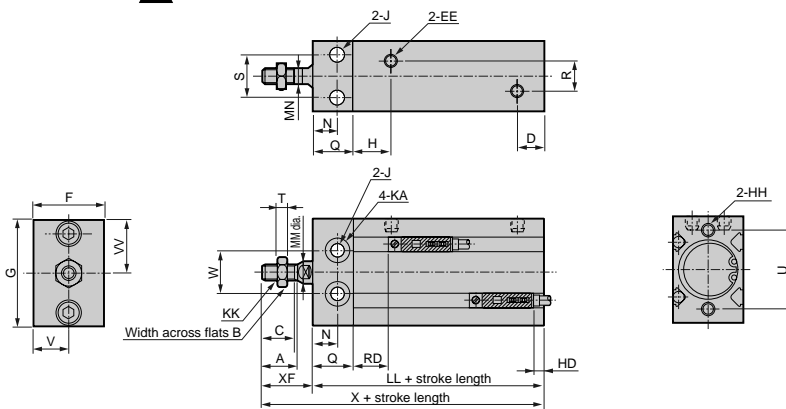
### Dimensions

• Double acting (with switch)/rod side mounting type SMD2- (L)-DA

6, 10 mm bore  (File name: Page 586 or Ending 121)



16, 20, 25, 32 mm bore  (File name: Page 586 or Ending 121)



Symbol	A	B	C	D	EE	F	G	H	HH	J	KA	KK	LL	MM	MN	N	Q	R	S	T			
6 dia.	-	5.5	7	10	M5	13.4	22.4	11	M2.5 depth5	3.4 (penetrating)	5.9 spot face depth5.3	M3	38	3	-	7	11	-	7	1.8			
10 dia.	-	7	10	10	M5	15.4	24.4	11	M3 depth5	3.4 (penetrating)	5.9 spot face depth5.5	M4	41	4	-	7	11	-	9	2.4			
16 dia.	12.5	8	11	10	M5	20.4	32.4	10	M4 depth 6	4.5 (penetrating)	7.5 spot face depth 7	M5	40	6	5	7	15	5	12	3.2			
20 dia.	13.5	10	12	10	M5	26.4	40.4	14	M5 depth 8	5.5 (penetrating)	9 spot face depth 8.5	M6	46	8	6	9	15	12	16	3.6			
25 dia.	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	50	10	8	10	15	13	20	5			
32 dia.	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	62	12	10	11	20	17	24	6			
With switch																							
Symbol	U	V	VV	W	XF	X	K0H/K5H		K2H/K3H		K0V/K5V		K2V/K3V										
							LL	X	E	HD	RD	HD	RD	HD	RD	HD	RD	HD	RD				
6 dia.	17	6.7	11.2	10	13	51	38	51	0.5	-2.0	5.0	-3.0	6.0	-5.0	5.0	-6.0	6.0						
10 dia.	18	7.7	12.2	11	16	57	41	57	0.5	0.5	5.5	-1.0	7.0	-2.5	5.5	-4.0	7.0						
16 dia.	24	10.2	16.2	14	16	56	50	66	-	1.5	10.0	0.5	11.0	-1.5	10.0	-2.5	11.0						
20 dia.	30	13.2	20.2	16	19	65	56	75	-	5.5	12.5	4.5	13.5	2.5	12.5	1.5	13.5						
25 dia.	38	16.2	25.2	20	23	73	60	83	-	8.5	12.5	7.5	13.5	5.5	12.5	4.5	13.5						
32 dia.	48	20.2	31.2	24	27	89	72	99	-	9.0	19.0	8.0	20.0	6.0	19.0	5.0	20.0						

Note 1: For 5 or 10 mm stroke, HD/RD dimensions may vary depending on the set value.

Note 2: Negative dimensions show dimensions of projecting section of switch from main body.


Note 3: Please refer to Page 573 about HD, RD, dimensions of projecting section of 2 color indicator type preventive maintenance output switch.

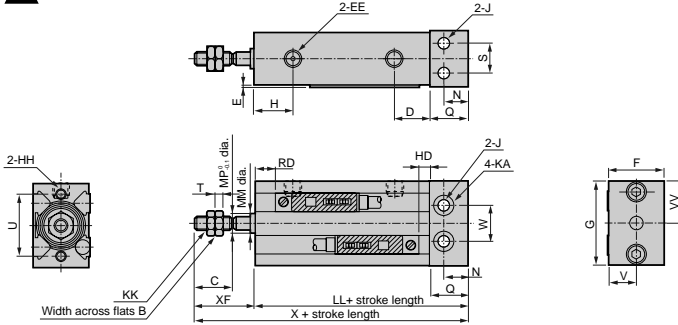
SCP \* 2  
CMK2  
CMA2  
SCM  
SCA2  
SCS  
CKV2  
CAV2/  
COV \* 2  
CAT  
MDC2  
MVC  
**SMD2**  
MSD/  
MSDG  
SSD  
SSD  
(large)  
FC \*  
ULKP/  
ULK  
JSK2/  
JSM2  
JSC3  
(medium)  
JSC3  
(large)  
JSB3  
UCAC  
STS/  
STL  
LCS  
LCY  
STR2  
UCA2  
STK  
USSD  
USC  
MFC  
GLC  
SHC  
CAC3  
HCM  
HCA  
MRL2  
SRL2  
SRG  
SRM  
SRT  
SRB2

Space saving structure  
Compact cylinder

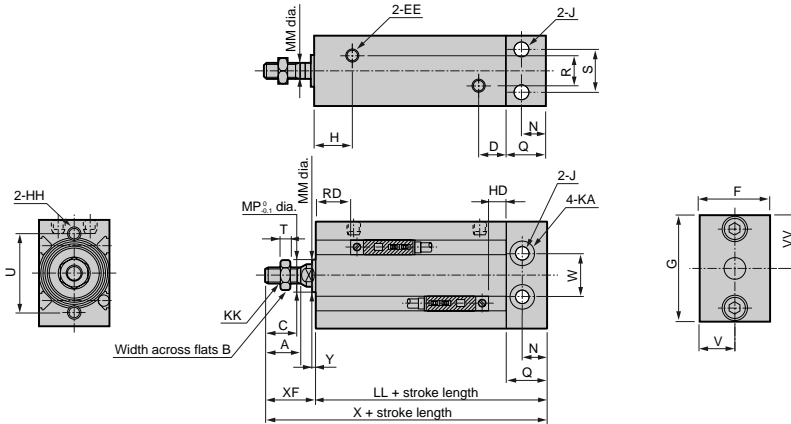
## Dimensions

• Double acting (with switch)/head side mounting type SMD2- (L)-DB

6, 10 mm bore  (File name: Page 586 or Ending 121)



16, 20, 25, 32 mm bore  (File name: Page 586 or Ending 121)




Symbol	A	B	C	D	EE	F	G	H	HH	J	KA	KK	LL	MM	MN	MP	N	Q	R	S	T
6 dia.	-	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	38	3	-	5	7	11	-	7	1.8
10 dia.	-	7	10	10	M5	15.4	24.4	11	M3 depth 5	3.4 (penetrating)	5.9 spot face depth 5.5	M4	41	4	-	6	7	11	-	9	2.4
16 dia.	12.5	8	11	10	M5	20.4	32.4	10	M4 depth 6	4.5 (penetrating)	7.5 spot face depth 7	M5	40	6	5	8	7	15	5	12	3.2
20 dia.	13.5	10	12	10	M5	26.4	40.4	14	M5 depth 8	5.5 (penetrating)	9 spot face depth 8.5	M6	46	8	6	12	9	15	12	16	3.6
25 dia.	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	50	10	8	14	10	15	13	20	5
32 dia.	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	62	12	10	16	11	20	17	24	6
With switch																					
Symbol	U	V	VV	W	XF	X	Y	K0H/K5H		K2H/K3H		K0V/K5V		K2V/K3V							
Bore size (mm)	LL	X	E	HD	RD	HD	RD	HD	RD	HD	RD	HD	RD								
6 dia.	17	6.7	11.2	10	14	52	1	38	52	0.5	1.5	5.0	2.5	6.0	1.5	5.0	2.5	6.0			
10 dia.	18	7.7	12.2	11	17	58	1	41	58	0.5	3.5	5.5	4.5	7.0	3.5	5.5	4.5	7.0			
16 dia.	24	10.2	16.2	14	16	56	1	50	66	-	5.0	10.0	6.0	11.0	5.0	10.0	6.0	11.0			
20 dia.	30	13.2	20.2	16	19	65	1.5	56	75	-	8.5	12.5	9.5	13.5	8.5	12.5	9.5	13.5			
25 dia.	38	16.2	25.2	20	23	73	2	60	83	-	11.5	12.5	12.5	13.5	11.5	12.5	12.5	13.5			
32 dia.	48	20.2	31.2	24	27	89	2	72	99	-	12.0	19.0	13.5	20.0	12.0	19.0	13.5	20.0			

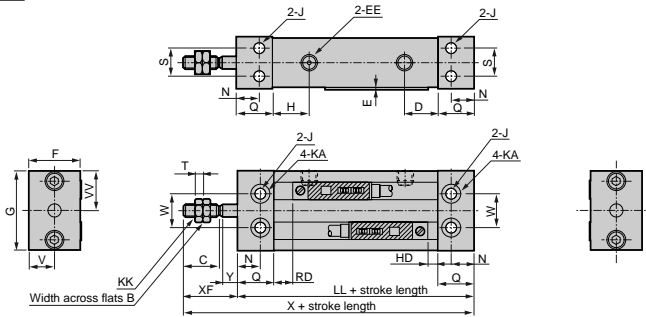
Note 1: For 5 or 10 mm stroke, HD/RD dimensions may vary depending on the set value.  
 Note 2: Negative dimensions show dimensions of projecting section of switch from the main body.  
 Note 3: For 5, 10 mm stroke cylinders, use K \* V switch because K \* H switch cannot be installed.  
 Note 4: For 5 mm stroke cylinder, use K \* V switch because K \* H switch cannot be installed.

Note 5: Please refer to Page 573 about HD, RD, dimensions of projecting section of 2 color indicator type preventive maintenance output switch.

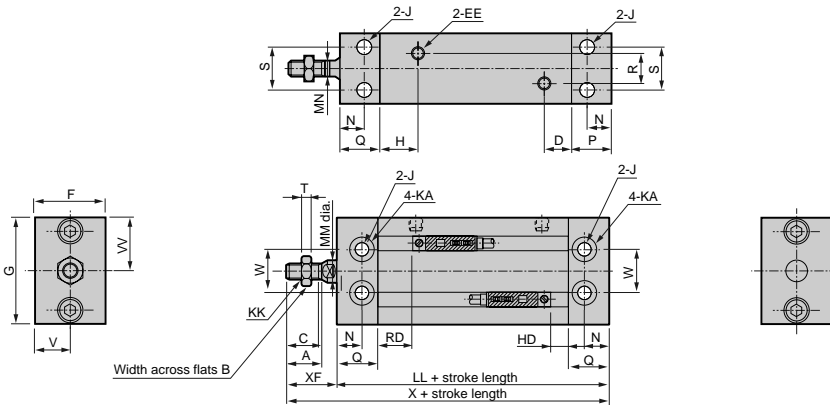
### Dimensions

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

6, 10 mm bore  (File name: Page 586 or Ending 121)



16, 20, 25, 32 mm bore  (File name: Page 586 or Ending 121)



Symbol	A	B	C	D	EE	F	G	H	HH	J	KA	KK	LL	MM	MN	N	Q	R	S	T
6 dia.	-	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	49	3	-	7	11	-	7	1.8
10 dia.	-	7	10	10	M5	15.4	24.4	11	M3 depth 5	3.4 (penetrating)	5.9 spot face depth 5.5	M4	52	4	-	7	11	-	9	2.4
16 dia.	12.5	8	11	10	M5	20.4	32.4	10	M4 depth 6	4.5 (penetrating)	7.5 spot face depth 7	M5	55	6	5	7	15	5	12	3.2
20 dia.	13.5	10	12	10	M5	26.4	40.4	14	M5 depth 8	5.5 (penetrating)	9 spot face depth 8.5	M6	61	8	6	9	15	12	16	3.6
25 dia.	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	65	10	8	10	15	13	20	5
32 dia.	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	82	12	10	11	20	17	24	6

Symbol	With switch										Space saving structure								
	U	V	VV	W	XF	X	K0H/K5H		K2H/K3H		K0V/K5V		K2V/K3V						
							HD	RD	HD	RD	HD	RD	HD	RD					
6 dia.	17	6.7	11.2	10	13	62	49	62	0.5	1.5	5.0	2.5	6.0	1.5	5.0	2.5	6.0	2.5	6.0
10 dia.	18	7.7	12.2	11	16	68	52	68	0.5	3.5	5.5	4.5	7.0	3.5	5.5	4.5	7.0	4.5	7.0
16 dia.	24	10.2	16.2	14	16	71	65	81	-	5.0	10.0	6.0	11.0	5.0	10.0	6.0	11.0	6.0	11.0
20 dia.	30	13.2	20.2	16	19	80	71	90	-	8.5	12.5	9.5	13.5	8.5	12.5	9.5	13.5	9.5	13.5
25 dia.	38	16.2	25.2	20	23	88	75	98	-	11.5	12.5	12.5	13.5	11.5	12.5	12.5	13.5	12.5	13.5
32 dia.	48	20.2	31.2	24	27	109	92	119	-	12.0	19.0	13.5	20.0	12.0	19.0	13.5	20.0	13.5	20.0

Note 1: For 5 or 10 mm stroke, HD/RD dimensions may vary depending on the set value.  
 Note 2: Negative dimensions show dimensions of projecting section of switch from the 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: Please refer to Page 573 about HD, RD, dimensions of projecting section of 2 color indicator type preventive maintenance output switch.

- SCP \* 2
- CMK2
- CMA2
- SCM
- SCA2
- SCS
- CKV2
- CAV2/
- COV \* 2
- CAT
- MDC2
- MVC
- SMD2**
- MSD/MSDG
- SSD
- SSD (large)
- FC \*
- ULKP/
- ULK
- JSK2/
- JSM2
- JSC3 (medium)
- JSC3 (large)
- JSB3
- UCAC
- STS/
- STL
- LCS
- LCY
- STR2
- UCA2
- STK
- USSD
- USC
- MFC
- GLC
- SHC
- CAC3
- HCM
- HCA
- MRL2
- SRL2
- SRG
- SRM
- SRT
- SRB2

Space saving structure  
Compact cylinder