

Large bore size cylinder  
Double acting/single rod/lubrication type/pre-lubricated type

# SCS Series

- Bore size: 125, 140, 160, 180, 200, 250 mm

JIS symbol



CAD DATA AVAILABLE.

## Specifications

Descriptions		SCS/SCS-N/SCS-LN					
Bore size	mm	125 dia.	140 dia.	160 dia.	180 dia.	200 dia.	250 dia.
Actuation		Double acting					
Working fluid		Compressed air					
Max. working pressure	MPa	1.0					
Min. working pressure	MPa	0.05					
Withstanding pressure	MPa	1.6					
Ambient temperature	°C	-5 to 60 (to be unfrozen)					
Port size		Rc 1/2		Rc 3/4		Rc1	
Stroke tolerance (Note 1)	mm	$^{+1.0}_0$ (to 300), $^{+1.4}_0$ (to 500), $^{+1.4}_0$ (to 1000)					
Working piston speed	mm/s	20 to 1000 (use this within absorbed energy range.)					
Cushion		Air cushion					
Effective cushion length	mm	21.6	21.6	21.6	21.6	26.6	26.6
Lubrication		Required (when lubrication, use turbine oil Class 1 ISO VG32), For SCS- N/LN, not required					
Allowable energy absorption	Cushioned	63.5	91.5	116	152	233	362
	Non cushion	The types without cushioning cannot absorb a large energy generated by an external load. We recommend installation of an external shock absorbing device.					

Note 1: For type with switches  $^{+2.0}_0$  (to 1000), Note 2: For 250 mm bore SCS-LN cylinder, switches are not available.

## Stroke length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	When with switch, min. stroke length (mm)*
125 dia.	50, 75, 100, 150, 200, 250, 300	800	20(10)
140 dia.			When one switch is installed, refer to the value in ( ).
160 dia.			
180 dia.			
200 dia.		900	
250 dia.		1,000	
250 dia.		1,200	—

\* For types with switch, minimum stroke varies depending on installation method. Refer to the below table.

## Min. stroke length of types with switch

Descriptions		When same surface installation, stroke length	Stroke length of center trunnion type	Stroke length of rod side trunnion type	Stroke length of head side trunnion type
Switch type	Bore size Rough sketch				
Reed switch (R *)	125 dia.	20 over	120 over	70 over	
	140 dia.		125 over	75 over	
	160 dia.		130 over	80 over	
	180 dia.		135 over	85 over	
	200 dia.		140 over	90 over	

SCP \* 2  
CMK2  
CMA2  
SCM  
SCA2  
SCS  
CKV2  
CAV2/  
COV \* 2  
CAT  
MDC2  
MVC  
SMD2  
MSD/  
MSDG  
SSD  
SSD  
(large)  
FC \*  
JULKP/  
JULK  
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

### Switch specifications

Descriptions	Proximity 2 wire			Proximity 3 wire		Proximity 2 wire
	R1K	R2K	R2YK (2 color indicator)	R3K	R3YK (2 color indicator)	T2YDP * (Strong magnetic field proof)
Applications	Programmable controller, relay, small solenoid valve		Programmable controller	Programmable controller, relay, IC circuit, solenoid valve		Programmable controller
Power voltage	—		—	DC4.5V to 28V		—
Load voltage/ current	AC85V to 265V 5 to 100mA		DC10 to 30V 5 to 300mA	DC30V or less 200mA or less	150mA or less	DC24V ± 10%, 5 to 20mA
Light	LED (ON lighting)		Red/green LED (ON lighting)	LED (ON lighting)	Red/green LED (ON lighting)	Red/green LED (ON lighting)

Descriptions	Reed 2 wire			
	R0	R4	R5	R6
Applications	Relay, programmable controller	High capacity relay, solenoid valve	Programmable controller, relay, IC circuit (without indicator light), serial connection	Programmable controller (DC self hold type)
Load voltage/ current	DC12/24V, 5 to 50mA or less AC110V, 7 to 20mA or less AC220V, 7 to 10mA or less	AC110V, 20 to 200mA AC220V, 10 to 200mA	DC5/12/24V, 50mA or less AC110V, 20mA or less AC220V, 10mA or less	DC24V, 5 to 50mA
Light	LED ON lighting	Neon light OFF lighting	None	LED ON lighting

Note: Please refer to Ending 1 about other switch specifications.

### Cylinder mass

(Unit: Kg)

Descriptions/ mounting style	Product mass when stroke length (S)=0mm						Mass per switch (bracket included)				Additional mass per S= 100mm
	Basic type (00)	Axial foot type (LB)	Flange type (FA/FB)	Eye bracket (CA)	Clevis bracket (CB)	Trunnion type (TA/TB/TC)	R type		T2YD (strong magnetic field proof)		
							Grommet	Terminal box	1m	3m	
125 dia.	14.8	16.3	18.1	17.8	17.9	18.2	0.04	0.03	0.09	0.17	2.60
140 dia.	20.2	22.2	25.6	24.0	24.2	23.4					2.96
160 dia.	26.3	29.4	33.2	31.3	31.6	32.7					3.57
180 dia.	34.8	39.3	46.8	42.2	42.7	42.9					4.94
200 dia.	47.6	53.3	61.3	57.1	57.3	59.4					5.73
250 dia.	83.7	92.1	109.6	107.7	102.2	112.4					9.06

(E. g.) product mass of SCS-LB-125B-300-R0-D ———

- When S=0mm, product mass is 16.3kg.
- Additional mass at S= 300mm is  $2.60 \times \frac{300}{100} = 7.8\text{kg}$
- Mass of two switches is  $0.04 \times 2 = 0.08\text{kg}$ .
- Product mass is  $16.3 + 7.8 + 0.08 = 24.18\text{kg}$

Standard type  
Large bore size cylinder

## How to order

Without switch



With switch



**A** Model

**B** Mounting style  
Note 1

**C** Bore size  
Note 2

**D** Cushion

**E** Stroke length  
Note 3

**F** Switch model No.  
Note 4

**G** Switch quantity

**H** Option  
Note 5, notes 6

**I** Accessory

### ⚠ Cautions for model No. selection

- Note 1: Consult with CKD about supporting hole.
- Note 2: For 250 mm bore cylinder, switches are not available.
- Note 3: When exceeding maximum stroke length, refer to Ending 68.
- Note 4: T2YDP \* is a strong magnetic field proof switch. Consult with CKD about details.
- Note 5: Check cushion needle position indication on the dimensional drawing.
- Note 6: Instantaneous maximum temperature is the temperature when spark and spatter etc. instantaneously contact to bellows.
- Note 7: Please refer to Ending 81 about custom specifications of rod end form.

<Example of model number>

### SCS-LN-LB-125B-50-R0-R-J-Y

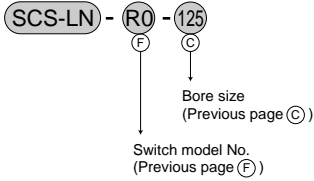
Model: Large bore size cylinder, double acting/lubrication type/pre-lubricated type

- A** Model : Pre-lubricated type with switch
- B** Mounting style : Axial foot type
- C** Bore size : 125mm
- D** Cushion : Both sides cushion
- E** Stroke length : 50mm
- F** Switch model No : Reed R0 switch, lead wire 1m
- G** Switch quantity : One on rod side
- H** Option : Bellows can be used up to ambient temperature 60 °C.
- I** Accessory : Rod clevis

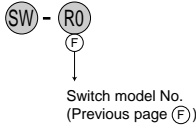
Symbol	Descriptions		
<b>A Model</b>			
SCS	Lubrication type	Without switch	
SCS-N	Pre-lubricated type	Without switch	
SCS-LN		With switch	
<b>B Mounting style</b>			
00	Basic type		
LB	Axial foot type		
FA	Rod side flange type		
FB	Head side flange type		
CA	Eye bracket type		
CB	Clevis bracket type		
TC	Center trunnion type		
TA	Rod side trunnion type		
TB	Head side trunnion type		
<b>C Bore size (mm)</b>			
125	125 dia.		
140	140 dia.		
160	160 dia.		
180	180 dia.		
200	200 dia.		
250	250 mm bore (switch is not available.)		
<b>D Cushion</b>			
B	Both sides cushion		
R	Rod side cushion		
H	Head side cushion		
N	Non cushion		
<b>E Stroke length (mm)</b>			
50, 75, 100, 150, 200, 250, 300			
<b>F Switch model No.</b>			
Grommet	Terminal box type	Display	Lead wire
Type	Standard type	Splash-proof	Contact
R1K *	R1KB	R1KA	Proximity
R2K *	R2KB	R2KA	
R2YK *	R2YKB	-	Reed
T2YDP *	-	-	
R3K *	R3KB	R3KA	Proximity
R3YK *	R3YKB	-	
R0 *	R0B	R0A	Reed
R4 *	R4B	R4A	
R5 *	R5B	R5A	
R6 *	R6B	R6A	
<b>*Lead wire length</b>			
Blank	1m (standard)		
3	3m (Option)		
5	5m (Option)		
<b>G Switch quantity</b>			
R	One on rod side		
H	One on head side		
D	Two		
T	Three		
4	4 pieces		
<b>H Option</b>			
C2	Check valve on the cushion mechanism		
J	Bellows	Max. ambient : 60 °C	Instant max. : 100 °C
K	Bellows	100 °C	200 °C
L	Bellows	250 °C	400 °C
M	Piston rod material change (stainless steel)		
Blank	Cushion needle position R (standard)		
S	Cushion needle position S		
T	Cushion needle position T		
P6	Copper and PTFE free		
<b>I Accessory</b>			
I	Rod eye		
Y	Rod clevis		
B1	Eye bracket		
B2	Clevis bracket		

### How to order discrete switch

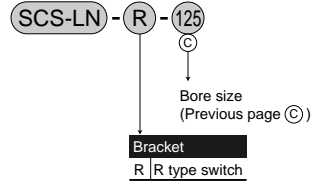
- Switch main body + mounting bracket



- Switch only



- Mounting bracket



- Terminal box only

- For R \* B

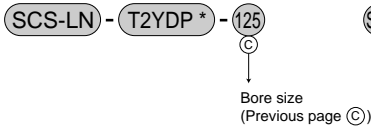


- For R \* A

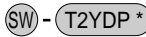


### How to order T2YDP \* switch

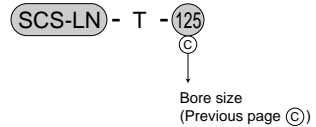
- Switch main body + mounting bracket



- Switch only



- Mounting bracket

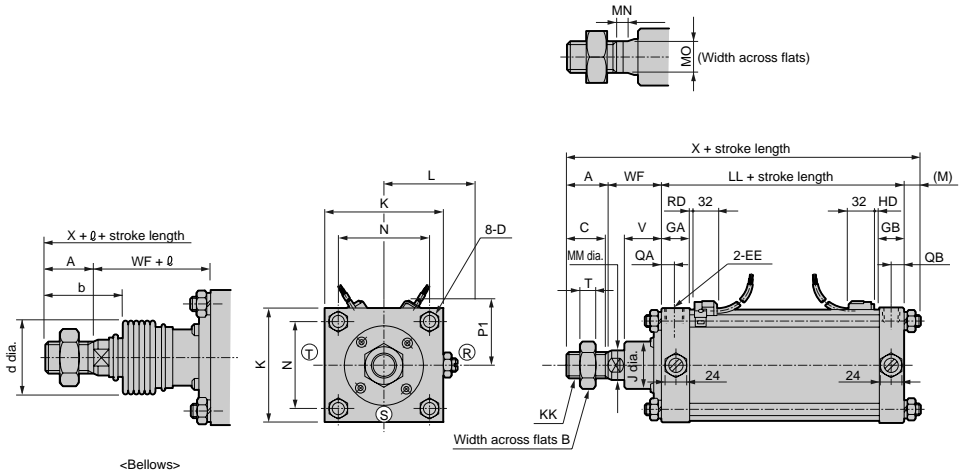


SCP * 2
CMK2
CMA2
SCM
SCA2
<b>SCS</b>
CKV2
CAV2/ COV * 2
CAT
MDC2
MVC
SMD2
MSD/ MSDG
SSD
SSD (large)
FC *
ULKP/ ULK
JSK2/ JSM2
JSC3 (medium)
JSC3 (large)
JSB3
UCAC
STS/ STL
LCS
LCY
STR2
UCA2
STK
USSD
USC
MFC
GLC
SHC
CAC3
HCM
HCA
MRL2
SRL2
SRG
SRM
SRT
SRB2

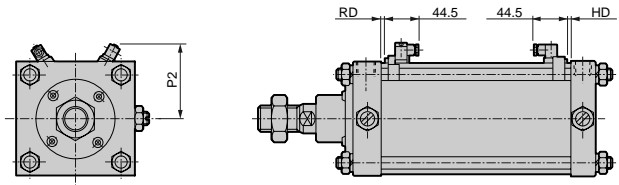
Standard type  
Large bore size cylinder

### Dimensions

• R type with switch basic type (00)



• R type switch terminal box



RD: Rod side max. sensitive position.  
HD: Head side max. sensitive position.

• Note: (R), (S) and (T) show the positions of cushion needle.


• Note:  $\varnothing$  dimensions below decimal point are rounded up.

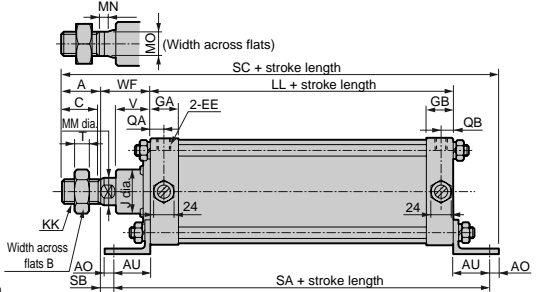
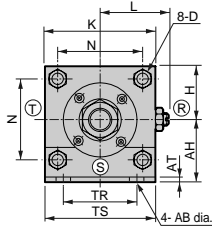
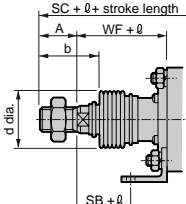
Symbol	Basic type (00) basic dimensions																		
Bore size (mm)	A	B	C	D	EE	GA	GB	J	K	KK	L	LL	M	MM	MN	MO	N	QA	QB
125 dia.	50	46	47	M14 X 1.5	Rc <sup>3</sup> /2	32	29	57	140	M30 X 1.5	83 to 91	91.5	18	35	14	30	110	14.5	15
140 dia.	50	46	47	M14 X 1.5	Rc <sup>3</sup> /4	36	36	57	157	M30 X 1.5	91.5 to 99.5	102.5	18	35	14	30	124	16.5	17
160 dia.	56	55	53	M16 X 1.5	Rc <sup>3</sup> /4	38.5	36	62.5	177	M36 X 1.5	101.5 to 109.5	105.5	20	40	16	36	142	16.5	17
180 dia.	63	60	60	M18 X 1.5	Rc <sup>3</sup> /4	39.5	38.5	68.5	200	M40 X 1.5	113 to 121	109.5	23	45	18	41	160	16.5	17
200 dia.	72	70	69	M20 X 1.5	Rc <sup>3</sup> /4	44.5	45	75	220	M45 X 1.5	123 to 131	122.5	24	50	20	46	175	17.5	18
250 dia.	88	85	84	M24 X 1.5	Rc1	49.5	50	93	274	M56 X 2	150 to 158	140.5	28	60	22	55	216	20	20.5
Symbol	Bellows						With switch												
Bore size (mm)	T	V	WF	X	b	d	$\varnothing$	P1	P2	RD	HD								
125 dia.	18	46	65	224.5	74	75	(Stroke length/4.55)+11	79	99	0	0								
140 dia.	18	46	67	237.5	74	75	(Stroke length/4.55) + 9	84	104	0	0								
160 dia.	21	48.5	71	252.5	82	80	(Stroke length/5.15) + 9	91	112	0	0								
180 dia.	24	53.5	78	273.5	91	90	(Stroke length/5.15) + 9	102	119	0	0								
200 dia.	27	60.5	88	306.5	102	95	(Stroke length/5.30) + 9	107	127	2	1								
250 dia.	34	64.5	94	350.5	120	120	(Stroke length/6.40) + 9	-	-	-	-								

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

Standard type  
Large bore size cylinder

## Dimensions

• SCS/SCS-N axial foot type (LB)  (File name: Page 442 or )  
Ending 116 to 117



• Note: (R), (S) and (T) show the positions of cushion needle.

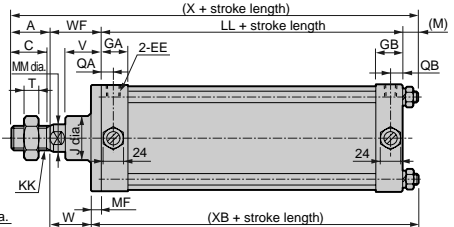
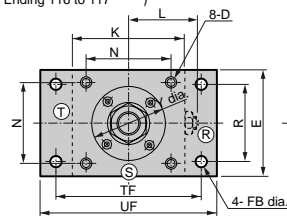
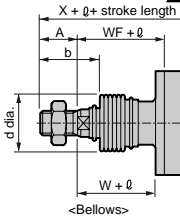
• Note:  $\ell$  dimensions below decimal point are rounded up.

Symbol	Axial foot type (LB) basic dimensions																	
Bore size (mm)	A	AB	AH	AO	AT	AU	B	C	D	EE	GA	GB	H	J	K	KK	L	LL
125 dia.	50	19	85	20	7	45	46	47	M14 X 1.5	Rc 1/2	32	29	70	57	140	M30 X 1.5	83 to 91	91.5
140 dia.	50	19	100	20	8	50	46	47	M14 X 1.5	Rc 3/4	36	36	78.5	57	157	M30 X 1.5	91.5 to 99.5	102.5
160 dia.	56	19	106	20	10	53	55	53	M16 X 1.5	Rc 3/4	38.5	36	88.5	62.5	177	M36 X 1.5	101.5 to 109.5	105.5
180 dia.	63	24	125	27	10	60	60	60	M18 X 1.5	Rc 3/4	39.5	38.5	100	68.5	200	M40 X 1.5	113 to 121	109.5
200 dia.	72	24	132	27	12	62	70	69	M20 X 1.5	Rc 3/4	44.5	45	110	75	220	M45 X 1.5	123 to 131	122.5
250 dia.	88	29	160	29	12	70	85	84	M24 X 1.5	Rc1	49.5	50	137	93	274	M56 X 2	150 to 158	140.5

Symbol	Bellows																
Bore size (mm)	MM	MN	MO	N	QA	QB	SA	SB	SC	T	TR	TS	V	WF	b	d	$\ell$
125 dia.	35	14	30	110	14.5	15	181.5	20	271.5	18	100	140	46	65	74	75	(Stroke length/4.55)+11
140 dia.	35	14	30	124	16.5	17	202.5	17	289.5	18	112	157	46	67	74	75	(Stroke length/4.55)+9
160 dia.	40	16	36	142	16.5	17	211.5	18	305.5	21	118	177	48.5	71	82	80	(Stroke length/5.15)+9
180 dia.	45	18	41	160	16.5	17	229.5	18	337.5	24	132	200	53.5	78	91	90	(Stroke length/5.15)+9
200 dia.	50	20	46	175	17.5	18	246.5	26	371.5	27	150	220	60.5	88	102	95	(Stroke length/5.30)+9
250 dia.	60	22	55	216	20	20.5	280.5	24	421.5	34	180	274	64.5	94	120	120	(Stroke length/6.40)+9

• Rod side flange type (FA)  (File name: Page 442 or )  
Ending 116 to 117



Note 1: Please refer to Page 405 about switch dimensions.  
Note 2: (R), (S) and (T) show the positions of cushion needle.

Note 3:  $\ell$  dimensions below decimal point are rounded up.

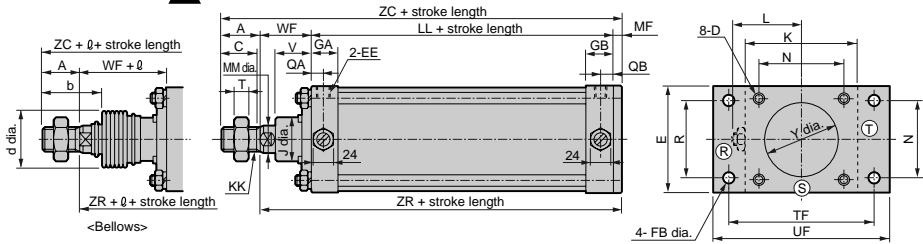
Symbol	Rod side flange type (FA) basic dimensions																	
Bore size (mm)	A	B	C	D	E	EE	FB	GA	GB	J	K	KK	L	LL	M	MF	MM	N
125 dia.	50	46	47	M14 X 1.5	140	Rc 1/2	19	32	29	57	140	M30 X 1.5	83 to 91	91.5	18	14	35	110
140 dia.	50	46	47	M14 X 1.5	157	Rc 3/4	19	36	36	57	157	M30 X 1.5	91.5 to 99.5	102.5	18	19	35	124
160 dia.	56	55	53	M16 X 1.5	177	Rc 3/4	19	38.5	36	62.5	177	M36 X 1.5	101.5 to 109.5	105.5	20	19	40	142
180 dia.	63	60	60	M18 X 1.5	200	Rc 3/4	24	39.5	38.5	68.5	200	M40 X 1.5	113 to 121	109.5	23	25	45	160
200 dia.	72	70	69	M20 X 1.5	220	Rc 3/4	24	44.5	45	75	220	M45 X 1.5	123 to 131	122.5	24	25	50	175
250 dia.	88	85	84	M24 X 1.5	274	Rc1	29	49.5	50	93	274	M56 X 2	150 to 158	140.5	28	30	60	216

Symbol	Bellows																
Bore size (mm)	QA	QB	R	T	TF	UF	V	WF	X	XB	Y	b	d	$\ell$			
125 dia.	14.5	15	100	18	190	230	46	51	65	224.5	123.5	94	74	75	(Stroke length/4.55)+11		
140 dia.	16.5	17	112	18	212	250	46	48	67	237.5	139.5	94	74	75	(Stroke length/4.55)+9		
160 dia.	16.5	17	118	21	236	280	48.5	52	71	252.5	144.5	107	82	80	(Stroke length/5.15)+9		
180 dia.	16.5	17	132	24	265	310	53.5	53	78	273.5	157.5	113	91	90	(Stroke length/5.15)+9		
200 dia.	17.5	18	150	27	280	330	60.5	63	88	306.5	171.5	131	102	95	(Stroke length/5.30)+9		
250 dia.	20	20.5	180	34	355	415	64.5	64	94	350.5	198.5	153	120	120	(Stroke length/6.40)+9		

### Dimensions

• Head side flange type (FB)  (File name: Page 442 or Ending 116 to 117)



Note 1: Please refer to Page 405 about switch dimensions.


Note 2: (R), (S) and (T) show the positions of cushion needle.

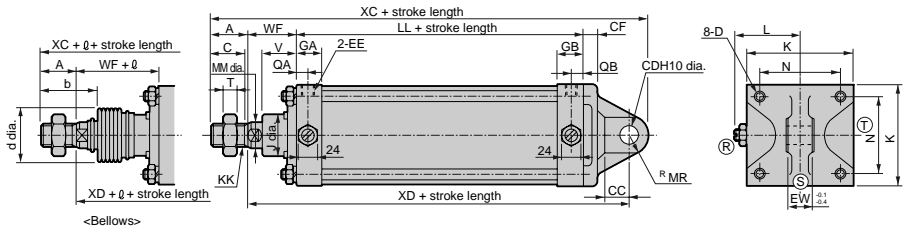
Note 3:  $\ell$  dimensions below decimal point are rounded up.

Symbol	Head side flange type (FB) basic dimensions																
Bore size (mm)	A	B	C	D	E	EE	FB	GA	GB	J	K	KK	L	LL	MF	MM	N
125 dia.	50	46	47	M14 X 1.5	140	Rc $\frac{1}{2}$	19	32	29	57	140	M30 X 1.5	83 to 91	91.5	14	35	110
140 dia.	50	46	47	M14 X 1.5	157	Rc $\frac{3}{4}$	19	36	36	57	157	M30 X 1.5	91.5 to 99.5	102.5	19	35	124
160 dia.	56	55	53	M16 X 1.5	177	Rc $\frac{3}{4}$	19	38.5	36	62.5	177	M36 X 1.5	101.5 to 109.5	105.5	19	40	142
180 dia.	63	60	60	M18 X 1.5	200	Rc $\frac{3}{4}$	24	39.5	38.5	68.5	200	M40 X 1.5	113 to 121	109.5	25	45	160
200 dia.	72	70	69	M20 X 1.5	220	Rc $\frac{3}{4}$	24	44.5	45	75	220	M45 X 1.5	123 to 131	122.5	25	50	175
250 dia.	88	85	84	M24 X 1.5	274	Rc1	29	49.5	50	93	274	M56 X 2	150 to 158	140.5	30	60	216

Symbol	Bellows													
Bore size (mm)	QA	QB	R	T	TF	UF	V	WF	Y	ZC	ZR	b	d	$\ell$
125 dia.	14.5	15	100	18	190	230	46	65	94	220.5	170.5	74	75	(Stroke length/4.55)+11
140 dia.	16.5	17	112	18	212	250	46	67	94	238.5	188.5	74	75	(Stroke length/4.55) + 9
160 dia.	16.5	17	118	21	236	280	48.5	71	107	251.5	195.5	82	80	(Stroke length/5.15) + 9
180 dia.	16.5	17	132	24	265	310	53.5	78	113	275.5	212.5	91	90	(Stroke length/5.15) + 9
200 dia.	17.5	18	150	27	280	330	60.5	88	131	307.5	235.5	102	95	(Stroke length/5.30) + 9
250 dia.	20	20.5	180	34	355	415	64.5	94	153	327.5	264.5	120	120	(Stroke length/6.40) + 9

• Eye bracket (CA)  (File name: Page 442 or Ending 116 to 117)



Note 1: Please refer to Page 405 about switch dimensions.

Note 2: (R), (S) and (T) show the positions of cushion needle.

Note 3:  $\ell$  dimensions below decimal point are rounded up.


Symbol	Eye bracket (CA) basic dimensions														
Bore size (mm)	A	B	C	D	CC	CD	CF	EE	EW	GA	GB	J	K	KK	L
125 dia.	50	46	47	M14 X 1.5	35	25 <sup>+0.084</sup> <sub>0</sub>	20	Rc $\frac{1}{2}$	32	32	29	57	140	M30 X 1.5	83 to 91
140 dia.	50	46	47	M14 X 1.5	40	28 <sup>+0.084</sup> <sub>0</sub>	22	Rc $\frac{3}{4}$	36	36	36	57	157	M30 X 1.5	91.5 to 99.5
160 dia.	56	55	53	M16 X 1.5	40	32 <sup>+0.100</sup> <sub>0</sub>	24	Rc $\frac{3}{4}$	40	38.5	36	62.5	177	M36 X 1.5	101.5 to 109.5
180 dia.	63	60	60	M18 X 1.5	55	40 <sup>+0.100</sup> <sub>0</sub>	25	Rc $\frac{3}{4}$	50	39.5	38.5	68.5	200	M40 X 1.5	113 to 121
200 dia.	72	70	69	M20 X 1.5	55	40 <sup>+0.100</sup> <sub>0</sub>	30	Rc $\frac{3}{4}$	50	44.5	45	75	220	M45 X 1.5	123 to 131
250 dia.	88	85	84	M24 X 1.5	65	50 <sup>+0.100</sup> <sub>0</sub>	35	Rc1	63	49.5	50	93	274	M56 X 2	150 to 158

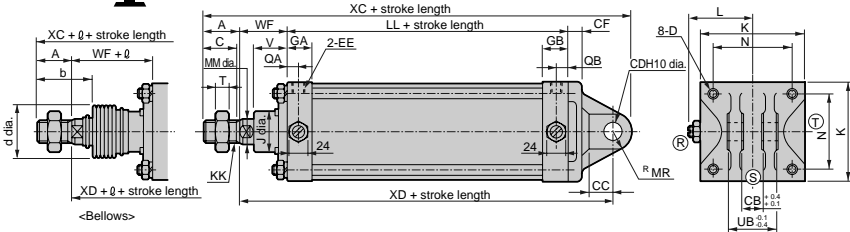
  

Symbol	Bellows													
Bore size (mm)	LL	MM	N	MR	QA	QB	T	V	WF	XC	XD	b	d	$\ell$
125 dia.	91.5	35	110	25	14.5	15	18	46	65	294.5	219.5	74	75	(Stroke length/4.55)+11
140 dia.	102.5	35	124	28	16.5	17	18	46	67	322.5	244.5	74	75	(Stroke length/4.55) + 9
160 dia.	105.5	40	142	32	16.5	17	21	48.5	71	339.5	251.5	82	80	(Stroke length/5.15) + 9
180 dia.	109.5	45	160	40	16.5	17	24	53.5	78	380.5	277.5	91	90	(Stroke length/5.15) + 9
200 dia.	122.5	50	175	40	17.5	18	27	60.5	88	412.5	300.5	102	95	(Stroke length/5.30) + 9
250 dia.	140.5	60	216	50	20	20.5	34	64.5	94	482.5	344.5	120	120	(Stroke length/6.40) + 9

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)  
 USB3  
 UCAC  
 STS/  
 STL  
 LCS  
 LCY  
 STR2  
 UCA2  
 STK  
 USSD  
 USC  
 MFC  
 GLC  
 SHC  
 CAC3  
 HCM  
 HCA  
 MRL2  
 SRL2  
 SRG  
 SRM  
 SRT  
 SRB2  
 Large bore size cylinder

## Dimensions

• Clevis bracket (CB)  (File name: Page 442 or Ending 116 to 117)



Note 1: Please refer to Page 405 about switch dimensions.

Note 2: A pin and a snap ring are attached.


Note 3: (R), (S) and (T) show the positions of cushion needle.

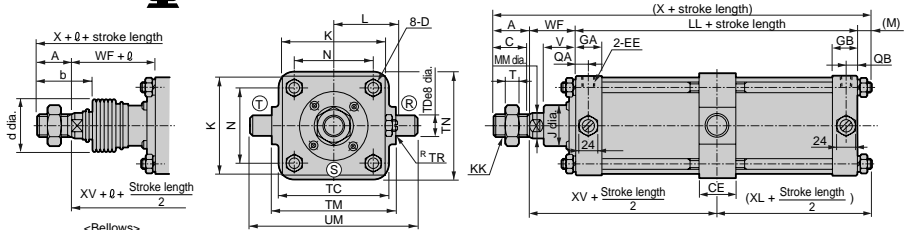
Note 4:  $\varnothing$  dimensions below decimal point are rounded up.

Symbol	Clevis bracket (CB) basic dimensions															
Bore size (mm)	A	B	C	D	CB	CC	CD	CF	EE	GA	GB	J	K	KK	L	LL
125 dia.	50	46	47	M14 X 1.5	32	35	25 <sup>+0.084</sup> <sub>0</sub>	20	Rc $\frac{1}{2}$	32	29	57	140	M30 X 1.5	83 to 91	91.5
140 dia.	50	46	47	M14 X 1.5	36	40	28 <sup>+0.084</sup> <sub>0</sub>	22	Rc $\frac{3}{4}$	36	36	57	157	M30 X 1.5	91.5 to 99.5	102.5
160 dia.	56	55	53	M16 X 1.5	40	40	32 <sup>+0.100</sup> <sub>0</sub>	24	Rc $\frac{3}{4}$	38.5	36	62.5	177	M36 X 1.5	101.5 to 109.5	105.5
180 dia.	63	60	60	M18 X 1.5	50	55	40 <sup>+0.100</sup> <sub>0</sub>	25	Rc $\frac{3}{4}$	39.5	38.5	68.5	200	M40 X 1.5	113 to 121	109.5
200 dia.	72	70	69	M20 X 1.5	50	55	40 <sup>+0.100</sup> <sub>0</sub>	30	Rc $\frac{3}{4}$	44.5	45	75	220	M45 X 1.5	123 to 131	122.5
250 dia.	88	85	84	M24 X 1.5	63	65	50 <sup>+0.100</sup> <sub>0</sub>	35	Rc1	49.5	50	93	274	M56 X 2	150 to 158	140.5

Symbol	Bellows														
Bore size (mm)	MM	MR	N	QA	QB	T	UB	V	WF	XC	XD	XB	Y	Z	$\varnothing$
125 dia.	35	25	110	14.5	15	18	64	46	65	294.5	219.5	74	75	75	(Stroke length/4.55)+11
140 dia.	35	28	124	16.5	17	18	72	46	67	322.5	244.5	74	75	75	(Stroke length/4.55)+9
160 dia.	40	32	142	16.5	17	21	80	48.5	71	339.5	251.5	82	80	80	(Stroke length/5.15)+9
180 dia.	45	40	160	16.5	17	24	100	53.5	78	380.5	277.5	91	90	90	(Stroke length/5.15)+9
200 dia.	50	40	175	17.5	18	27	100	60.5	88	412.5	300.5	102	95	95	(Stroke length/5.30)+9
250 dia.	60	50	216	20	20.5	34	126	64.5	94	482.5	344.5	120	120	120	(Stroke length/6.40)+9

• Center trunnion type (TC)  (File name: Page 442 or Ending 116 to 117)



Note 1: Please refer to Page 405 about switch dimensions.

Note 2: (R), (S) and (T) show the positions of cushion needle.

Note 3: Refer to Page 400 about minimum stroke length.

Note 4:  $\varnothing$  dimensions below decimal point are rounded up.

Symbol	Center trunnion type (TC) basic dimensions																			
Bore size (mm)	A	B	C	D	CE	EE	GA	GB	J	K	KK	L	LL	M	MM	N	QA	QB	T	TC
125 dia.	50	46	47	M14 X 1.5	50	Rc $\frac{1}{2}$	32	29	57	140	M30 X 1.5	83 to 91	91.5	18	35	110	14.5	15	18	150
140 dia.	50	46	47	M14 X 1.5	55	Rc $\frac{3}{4}$	36	36	57	157	M30 X 1.5	91.5 to 99.5	102.5	18	35	124	16.5	17	18	154
160 dia.	56	55	53	M16 X 1.5	60	Rc $\frac{3}{4}$	38.5	36	62.5	177	M36 X 1.5	101.5 to 109.5	105.5	20	40	142	16.5	17	21	190
180 dia.	63	60	60	M18 X 1.5	65	Rc $\frac{3}{4}$	39.5	38.5	68.5	200	M40 X 1.5	113 to 121	109.5	23	45	160	16.5	17	24	210
200 dia.	72	70	69	M20 X 1.5	70	Rc $\frac{3}{4}$	44.5	45	75	220	M45 X 1.5	123 to 131	122.5	24	50	175	17.5	18	27	242
250 dia.	88	80	84	M24 X 1.5	80	Rc1	49.5	50	93	274	M56 X 2	150 to 158	140.5	28	60	216	20	20.5	34	300

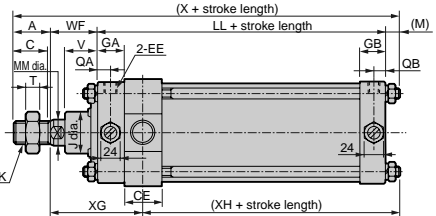
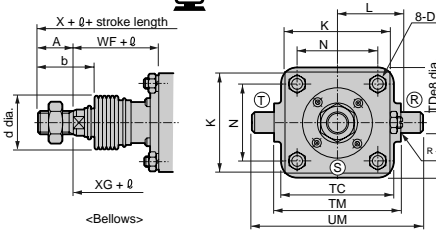
  

Symbol	Bellows													
Bore size (mm)	TD	TM	TN	TR	UM	V	WF	X	XL	XV	Y	Z	$\varnothing$	
125 dia.	32 <sup>-0.050</sup> <sub>-0.089</sub>	170	150	2	234	46	65	224.5	64	110.5	74	75	(Stroke length/4.55)+11	
140 dia.	36 <sup>-0.050</sup> <sub>-0.089</sub>	190	170	2	262	46	67	237.5	69.5	118	74	75	(Stroke length/4.55)+9	
160 dia.	40 <sup>-0.050</sup> <sub>-0.089</sub>	212	190	2	292	48.5	71	252.5	73	123.5	82	80	(Stroke length/5.15)+9	
180 dia.	45 <sup>-0.050</sup> <sub>-0.089</sub>	236	210	2	326	53.5	78	273.5	78	132.5	91	90	(Stroke length/5.15)+9	
200 dia.	45 <sup>-0.050</sup> <sub>-0.089</sub>	265	242	2	355	60.5	88	306.5	85.5	149	102	95	(Stroke length/5.30)+9	
250 dia.	56 <sup>-0.060</sup> <sub>-0.106</sub>	335	300	2	447	64.5	94	350.5	98.5	164	120	120	(Stroke length/6.40)+9	



### Dimensions

• Rod side trunnion type (TA)  (File name: Page 442 or Ending 116 to 117)



Note 1: Please refer to Page 405 about switch dimensions.  
 Note 2: (R), (S) and (T) show the positions of cushion needle.

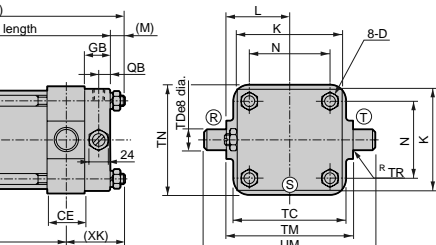
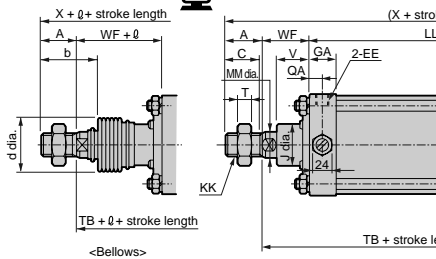
Note 3: Refer to Page 400 about minimum stroke length.  
 Note 4:  $\varnothing$  dimensions below decimal point are rounded up.  
 Note 5: The position at rod side stroke end cannot be detected.

Symbol	Rod side trunnion type (TA) basic dimensions															Bellows				
Bore size (mm)	A	B	C	D	CE	EE	GA	GB	J	K	KK	L	LL	M	MM	N	OA	QB	T	TC
125 dia.	50	46	47	M14 X 1.5	50	Rc $\frac{1}{2}$	32	29	57	140	M30 X 1.5	83 to 91	91.5	18	35	110	14.5	15	18	150
140 dia.	50	46	47	M14 X 1.5	55	Rc $\frac{3}{4}$	36	36	57	157	M30 X 1.5	91.5 to 99.5	102.5	18	35	124	16.5	17	18	154
160 dia.	56	55	53	M16 X 1.5	60	Rc $\frac{3}{4}$	38.5	36	62.5	177	M36 X 1.5	101.5 to 109.5	105.5	20	40	142	16.5	17	21	190
180 dia.	63	60	60	M18 X 1.5	65	Rc $\frac{3}{4}$	39.5	38.5	68.5	200	M40 X 1.5	113 to 121	109.5	23	45	160	16.5	17	24	210
200 dia.	72	70	69	M20 X 1.5	70	Rc $\frac{3}{4}$	44.5	45	75	220	M45 X 1.5	123 to 131	122.5	24	50	175	17.5	18	27	242
250 dia.	88	80	84	M24 X 1.5	80	Rc1	49.5	50	93	274	M56 X 2	150 to 158	140.5	28	60	216	20	20.5	34	300

Symbol	Rod side trunnion type (TA) basic dimensions										Bellows			
Bore size (mm)	TD	TM	TN	TR	UM	V	WF	X	XG	XH	b	d	$\varnothing$	
125 dia.	32	$0.050$ $-0.089$	170	150	2	234	46	65	224	48.5	74	75	(Stroke length/4.55)+11	
140 dia.	36	$0.050$ $-0.089$	190	170	2	262	46	67	237	134	53	74	(Stroke length/4.55) + 9	
160 dia.	40	$0.050$ $-0.089$	212	190	2	292	48.5	71	252	140.5	55.5	82	80	
180 dia.	45	$0.050$ $-0.089$	236	210	2	326	53.5	78	273	150	60	91	90	
200 dia.	45	$0.050$ $-0.089$	265	242	2	355	60.5	88	306	167.5	66.5	102	95	
250 dia.	56	$0.060$ $-0.106$	335	300	2	447	64.5	94	350	183.5	98.5	120	120	

• Head side trunnion type (TB)  (File name: Page 442 or Ending 116 to 117)



Note 1: Please refer to Page 405 about switch dimensions.  
 Note 2: (R), (S) and (T) show the positions of cushion needle.

Note 3: Refer to Page 400 about minimum stroke length.  
 Note 4:  $\varnothing$  dimensions below decimal point are rounded up.  
 Note 5: The position at head side stroke end cannot be detected.

Symbol	Head side trunnion type (TB) basic dimensions															Bellows				
Bore size (mm)	A	B	C	D	CE	EE	GA	GB	J	K	KK	L	LL	M	MM	N	OA	QB	T	TB
125 dia.	50	46	47	M14 X 1.5	50	Rc $\frac{1}{2}$	32	29	57	140	M30 X 1.5	83 to 91	91.5	18	35	110	14.5	15	18	95.5
140 dia.	50	46	47	M14 X 1.5	55	Rc $\frac{3}{4}$	36	36	57	157	M30 X 1.5	91.5 to 99.5	102.5	18	35	124	16.5	17	18	102
160 dia.	56	55	53	M16 X 1.5	60	Rc $\frac{3}{4}$	38.5	36	62.5	177	M36 X 1.5	101.5 to 109.5	105.5	20	40	142	16.5	17	21	106.5
180 dia.	63	60	60	M18 X 1.5	65	Rc $\frac{3}{4}$	39.5	38.5	68.5	200	M40 X 1.5	113 to 121	109.5	23	45	160	16.5	17	24	115
200 dia.	72	70	69	M20 X 1.5	70	Rc $\frac{3}{4}$	44.5	45	75	220	M45 X 1.5	123 to 131	122.5	24	50	175	17.5	18	27	130.5
250 dia.	88	85	84	M24 X 1.5	80	Rc1	49.5	50	93	274	M56 X 2	150 to 158	140.5	28	60	216	20	20.5	34	144.5

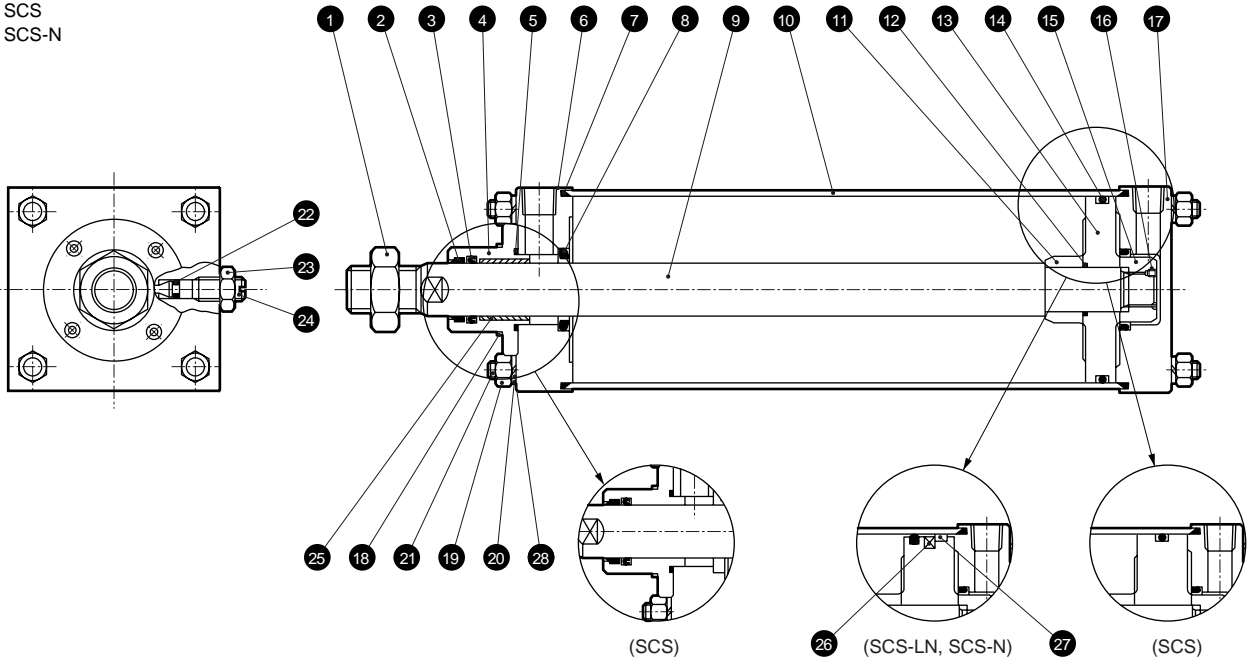
  

Symbol	Head side trunnion type (TB) basic dimensions										Bellows			
Bore size (mm)	TC	TD	TM	TN	TR	UM	V	WF	X	XK	b	d	$\varnothing$	
125 dia.	150	32	$0.050$ $-0.089$	170	150	2	234	46	65	224.5	79	74	75	
140 dia.	154	36	$0.050$ $-0.089$	190	170	2	262	46	67	237.5	85.5	74	75	
160 dia.	190	40	$0.050$ $-0.089$	212	190	2	292	48.5	71	252.5	90	82	80	
180 dia.	210	45	$0.050$ $-0.089$	236	210	2	326	53.5	78	273.5	95.5	91	90	
200 dia.	242	45	$0.050$ $-0.089$	265	242	2	355	60.5	88	306.5	104	102	95	
250 dia.	300	56	$0.060$ $-0.106$	335	300	2	447	64.5	94	305.5	118	120	120	

- SCP \* 2
- CMK2
- CMA2
- SCM
- SCA2
- SCS
- CKV2
- CAV2/ COV \* 2
- CAT
- MDC2
- MVC
- SMD2
- MSP/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
- Standard type
- Large bore size cylinder

## Internal structure and parts list

- Standard
- SCS
- SCS-N



Note: Parts (8), (22), (23) and (24) are not required for no cushion type.

No.	Parts name	Material	Remarks	No.	Parts name	Material	Remarks
1	Rod nut	Steel	Zinc chromate	15	Cushion ring B	Steel	Zinc chromate
2	Dust wiper	Nitrile rubber		16	Hexagon socket head set screw	Alloy steel	Blackening
3	Rod packing seal	Nitrile rubber		17	Head cover	Steel	Zinc chromate
4	Rod bushing	Cast iron	Zinc chromate	18	Hexagon socket head cap bolt	Alloy steel	Blackening
5	Metal gasket	Nitrile rubber		19	Hexagon nut	Steel	Zinc chromate
6	Rod cover	Steel	Zinc chromate	20	Spring washer	Steel	Zinc chromate
7	Cylinder gasket	Nitrile rubber		21	Tie rod	Steel	Zinc chromate
8	Cushion packing seal	Nitrile rubber and steel		22	Needle gasket	Nitrile rubber	
9	Piston rod	Steel	Industrial chrome plating	23	Needle nut	Steel	Zinc chromate
10	Cylinder tube	Steel Note 1	Paint and industrial chrome plating	24	Cushion needle	Steel	Zinc chromate
11	Cushion ring A	Steel	Zinc chromate	25	Bush	Oil impregnated bearing alloy Note 3	SCS-N, LN only
12	Piston gasket	Nitrile rubber		26	Magnet	Rubber	SCS-LN only
13	Piston	Cast iron Note 2	Phosphoric acid zinc treatment	27	Wear ring	Polyacetal	SCS-LN only
14	Piston packing seal	Nitrile rubber		28	Plain washer	Steel	Zinc chromate

Note 1: The SCS-LN type has aluminum alloy.

Note 2: The SCS-N type has  $\phi$  125 to  $\phi$  160 : aluminum alloy die-casting  
 $\phi$  180 to  $\phi$  250 : cast iron

The SCS-LN type has  $\phi$  125 to  $\phi$  160 : aluminum alloy die-casting.  
 $\phi$  180 to  $\phi$  200 : aluminum alloy

Note 3: Copper and PTFE free is oil impregnated cast iron.

### Repair parts list

- SCS (lubrication type)

Bore size (mm)	Kit No.	Repair parts number
$\phi$ 125	SCS-125K	
$\phi$ 140	SCS-140K	
$\phi$ 160	SCS-160K	2 3 5 7 8
$\phi$ 180	SCS-180K	14 22
$\phi$ 200	SCS-200K	
$\phi$ 250	SCS-250K	

- SCS-N (pre-lubricated)

Bore size (mm)	Kit No.	Repair parts number
$\phi$ 125	SCS-N-125K	
$\phi$ 140	SCS-N-140K	
$\phi$ 160	SCS-N-160K	2 3 5 7 8
$\phi$ 180	SCS-N-180K	14 22 27
$\phi$ 200	SCS-N-200K	
$\phi$ 250	SCS-N-250K	

Note 1: In repair parts, the piston packing seal of SCS-N (pre-lubricated) is different from SCS (lubrication type).

Note 2: For  $\phi$  180 to  $\phi$  250 cylinder, (27) wear ring is not included.

### Mounting bracket material

Mounting style	Material	Remarks
LB	Steel	Zinc chromate
FA, FB	Steel	Zinc chromate
CA, CB	Cast iron	Paint
TA, TB, TC	Cast iron	Paint

- SCS-LN (oil-free with switch)

Bore size (mm)	Kit No.	Repair parts number
$\phi$ 125	SCS-LN-125K	
$\phi$ 140	SCS-LN-140K	
$\phi$ 160	SCS-LN-160K	2 3 5 7 8
$\phi$ 180	SCS-LN-180K	14 22 27
$\phi$ 200	SCS-LN-200K	