

Tie rod cylinder, double acting double rod type

# SCG-D Series

● Bore size:  $\phi 32, \phi 40, \phi 50, \phi 63, \phi 80, \phi 100$

JIS symbol



## Specifications

Descriptions		SCG-D								
Bore size	mm	$\phi 32$	$\phi 40$	$\phi 50$	$\phi 63$	$\phi 80$				
Actuation		Double acting								
Working fluid		Compressed air								
Max. working pressure	MPa			1.0						
Min. working pressure	MPa			0.1						
Withstanding pressure	MPa			1.6						
STK	Ambient temperature °C	-10 to 60 (no freezing)								
ULK*	Port size	Rc1/8	Rc1/4	Rc3/8	Rc1/2					
JSK/M2	Stroke tolerance mm	Rubber cushioned	$^{+1.4}_{-0}$ (Up to 800)							
JSG		Air cushioned	$^{+1.0}_{-0}$ (Up to 360), $^{+1.4}_{-0}$ (361 to 800)							
JSC3	Working piston speed mm/s	50 to 1000 (use within the allowable energy absorption.)								
USSD	Cushion	Selection of air cushion and rubber cushion possible								
USC	Effective air cushion length mm	8.6	8.6	13.4	13.4	15.4				
JSB3	Lubrication	Not required (when lubricating, use turbine oil Class 1 ISO VG32.)								
LMB	Allowable energy absorption J	Rubber cushioned	0.5	0.9	1.6	1.6				
STG		Air cushioned	2.5	3.7	8.0	14.4				
STS/L						25.4				
LCS						45.6				

## Stroke length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Min. stroke length (mm)
$\phi 32$			
$\phi 40$	25, 50, 75, 100		
$\phi 50$	150, 200, 250	600	
$\phi 63$	300, 350, 400		
$\phi 80$	450, 500	700	
$\phi 100$		800	

Note 1: The custom stroke can be manufactured in 1 mm increments.

Note 2: If the maximum stroke is exceeded, product specifications may not be met, depending on operating conditions. Consult with CKD in this case.

## Min. stroke length with T0/T5 switch

Switch quantity	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation The position cannot be detected on rod side stroke end.	Head end trunnion installation The position cannot be detected on head side stroke end.	
	1	2	3	4	1	2	3	4	1	2	3	4	1		
Bore size (mm)	1	2	3	4	1	2	3	4	1	2	3	4	1		
$\phi 32$	9	17	34	51	9	48 (33)	78 (64)	109 (94)	94 (94)	94 (94)	169 (155)	169 (155)	42	42	
$\phi 40$	9	18	36	54	9	48 (33)	78 (64)	109 (94)	81 (81)	81 (81)	164 (142)	164 (142)	38	38	
$\phi 50$	9	18	36	54	9	18	36	54	112 (112)	112 (112)	121 (121)	121 (121)	51	53	
$\phi 63$	10	19	38	57	10	19	38	57	85 (73)	85 (73)	91 (91)	91 (91)	41	42	
$\phi 80$	10	20	39	59	10	20	39	59	96 (66)	96 (66)	99 (99)	99 (99)	41	47	
$\phi 100$	10	20	40	60	10	20	40	60	101 (71)	101 (71)	105 (105)	105 (105)	47	53	

● Note 1: Value in ( ) for T\*V (Radial lead wire).

● Note 2: When stroke length is not greater than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

## Min. stroke length with T8 switch

Switch quantity	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation The position cannot be detected on rod side stroke end.	Head end trunnion installation The position cannot be detected on head side stroke end.	
	1	2	3	4	1	2	3	4	1	2	3	4	1		
Bore size (mm)	1	2	3	4	1	2	3	4	1	2	3	4	1		
$\phi 32$	9	17	34	51	9	54 (31)	84 (62)	115 (92)	100 (100)	100 (100)	191 (161)	191 (161)	45	45	
$\phi 40$	9	18	36	54	9	54 (31)	84 (62)	115 (92)	87 (87)	87 (87)	178 (148)	178 (148)	41	41	
$\phi 50$	9	18	36	54	9	18	36	54	116 (116)	116 (116)	121 (121)	121 (121)	54	55	
$\phi 63$	10	19	38	57	10	19	38	57	89 (77)	89 (77)	99 (99)	99 (99)	44	44	
$\phi 80$	10	20	39	59	10	20	39	59	100 (70)	100 (70)	111 (111)	111 (111)	43	49	
$\phi 100$	10	20	40	60	10	20	40	60	105 (75)	105 (75)	117 (117)	117 (117)	49	55	

● Note 1: Value in ( ) for T\*V (Radial lead wire).

● Note 2: When stroke length is not greater than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

## Min. stroke length with T2/T3 switch

Switch quantity	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation The position cannot be detected on rod side stroke end.	Head end trunnion installation The position cannot be detected on head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4		
∅ 32	5	10	20	30	5	40 (33)	70 (64)	101 (94)	64 (34)	64 (34)	131 (95)	131 (95)	27	27
∅ 40	5	10	20	30	5	40 (33)	70 (64)	101 (94)	69 (39)	69 (39)	152 (100)	152 (100)	32	32
∅ 50	5	10	20	30	5	10	20	30	71 (41)	71 (41)	71 (61)	71 (61)	31	32
∅ 63	6	11	21	32	6	11	21	32	77 (47)	77 (47)	77 (68)	77 (68)	37	38
∅ 80	6	11	22	33	6	11	22	33	88 (58)	88 (58)	88 (80)	88 (80)	37	43
∅ 100	6	11	22	33	6	11	22	33	93 (63)	93 (63)	93 (85)	93 (85)	43	49

● Note 1: Value in ( ) for T\*V (L type lead wire).

● Note 2: When stroke length is not greater than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

## Min. stroke length with T1/T2Y/T3Y/T2YD switch

Switch quantity	Different surface installation				Same surface installation				Center trunnion installation				Rod end trunnion installation The position cannot be detected on rod side stroke end.	Head end trunnion installation The position cannot be detected on head side stroke end.
	1	2	3	4	1	2	3	4	1	2	3	4		
∅ 32	6	11	22	33	6	62 (49)	92 (80)	123 (110)	86 (56)	86 (56)	177 (117)	177 (117)	38	38
∅ 40	6	11	22	33	6	62 (49)	92 (80)	123 (110)	91 (61)	91 (61)	182 (122)	182 (122)	43	43
∅ 50	6	12	24	36	6	12	24	36	93 (63)	93 (63)	93 (68)	93 (68)	42	43
∅ 63	6	12	24	36	6	12	24	36	99 (69)	99 (69)	99 (74)	99 (74)	48	49
∅ 80	7	13	25	38	7	13	25	38	110 (80)	110 (80)	110 (86)	110 (86)	48	54
∅ 100	7	13	26	39	7	13	26	39	115 (85)	115 (85)	115 (92)	115 (92)	54	60

● Note 1: Value in ( ) for T\*V (Radial lead wire). Note that radial lead wire (V) is not available for T2YD.

● Note 2: When stroke length is not greater than 15 mm, two switches could turn ON at the same time. In this case, adjust the distance between switches as far as possible.

## Switch specifications

● 1 color/2 color indicator, strong magnetic field proof

\* The T0/T5 switch can be used with 220 VAC.  
Consult with CKD for working conditions.

Descriptions	Proximity 2-wire			Proximity 3-wire			Reed 2-wire				Proximity 2-wire	
	T1H/T1 V	T2H/T2V/ T2JH/T2JV	T2YH/T2YV	T3H/T3V/ (Custom order)	T3PH/T3PV	T3YH/T3YV	TOH/TOV	T5H/T5V	T8H/T8V	T2YD		
Applications	Programmable controller, relay, small solenoid valve	Programmable controller dedicated		Programmable controller, relay		Programmable controller, relay						
Output method	-			NPN output	PNP output	NPN output					-	
Power voltage	-			10 to 28 VDC							-	
Load voltage	85 to 265 VAC	10 to 30 VDC		30 VDC or less		12/24 VDC	110 VAC	5/12/24 VDC	110 VAC	12/24 VDC	110 VAC	220 VAC
Load current	5 to 100 mA	5 to 20 mA (Note 1)		100 mA or less	50 mA or less	5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less	5 to 50 mA	7 to 20 mA	7 to 10 mA
Light	LED (ON lighting)	LED (ON lighting)	Red/green LED (ON lighting)	LED (ON lighting)	Green LED (ON lighting)	Red/green LED (ON lighting)	LED (ON lighting)	w/o light	LED (ON lighting)	Red/green LED (ON lighting)		
Leakage current	1 mA or less with 100 VAC 2 mA or less with 200 VAC	1 mA or less		10 μA or less				0 mA			1mA or less	

● With preventive maintenance output

Descriptions	Proximity 3-wire			Proximity 4-wire			Proximity 3-wire			Proximity 4-wire											
	T2YFH/V			T3YFH/V			T2YMH/V			T3YMH/V											
Applications	Programmable controller dedicated			Programmable controller, relay			Programmable controller dedicated			Programmable controller, relay											
Output method	NPN output																				
Light	Red/Green LED (ON lighting)																				
Regular output	Installation position adjustment section	-			Yellow LED (ON lighting)			-			10 to 28 VDC										
Power voltage	-			10 to 28 VDC			-			30 VDC or less											
Load voltage	10 to 30 VDC			30 VDC or less			10 to 30 VDC			30 VDC or less											
Load current	5 to 20 mA			50 mA or less			5 to 20 mA			50 mA or less											
Leakage current	1mA or less			10 μA or less			1.2 mA or less			10 μA or less											
Preventive maintenance output	30 VDC or less																				
	Load current			50 mA or less			5 to 20 mA or less			50 mA or less											
	10 μA or less																				

Note 1: Refer to Ending 1 for other switch specifications.

Note 2: Max load current above: 20mA at 25°C. When ambient temperature around switch is more than 25 °C, the value is lower than 20 mA.

(5 to 10 mA at 60°C)

## Weight

Bore size (mm)	Product weight when S = 0 mm:				Stroke length: Additional weight per 50mm	Switch mass	Accessory weight		Unit: kg
	Basic type (00)	Foot type (LB)	Flange type (FA, FB)	Trunnion type (TA, TB, TC)			I	Y	
∅ 32	0.57	0.68	0.79	0.74	0.16	0.018	0.07	0.10	
∅ 40	0.80	0.94	1.08	1.14	0.25	0.018	0.07	0.13	
∅ 50	1.38	1.54	1.86	1.86	0.35	0.018	0.20	0.30	
∅ 63	1.64	1.98	2.40	2.52	0.37	0.018	0.20	0.30	
∅ 80	3.11	3.54	4.68	4.60	0.59	0.018	0.52	0.94	
∅ 100	4.41	5.27	6.73	6.98	0.79	0.018	0.48	0.92	

SCP\*2

CMK2

CMA2

SCM

SCG

SCA2

SCS

CKV2

CA/OV2

SSD

CAT

MDC2

MVC

SMD2

MSD\*

FC\*

STK

ULK\*

JSK/M2

JSG

JSC3

USSD

USC

JSB3

LMB

STG

STS/L

LCS

LCG

LCM

LCT

LCY

STR2

UCA2

HCM

HCA

SRL2

SRG

SRM

SRT

MRL2

MRG2

SM-25

CAC3

UCAC

RCC2

MFC

SHC

GLC

Ending

Tie rod cylinder

Standard type

# SCG-D Series

## How to order

SCP*2
CMK2
CMA2
SCM
SCG
SCA2
SCS
CKV2
CA/OV2
SSD
CAT
MDC2
MVC
SMD2
MSD*
FC*
STK
ULK*
JSK/M2
JSG
JSC3
USSD
USC
JSB3
LMB
STG
STS/L
LCS
LCG
LCM
LCT
LCY
STR2
UCA2
HCM
HCA
SRL2
SRG
SRM
SRT
MRL2
MRG2
SM-25
CAC3
UCAC
RCC2
MFC
SHC
GLC
Ending

Without switch

**SCG-D - LB - 32 (●) B - 100** ————— **J Y**

With switch

**SCG-D - LB - 32 (●) B - 100 - T2H - R - J Y**

Model no.

**A** Mounting style  
Note 1

**B** Bore size

**C** Port thread type

**D** Cushion

**E** Stroke length

**F** Switch model no.

**G** Switch quantity  
Note 3

**H** Option  
Note 4

**I** Accessory

Symbol	Descriptions		
<b>A</b> Mounting style			
00	Basic type		
LB	Axial foot type		
FA	Rod end flange type		
FB	Head end flange type		
TA	Rod end trunnion type		
TB	Head end trunnion type		
TC	Center trunnion type		
<b>B</b> Bore size (mm)			
32	$\phi$ 32		
40	$\phi$ 40		
50	$\phi$ 50		
63	$\phi$ 63		
80	$\phi$ 80		
100	$\phi$ 100		
<b>C</b> Port thread type			
Blank	Rc thread		
N	NPT thread (custom order)		
G	G thread (custom order)		
<b>D</b> Cushion			
B	Both sides air cushion (basic type)		
D	Both sides rubber cushion		
Note: The rubber cushion is longer than the air cushion types.			
<b>E</b> Stroke length (mm)			
Bore size	Stroke length Note 2	Custom stroke length	
$\phi$ 32	1 to 600		
$\phi$ 40			
$\phi$ 50			
$\phi$ 63			
$\phi$ 80	1 to 700	Per 1 mm increment	
$\phi$ 100	1 to 800		
<b>F</b> Switch model no.			
Axial lead wire	Radial lead wire	Contact	Indicator
T0H*	T0V*	Reed	1 color indicator type
T5H*	T5V*		w/o light
T8H*	T8V*		1 color indicator type
T1H*	T1V*	Proximity	1 color indicator type
T2H*	T2V*		2-wire
T3H*	T3V*		3-wire
T3PH*	T3PV*		1 color indicator type (custom order)
T2YH*	T2YV*		2-wire
T3YH*	T3YV*		3-wire
T2YFH*	T2YFV*		2 color indicator type (w/o light for preventive maintenance output)
T3YFH*	T3YFV*		4-wire
T2YMH*	T2YMV*		2 color indicator type (with light for preventive maintenance output (1 color))
T3YMH*	T3YMV*	Strong magnetic field proof switch	3-wire
T2YD*	-		4-wire
T2YDT*	-		2-wire
T2JH*	T2JV*		Off-delay type
<b>*Lead wire length</b>			
Blank	1 m (standard)		
3	3 m (option)		
5	5 m (option)		
<b>G</b> Switch quantity			
R	1 on rod end		
H	1 on head end		
D	Two		
T	Three		
<b>H</b> Option			
J	Bel lows	Max. ambient	Max. instantaneous
M	Piston rod material (stainless steel)		
P6	Copper and PTFE free		
<b>I</b> Accessory			
I	Rod eye		
Y	Rod clevis (pin and split pin attached)		
B4	Trunnion type No. 2 bracket		

<Example of model number>

**SCG-D-LB-40B-100-T2H-D-JI**

Model: Tie rod cylinder double acting double rod type

**A** Mounting style : Axial foot type

**B** Bore size :  $\phi$  40 mm

**C** Port thread type : Rc thread

**D** Cushion : Both sides air cushioned

**E** Stroke length : 100 mm

**F** Switch model no. : Proximity T2H switch, lead wire 1 m

**G** Switch quantity : Two

**H** Option : With bellows

**I** Accessory : Rod eye (attachment)

## How to order switch

- Switch body + mounting bracket

**SCG** - **T0H** - **40**

Switch model no. Bore size  
(Section (F) in previous page) (Section (B) in previous page)

- Only switch body

**SW** - **T0H**

Switch model no.  
(Section (F) in previous page)

- Switch bracket set

**SCG** - **T** - **40**

Bracket Bore size  
(Section (B) in previous page)

Note: Consult with CKD when using  
the environment compatible  
T-type switch.

## How to order mounting bracket

Bore size (mm)	φ32	φ40	φ50	φ63	φ80	φ100
Mounting bracket						
Foot (LB)	SCG-LB-32	SCG-LB-40	SCG-LB-50	SCG-LB-63	SCG-LB-80	SCG-LB-100

Note 1: Designate "SCG-FA-(bore size)-J" for the flange with bellows (FA,FB).

Note 2: The foot type bracket (LB) is a two-piece set.

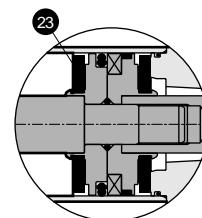
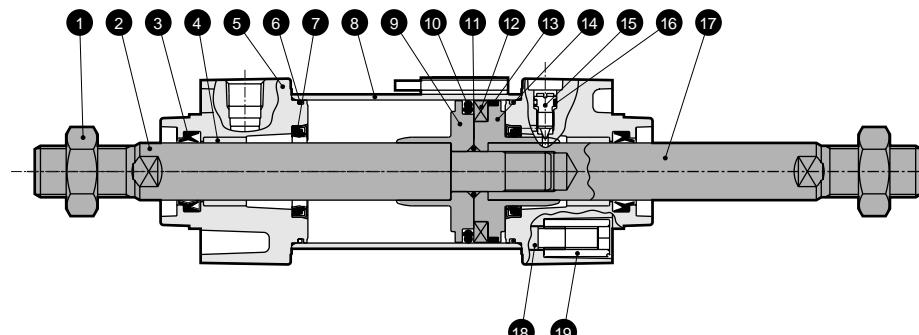
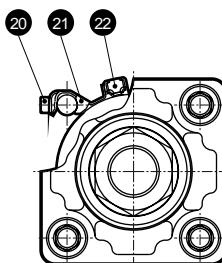
SCP*2
CMK2
CMA2
SCM
<b>SCG</b>
SCA2
SCS
CKV2
CA/OV2
SSD
CAT
MDC2
MVC
SMD2
MSD*
FC*
STK
ULK*
JSK/M2
JSG
JSC3
USSD
USC
JSB3
LMB
STG
STS/L
LCS
LCG
LCM
LCT
LCY
STR2
UCA2
HCM
HCA
SRL2
SRG
SRM
SRT
MRL2
MRG2
SM-25
CAC3
UCAC
RCC2
MFC
SHC
GLC
Ending

Tie rod cylinder  
Standard type

# SCG-D Series

## Internal structure and parts list

### ● SCG-D



Rubber cushioned

No.	Parts name	Material	Remarks	No.	Parts name	Material	Remarks
1	Rod nut	Steel	Nickel plating	13	Wear ring	Polyacetal resin	
2	Piston rod A	Steel	Industrial chrome plating	14	Piston H	φ32, φ40: aluminum alloy φ50 to 100: aluminum alloy die-casting	
3	Rod packing seal	Nitrile rubber		15	Cushion needle	Copper alloy	
4	Bush	Oil impregnated bearing alloy		16	Needle gasket	Nitrile rubber	
5	Rod cover	Aluminum alloy die-casting	Paint	17	Piston rod B	Steel	Industrial chrome plating
6	Cylinder gasket	Nitrile rubber		18	Tie rod	Steel	Zinc chromate plating
7	Cushion packing seal	Nitrile rubber, steel	Only with air cushion	19	Round nut	Steel	Zinc chromate plating
8	Cylinder tube	Aluminum alloy	Hard alumite treatment	20	Hexagon socket head cap bolt	Steel	Zinc chromate plating
9	Piston R	φ32, φ40: aluminum alloy φ50 to 100: aluminum alloy die-casting		21	Switch bracket	Stainless steel	
10	Piston packing seal	Nitrile rubber		22	Switch		
11	Piston gasket	Nitrile rubber		23	Cushion rubber	Urethane rubber	Only with rubber cushion
12	Magnet	Plastic					

## Repair parts list

### ● Air cushioned

Bore size (mm)	Kit No.	Repair parts number
φ 32	SCG-D-32BK	
φ 40	SCG-D-40BK	
φ 50	SCG-D-50BK	
φ 63	SCG-D-63BK	
φ 80	SCG-D-80BK	
φ 100	SCG-D-100BK	

● 3 ● 6 ● 7  
● 10 ● 13 ● 16

Note: Specify the kit No. when placing an order.

### ● Rubber cushioned

Bore size (mm)	Kit No.	Repair parts number
φ 32	SCG-D-32DK	
φ 40	SCG-D-40DK	
φ 50	SCG-D-50DK	
φ 63	SCG-D-63DK	
φ 80	SCG-D-80DK	
φ 100	SCG-D-100DK	

● 3 ● 6 ● 10  
● 13 ● 16 ● 23

Note: Specify the kit No. when placing an order.

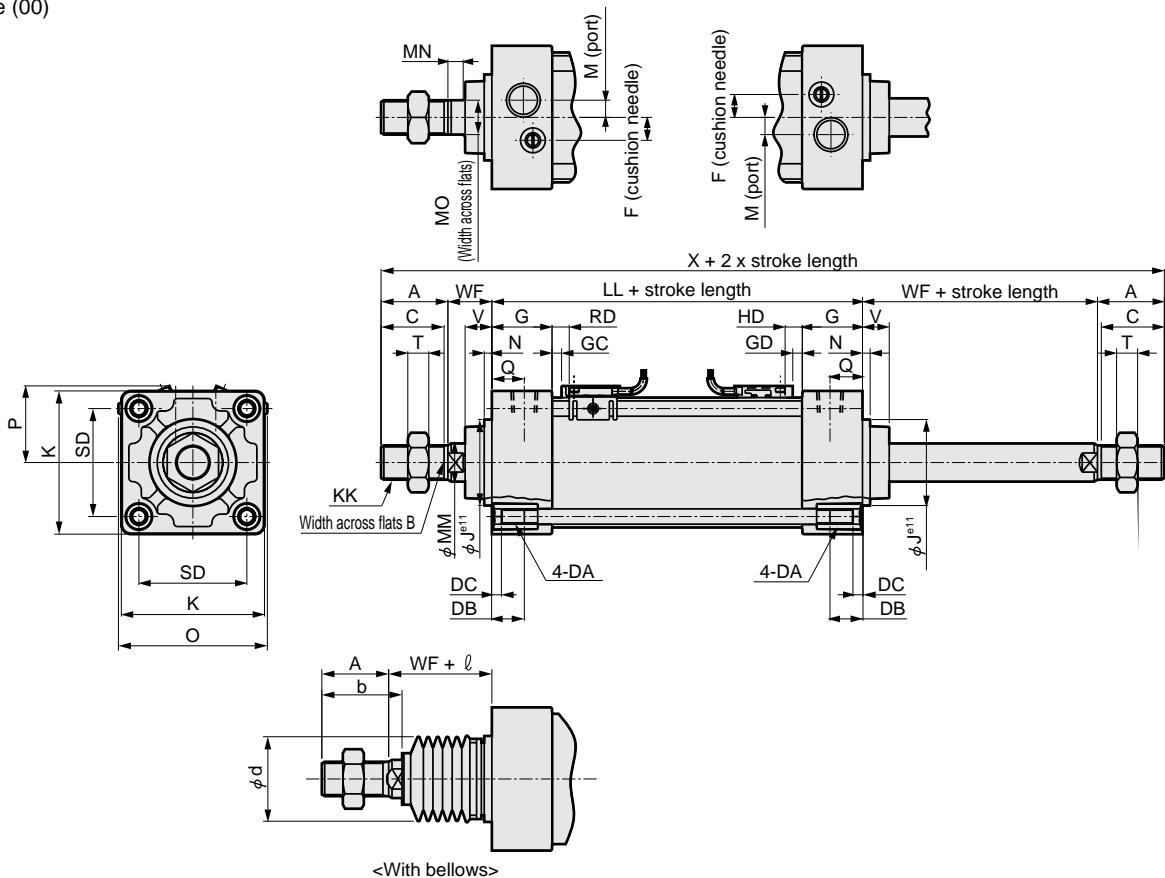
## Mounting bracket material

Mounting style	Material	Remarks
LB	Steel	Nickel plating
FA/FB	Steel	Paint
TA/TB/TC	Cast iron	Paint

## Dimensions



## ● Basic type (00)



Note 1: Dimensions shown in parentheses are for the rubber cushion type. This type is longer than the air cushion type.

( $\phi$  32,  $\phi$  40; +6 mm,  $\phi$  50,  $\phi$  63; +8 mm,  $\phi$  80,  $\phi$  100; +10 mm)

Note 2: RD and HD in the dimensions indicate the switch end positions, and GC and GD indicate the switch rail end positions.

Symbol	Basic type (00) basic dimensions																						
	A	B	C	DA	DB	DC	EE	F	G	J	K	KK	Note 1 LL		M	MM	MN	MO	N	O	Q		
$\phi$ 32	22	17	19.5	M6	16	5	Rc1/8	6.5	27	30	46	M10 x 1.25	84 (90)		4	12	5.5	10	4	51	13		
$\phi$ 40	30	22	27	M6	16	5	Rc1/4	9	27	35	52	M14 x 1.5	84 (90)		4	16	6	14	4	57	14		
$\phi$ 50	35	27	32	M8	16	5	Rc1/4	10.5	31.5	40	65	M18 x 1.5	94 (102)		5	20	8	17	4	68	15.5		
$\phi$ 63	35	27	32	M8	16	5	Rc3/8	12	31.5	45	75	M18 x 1.5	94 (102)		9	20	8	17	4	78	16.5		
$\phi$ 80	40	32	37	M10	16	5	Rc3/8	14	38	45	95	M22 x 1.5	114 (124)		11.5	25	11	22	4	95	19		
$\phi$ 100	40	41	37	M10	16	5	Rc1/2	15	38	55	114	M26 x 1.5	114 (124)		17	30	13	27	4	114	19		
Symbol	With bellows																	$\ell$					
	SD	T	V	WF	Note 1 X		A	b	d	WF	50 or less	50 to 100	100 to 150	150 to 200	200 to 300	300 to 400	400 to 500	500 to 600	600 to 700	700 to 800			
$\phi$ 32	32.5	6	13	25	178 (184)		22	31.5	30	25	26	39	51	64	89	114	139	-	-	-			
$\phi$ 40	38	8	13	21	186 (192)		30	35	40	21	30	43	55	68	93	118	143	-	-	-			
$\phi$ 50	46.5	11	14	23	210 (218)		35	42	47	23	31	44	56	69	94	119	144	169	-	-			
$\phi$ 63	56.5	11	14	23	210 (218)		35	42	47	23	31	44	56	69	94	119	144	169	-	-			
$\phi$ 80	72	13	20	32	258 (268)		40	50	53	32	29	42	54	67	92	117	142	167	192	217			
$\phi$ 100	89	16	20	32	258 (268)		40	52.5	61	32	29	42	54	67	92	117	142	167	192	217			
Symbol	With switch																	Note 3: Refer to page 426 for the HD, RD and projecting dimensions of 2-color indicators with preventive maintenance output.					
	GC Note 1			GD Note 1			RD Note 1			HD Note 1			P	Note 4: Refer to page 428, 429 for accessory dimensions.									
$\phi$ 32	1 (4)			1 (4)			5 (8)			5 (8)			25										
$\phi$ 40	1 (4)			1 (4)			5 (8)			5 (8)			29										
$\phi$ 50	2.5 (6.5)			1 (5)			6.5 (10.5)			5 (9)			34										
$\phi$ 63	2.5 (6.5)			1 (5)			6.5 (10.5)			5 (9)			40										
$\phi$ 80	8.5 (13.5)			2 (7)			12.5 (17.5)			6 (11)			-										
$\phi$ 100	8 (13)			2.5 (7.5)			12 (17)			6.5 (11.5)			-										

Note: Each mounting style installation dimension is same as SCG (double acting single rod). Refer to pages 356 to 363.

SCP*2
CMK2
CMA2
SCM
<b>SCG</b>
SCA2
SCS
CKV2
CA/OV2
SSD
CAT
MDC2
MVC
SMD2
MSD*
FC*
STK
ULK*
JSK/M2
JSG
JSC3
USSD
USC
JSB3
LMB
STG
STS/L
LCS
LCG
LCM
LCT
LCY
STR2
UCA2
HCM
HCA
SRL2
SRG
SRM
SRT
MRL2
MRG2
SM-25
CAC3
UCAC
RCC2
MFC
SHC
GLC
Ending