

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/USC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending



Free position locking large bore size cylinder double acting/single rod
double acting/coil scraper

USC/USC-G1 Series

● Bore size: ø40/ø50/ø63/ø80/ø100



Specifications

Item		USC (double acting/single rod)/USC-G1 (double acting with coil scraper)				
Actuation		Double acting				
Working fluid		Compressed air				
Max. working pressure MPa		1.0 (≈150 psi, 10 bar)				
Min. working pressure	Cylinder	0.1 (≈15 psi, 1 bar)				
	MPa Locking mechanism	0.25 (≈36 psi, 2.5 bar)				
Proof pressure MPa		1.6 (≈230 psi, 16 bar)				
Ambient temperature °C		-10 (14°F) to 60 (140°F) (no freezing)				
Bore size mm		ø40	ø50	ø63	ø80	ø100
Port size	Cylinder	1/4	3/8	3/8	1/2	1/2
	Rc Locking mechanism	1/8				
Stroke tolerance mm		^{+0.9} ₀ (to 300) ^{+1.4} ₀ (to 1000)				
Lock force N		1005	1570	2493	4021	6283
Working piston speed mm/s		50 to 1000 (Operate within the absorbed energy.)				
Cushion		With or without cushion can be selected				
Effective cushion length mm		14.6	16.6	16.6	20.6	23.6
Lubrication		Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)				
Allowable absorbed energy J	Cushioned	4.29	8.37	15.8	27.9	49.8
	*1 Without cushion	Cannot absorb high energy generated by external load. We recommend using an external shock absorber.				

*1 : If the kinetic energy is high due to high load or fast piston speeds, consider the use of a separate shock absorber and use the product within the range where the kinetic energy can be absorbed.

Stroke length

Bore size (mm)	Standard stroke length (mm)	Max. stroke length (mm)	Available stroke length (mm)	Min. stroke length (mm)	
ø40	25/50/75/100/150/200 250/300/350/400/450 500	600	1600	1	
ø50			2000		
ø63		2500	*5		*3
ø80					
ø100					

*1 : The custom stroke length is available in 1 mm increments.

*2 : For types with switch, minimum stroke length varies depending on the mounting method. Refer to the table on the following page.

When the stroke length is 15 mm or less, the two switches could turn ON at the same time.

In this case, adjust switch mounting positions to be as far apart as possible.

*3 : A min. stroke length of 1 mm can be manufactured. Take into account the stroke tolerance when placing an order.

*4 : If max. stroke length is exceeded, product specifications may not be satisfied depending on the conditions. Refer to Ending Page 69.

*5 : The max. stroke length available for ø63 to ø100 bore size models with bellows is 2000 mm.

Min. stroke with switch (T type switch)

● T0/T5

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
Bore size	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ø40	20(10)	20(20)	40(40)	60(60)	20(10)	60(45)	105(75)	150(102)	110(110)	110(110)	175(145)	175(145)	50(50)	50(50)
ø50	15(10)	20(20)	40(40)	60(60)	15(10)	20(20)	65(50)	65(60)	135(135)	135(135)	135(135)	135(135)	60(60)	60(60)
ø63	15(10)	20(20)	40(40)	60(60)	15(10)	20(20)	70(55)	70(60)	110(95)	110(95)	110(100)	110(100)	50(45)	50(45)
ø80	15(15)	25(25)	45(45)	65(65)	15(15)	25(25)	70(55)	70(65)	115(85)	115(85)	115(105)	115(105)	55(40)	55(40)
ø100	15(15)	25(25)	45(45)	70(70)	15(15)	25(25)	70(55)	70(70)	125(95)	125(95)	125(115)	125(115)	60(45)	60(45)

*1: The values in () are of T*V (radial lead wire).

*2: When the stroke length is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

● T8

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
Bore size	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ø40	15(10)	20(20)	40(40)	60(60)	15(10)	50(35)	95(65)	140(95)	95(85)	95(85)	155(125)	155(125)	45(40)	45(40)
ø50	10(10)	20(20)	40(40)	60(60)	10(10)	20(20)	70(55)	70(60)	115(115)	115(115)	135(135)	135(135)	50(50)	50(50)
ø63	10(10)	20(20)	40(40)	60(60)	10(10)	20(20)	70(55)	70(60)	95(75)	95(75)	110(110)	110(110)	45(35)	45(35)
ø80	15(15)	25(25)	45(45)	65(65)	15(15)	25(25)	70(55)	70(65)	100(70)	100(70)	115(115)	115(115)	50(35)	50(35)
ø100	15(15)	25(25)	45(45)	65(65)	15(15)	25(25)	70(55)	70(65)	110(80)	110(80)	125(125)	125(125)	55(40)	55(40)

*1: The values in () are of T*V (radial lead wire).

*2: When the stroke length is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

● T2/T3

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
Bore size	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ø40	20(10)	20(15)	25(25)	40(40)	20(10)	60(45)	105(75)	150(105)	105(75)	105(75)	165(135)	165(135)	50(35)	50(35)
ø50	15(10)	15(15)	25(25)	40(40)	15(10)	15(15)	60(45)	60(45)	105(75)	105(75)	105(75)	105(75)	45(30)	45(30)
ø63	15(10)	15(15)	25(25)	40(40)	15(10)	15(15)	60(45)	60(45)	110(80)	110(80)	110(85)	110(85)	50(35)	50(35)
ø80	15(10)	15(15)	30(30)	45(45)	15(10)	15(15)	60(45)	60(45)	115(85)	115(85)	115(90)	115(90)	55(40)	55(40)
ø100	10(10)	15(15)	30(30)	45(45)	10(10)	15(15)	60(45)	60(45)	125(95)	125(95)	125(100)	125(100)	60(45)	60(45)

*1: The values in () are of T*V (radial lead wire).

*2: When the stroke length is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

● Min. stroke length with T1/T2Y/T3Y/T2YD switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
Bore size	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ø40	20(10)	20(15)	25(25)	40(40)	20(10)	60(45)	105(75)	150(105)	105(75)	105(75)	165(135)	165(135)	50(35)	50(35)
ø50	15(10)	15(15)	25(25)	40(40)	15(10)	15(15)	60(45)	60(45)	100(70)	100(70)	100(75)	100(75)	45(30)	45(30)
ø63	15(10)	15(15)	25(25)	40(40)	15(10)	15(15)	60(45)	60(45)	105(75)	105(75)	105(85)	105(85)	50(35)	50(35)
ø80	15(10)	15(15)	30(30)	45(45)	15(10)	15(15)	60(45)	60(45)	110(80)	110(80)	110(90)	110(90)	55(40)	55(40)
ø100	10(10)	15(15)	30(30)	45(45)	10(10)	15(15)	60(45)	60(45)	120(90)	120(90)	120(100)	120(100)	60(45)	60(45)

*1: The values in () are of T*V (radial lead wire). T2YD does not have a radial lead wire (V).

*2: When the stroke length is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

● Min. stroke length with T2W/T3W switches

Switch quantity	Different surface mounting				Same surface mounting				Center trunnion mounting				Rod side trunnion mounting No position detection at rod side stroke end.	Head side trunnion mounting No position detection at head side stroke end.
Bore size	1	2	3	4	1	2	3	4	1	2	3	4	1	1
ø40	20(5)	20(10)	20(15)	25(25)	20(5)	65(50)	110(80)	155(110)	110(80)	110(80)	170(140)	170(140)	50(35)	50(35)
ø50	20(5)	20(10)	20(15)	20(20)	20(5)	20(10)	65(40)	65(40)	110(80)	110(80)	110(60)	110(60)	50(35)	50(35)
ø63	20(5)	20(10)	20(15)	25(25)	20(5)	20(10)	65(40)	65(40)	115(85)	115(85)	115(65)	115(65)	55(40)	55(40)
ø80	15(5)	15(10)	15(15)	25(25)	15(5)	15(10)	60(40)	60(40)	120(90)	120(90)	120(70)	120(70)	55(40)	55(40)
ø100	10(5)	10(10)	20(20)	25(25)	10(5)	10(10)	60(40)	60(40)	130(100)	130(100)	130(85)	130(85)	60(45)	60(45)

*1: The values in () are of T*V (radial lead wire).

*2: When the stroke length is 15 mm or less, the two switches could turn ON at the same time. In this case, adjust switch mounting positions to be as far apart as possible.

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USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

Switch specifications (T type switch)

● 1-color/2-color display/for AC magnetic field proof

Item	Proximity 2-wire	Proximity 2-wire			Proximity 3-wire				Reed 2-wire						Proximity 2-wire		
	T1H/ T1V	T2H/T2V/ T2JH/ T2JV	T2YH/ T2YV	T2WH/ T2WV	T3H/ T3V	T3PH/ T3PV	T3YH/ T3YV	T3WH/ T3WV	T0H/T0V		T5H/T5V		T8H/T8V		T2YD(*4) T2YDT		
Applications	For programmable controller, relay, compact solenoid valve	Dedicated for programmable controller			For programmable controller, relay				For programmable controller, relay		For programmable controller, relay, IC circuit (no indicator lamp), serial connection		For programmable controller, relay		For programmable controller		
Output method	-				NPN output	PNP output	NPN output	NPN output	-								
Pwr. supp. V.	-				10 to 28 VDC				-								
Load voltage	85 to 265 VAC	10 to 30 VDC		24VDC±10%		30 VDC or less				12/24 VDC	100/110 VAC	5/12/24 VDC	100/110 VAC	12/24 VDC	110 VAC	220 VAC	24 VDC ±10%
Load current	5 to 100 mA	5 to 20 mA (*3)			100 mA or less		50 mA or less		5 to 50 mA	7 to 20 mA	≤50 mA	≤20 mA	5 to 50 mA	7 to 20 mA	7 to 10 mA	5 to 20 mA	
Indicator lamp	LED (Lit when ON)	LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)	Yellow LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	LED (Lit when ON)		Without indicator lamp		LED (Lit when ON)			Red/green LED (Lit when ON)	
Leakage current	≤1 mA at 100 VAC, ≤2 mA at 200 VAC	1 mA or less			10 µA or less				0 mA						1 mA or less		
Weight g	1 m:33	1 m:18	1 m:33	1 m:18	1 m:18		1 m:33	1 m:18	1 m:18			1 m:33			1 m:61		
	3 m:87	3 m:49	3 m:87	3 m:49	3 m:49		3 m:87	3 m:49	3 m:49			3 m:87			3 m:166		
	5 m:142	5 m:80	5 m:142	5 m:80	5 m:80		5 m:142	5 m:80	5 m:80			5 m:142			5 m:272		

*1 : Refer to Ending Page 1 for detailed switch specifications and dimensions.

*2 : Switches other than the above models, such as switches with connectors, are also available. Refer to Ending Page 1.

*3 : The max. load current is 20 mA at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C.
(5 to 10 mA at 60°C)

*4 : AC magnetic field proof switch (T2YD/T2YDT) cannot be used in DC magnetic fields.

Switch specifications (H type switch)

Item	Strong magnetic field proof, reed 2-wire	
	H0	H0Y (2-color display)
Applications	Relay, programmable controller	Dedicated for programmable controller
Load voltage/ current	12/24 VDC, 110 VAC 5 to 50 mA, 7 to 20 mA	24 VDC, 5 to 50 mA (*2)
Indicator lamp	Green LED Lit when ON	Red/green LED Lit when ON
Leakage current	10 µA or less	
Max. shock resistance	294 m/s ²	
Weight g	1 m:76	3 m:181 5 m:289

*1 : Refer to Ending Page 1 for other switch specifications.

*2 : Max. load current is applied at 25°C. The current is lower than 20 mA if the operating ambient temperature around the switch is higher than 25°C.
(5 to 10 mA at 60°C)

Cylinder weight table

(Unit: kg)

Bore size	Product weight when stroke length (S) = 0 mm							Switch weight	Mounting bracket weight		Additional weight per S = 100 mm
	Basic (00)	Foot (LB)	Flange (FA/FB)	Special flange (FC)	Eye bracket (CA)	Eye bracket (CB)	Trunnion (TA,TB,TC)		T type	H type	
ø40	1.40	1.58	1.83	1.49	1.75	1.75	1.78	Refer to the weight in the switch specifications.	0.024	0.028	0.39
ø50	2.04	2.21	2.54	2.15	2.48	2.48	2.56		0.022	0.026	0.46
ø63	2.83	3.2	3.89	3.01	3.38	3.43	3.68		0.020	0.024	0.50
ø80	4.94	5.71	6.82	5.30	6.48	6.49	6.30		0.026	0.029	0.90
ø100	8.03	8.95	10.72	8.58	10.18	10.14	10.55		0.024	0.028	1.12

Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa										
		0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
ø40	Push	1.26×10^2	1.88×10^2	2.51×10^2	3.77×10^2	5.03×10^2	6.28×10^2	7.54×10^2	8.80×10^2	1.01×10^3	1.13×10^3	1.26×10^3
	Pull	1.06×10^2	1.58×10^2	2.11×10^2	3.17×10^2	4.22×10^2	5.28×10^2	6.33×10^2	7.39×10^2	8.44×10^2	9.50×10^2	1.06×10^3
ø50	Push	1.96×10^2	2.95×10^2	3.93×10^2	5.89×10^2	7.85×10^2	9.82×10^2	1.18×10^3	1.37×10^3	1.57×10^3	1.77×10^3	1.96×10^3
	Pull	1.65×10^2	2.47×10^2	3.30×10^2	4.95×10^2	6.60×10^2	8.25×10^2	9.90×10^2	1.15×10^3	1.32×10^3	1.48×10^3	1.65×10^3
ø63	Push	3.12×10^2	4.68×10^2	6.23×10^2	9.35×10^2	1.25×10^3	1.56×10^3	1.87×10^3	2.18×10^3	2.49×10^3	2.81×10^3	3.12×10^3
	Pull	2.80×10^2	4.20×10^2	5.61×10^2	8.41×10^2	1.12×10^3	1.40×10^3	1.68×10^3	1.96×10^3	2.24×10^3	2.52×10^3	2.80×10^3
ø80	Push	5.03×10^2	7.54×10^2	1.01×10^3	1.51×10^3	2.01×10^3	2.51×10^3	3.02×10^3	3.52×10^3	4.02×10^3	4.52×10^3	5.03×10^3
	Pull	4.54×10^2	6.80×10^2	9.07×10^2	1.36×10^3	1.81×10^3	2.27×10^3	2.72×10^3	3.17×10^3	3.63×10^3	4.08×10^3	4.54×10^3
ø100	Push	7.85×10^2	1.18×10^3	1.57×10^3	2.36×10^3	3.14×10^3	3.93×10^3	4.71×10^3	5.50×10^3	6.28×10^3	7.07×10^3	7.85×10^3
	Pull	7.15×10^2	1.07×10^3	1.43×10^3	2.14×10^3	2.86×10^3	3.57×10^3	4.29×10^3	5.00×10^3	5.72×10^3	6.43×10^3	7.15×10^3

LCM
 LCR
 LCG
 LCW
 LCX
 STM
 STG
 STS/STL
 STR2
 UCA2
 ULK*
 JSK/M2
 JSG
 JSC3/JSC4
 USSD
 UFCD
USC
 UB
 JSB3
 LMB
 LML
 HCM
 HCA
 LBC
 CAC4
 UCAC2
 CAC-N
 UCAC-N
 RCS2
 RCC2
 PCC
 SHC
 MCP
 GLC
 MFC
 BBS
 RRC
 GRC
 RV3*
 NHS
 HRL
 LN
 Hand
 Chuk
 MechHnd/Chuk
 ShkAbs
 FJ
 FK
 SpdContr
 Ending

How to order

● Without switch (built-in magnet for switch)

USC — **LB** - **40** **B** - **100** - **F** — **S** **I**

● R type with switch (built-in magnet for switch)

USC — **LB** - **40** **B** - **100** - **F** - **T0H** - **R** - **S** **I**

● Strong magnetic field resistant switch (HO/HOY) (built-in magnet for switch)

USC-L2 - **LB** - **40** **B** - **100** - **F** - **H0Y** - **R** - **S** **I**

A Model No. **B** Mounting

C Bore size

D Cushion

E Stroke length
*1

F Lock direction

G Switch model No.
* indicates the lead wire length.

H Switch quantity
*3

I Option
*4

J Accessory
*6

⚠ Precautions for model No. selection

*1 : The max. stroke length available for ø63 to ø100 bore size models with bellows is 2000 mm.

*2 : Refer to page 905 for the min. stroke length with switch.

*3 : When selecting TA or TB as mounting, the switch quantity is limited to "H" (1 on head side) for TA, and "R" (1 on rod side) for TB.

*4 : The instantaneous max. temperature is the temperature when sparks, cutting chips, etc., instantaneously contact the bellows.

*5 : When selecting TA or TB mounting, the switch quantity is limited to "H" (1 on head side) for TA, and "R" (1 on rod side) for TB.

*6 : "I" and "Y" cannot be selected together.

[Example of model No.]

USC-LB-40B-100-F-T0H-R-SI

Model: Free position locking large bore size cylinder

- A** Model No. : Double acting/single rod
- B** Mounting : Axial foot
- C** Bore size : ø40 mm
- D** Cushion : Both sides cushioned
- E** Stroke length : 100 mm
- F** Lock direction : Forward locking
- G** Switch model No. : Reed T0H switch, lead wire 1 m
- H** Switch quantity : 1 on rod side
- I** Option : Cushion needle position S
- J** Accessory : Rod eye

Code	Description		
A Model No.			
USC	Double acting/single rod		
USC-G1	Double acting with coil scraper		
B Mounting			
00	Basic		
LB	Axial foot		
FA	Rod side flange		
FB	Head side flange		
FC	Head side special flange		
CA	Eye bracket		
CB	Clevis bracket (pin and snap ring attached)		
TC	Intermediate trunnion		
TA	Rod side trunnion		
TB	Head side trunnion		
C Bore size (mm)			
40	ø40		
50	ø50		
63	ø63		
80	ø80		
100	ø100		
D Cushion			
B	Both sides cushioned		
R	Rod side cushioned		
H	Head side cushioned		
N	Without cushion		
E Stroke length (mm)			
Bore size	Stroke *2	Available stroke	Custom stroke
ø40	1 to 600	1600	In 1 mm increments
ø50	1 to 600	2000	
ø63	1 to 600	2500	
ø80	1 to 700	2500	
ø100	1 to 800	2500	
F Lock direction			
F	Forward locking		
B	Backward locking		
G Switch model No.			
Refer to the switch model numbers on the following page.			
* Lead wire length			
Blank	1 m (standard)		
3	3 m (option)		
5	5 m (option)		
H Switch quantity			
R	1 on rod side		
H	1 on head side		
D	2		
T	3		
I Option			
		Max. ambient temp.	instantaneous max. temp.
J	Bellows	100°C	200°C
L	Bellows	250°C	400°C
M	Piston rod material (stainless steel)		
Blank	Cushion needle position R (standard)		
S	Cushion needle position S		
T	Cushion needle position T		
P6	Copper and PTFE free (made-to-order product)		
J Accessory			
I	Rod eye		
Y	Rod clevis (pin and snap ring attached)		
B1	Eye bracket		
B2	Clevis bracket (pin and snap ring attached)		
B4	Trunnion No. 2 bracket		

[G] Switch model No.

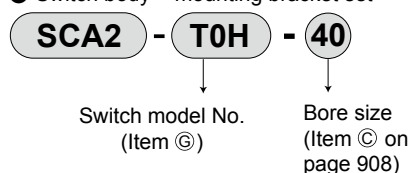
T type switch model No.						
Axial lead wire	Radial lead wire	Contact	Voltage		Display	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color display	2-wire
T5H*	T5V*		●	●	Without indicator lamp	
T8H*	T8V*		●	●	1-color display	
T1H*	T1V*	Proximity	●	●	1-color display	2-wire
T2H*	T2V*		●	●		
T3H*	T3V*		●	●	2-color display	3-wire
T2WH*	T2WV*		●	●		
T2YH*	T2YV*		●	●		
T3WH*	T3WV*		●	●		
T3YH*	T3YV*		●	●	1-color display	3-wire
T3PH*	T3PV*		●	●		
T2YD*	-		●	●	2-color display	2-wire
T2YDT*	-		●	●	AC magnetic field	
T2JH*	T2JV*		●	●	1-color display off-delay	2-wire

H type switch model No.				
Grommet	Contact	Voltage		Lead wire
		AC	DC	
HO*	Reed	●	●	2-wire
HOY*	Reed	●	●	

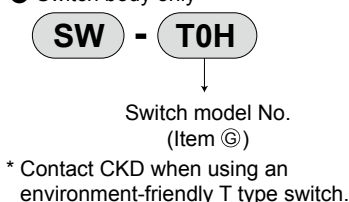
How to order switch

[T type switch]

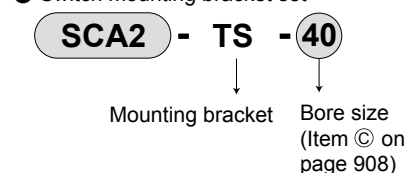
● Switch body + mounting bracket set



● Switch body only

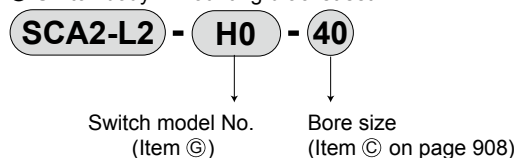


● Switch mounting bracket set

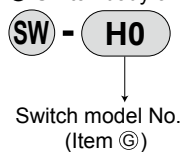


[H type switch]

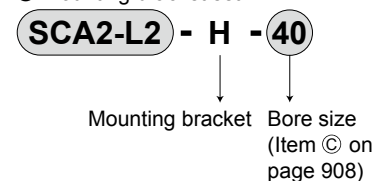
● Switch body + mounting bracket set



● Switch body only

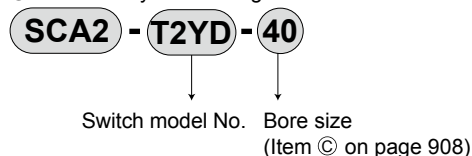


● Mounting bracket set

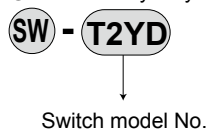


[T2YD type switch]

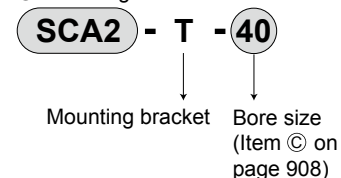
● Switch body + mounting bracket set



● Switch body only



● Mounting bracket set



Mounting bracket model No.

Bore size (mm)	ø40	ø50	ø63	ø80	ø100
Mounting bracket					
Foot (LB)	S1-LB-40	S1-LB-50	S1-LB-63	S1-LB-80	S1-LB-100
Flange (FA)	USC-FA-40	USC-FA-50	USC-FA-63	USC-FA-80	USC-FA-100
Flange (FB)	S1-FA-40	S1-FA-50	S1-FA-63	S1-FA-80	S1-FA-100
Eye bracket (CA)	S1-CA-40	S1-CA-50	S1-CA-63	S1-CA-80	S1-CA-100
Clevis bracket (CB)	S1-CB-40	S1-CB-50	S1-CB-63	S1-CB-80	S1-CB-100

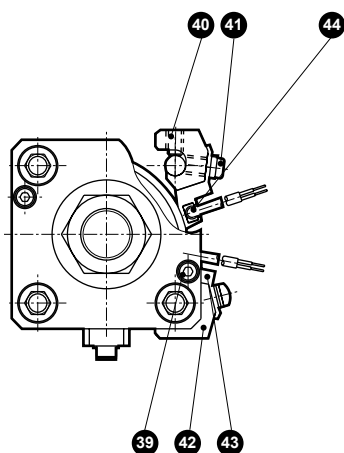
Note: The foot mounting bracket is provided as 2 pc./set.

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

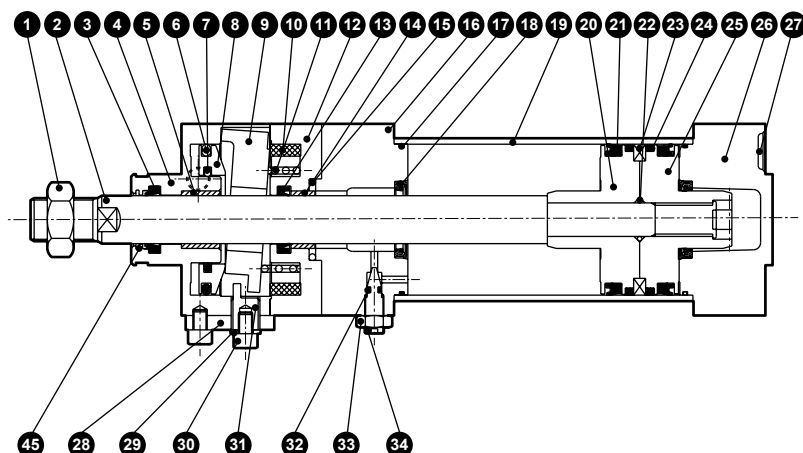
Internal structure and parts list

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

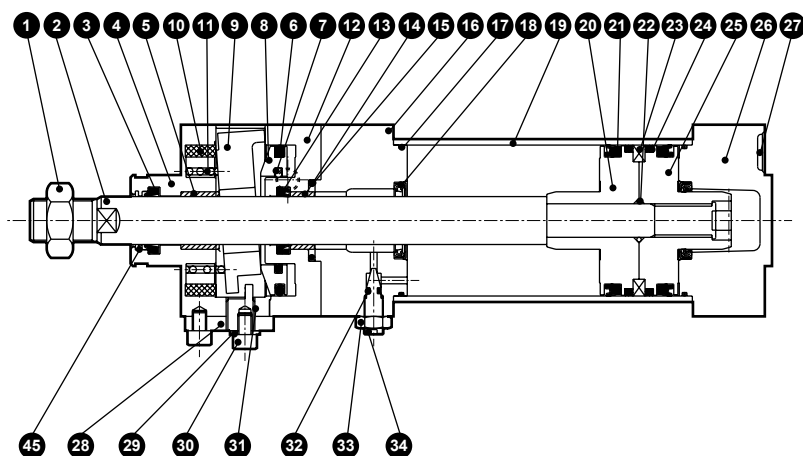
[Common for F, B]



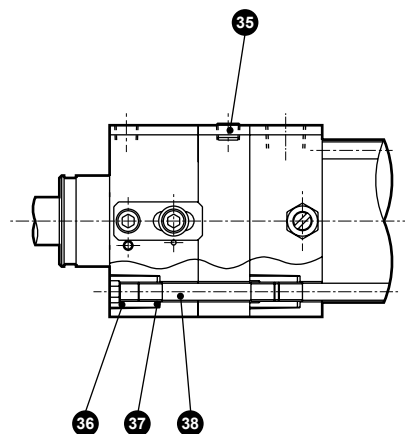
[F: Forward locking]



[B: Backward locking]



[Common for F, B]



Brake section cannot be disassembled

Parts list

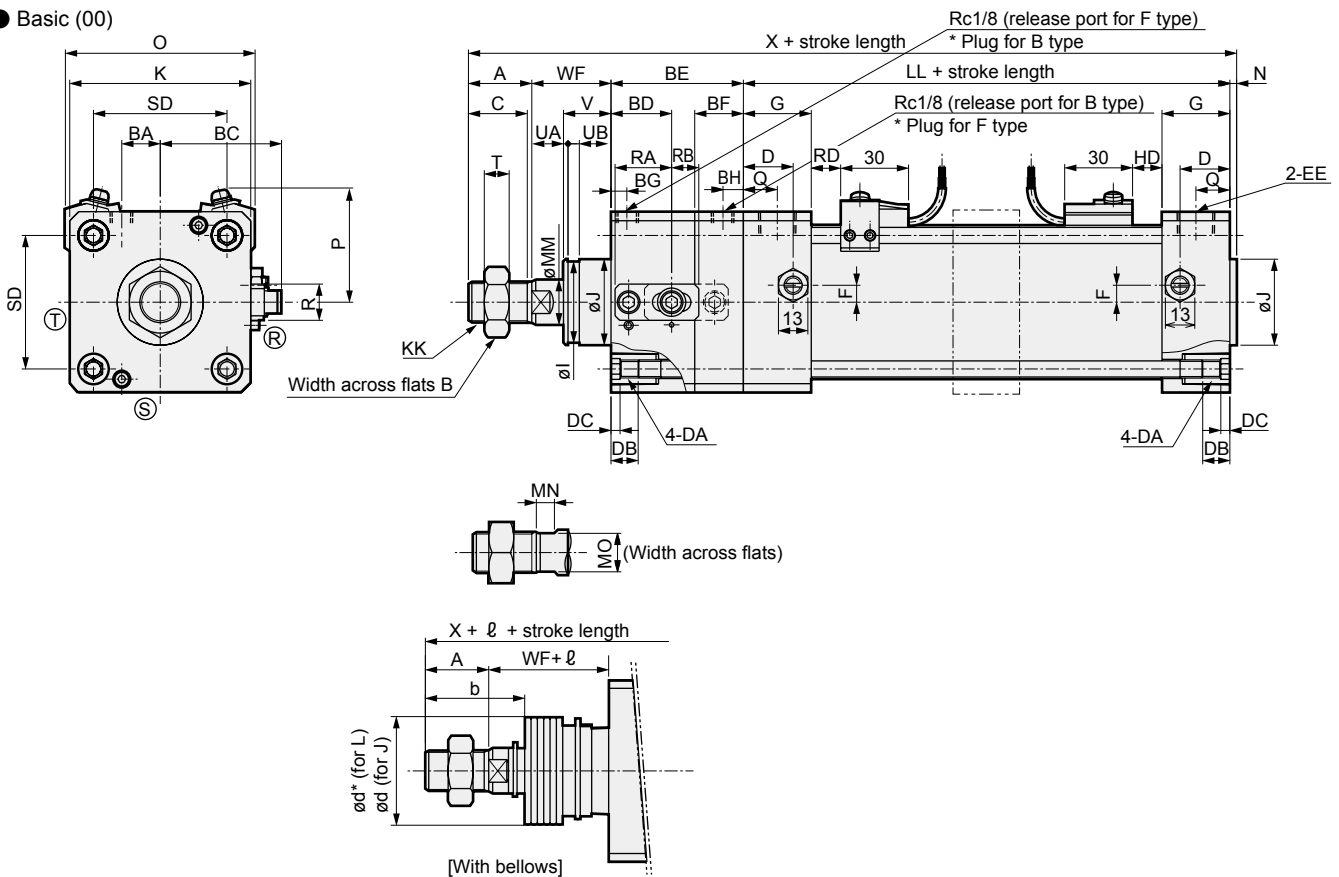
No.	Part name	Material	Remarks	No.	Part name	Material	Remarks
1	Rod nut	Steel	Zinc chromate	24	Wear ring	Polyacetal	
2	Piston rod	Steel	Industrial chrome plating	25	Piston H	Aluminum alloy die-casting	
3	Dust wiper	Nitrile rubber		26	Head cover	Aluminum alloy die-casting	Paint
4	Brake body A	Aluminum alloy	Black alumite	27	Masking plate	Aluminum	Paint
5	Bush	Oil impregnated bearing alloy		28	Release lever	Steel	
6	Release piston packing A	Nitrile rubber		29	Plain washer	Steel	
7	Release piston packing B	Nitrile rubber		30	Hexagon socket head cap screw	Steel	
8	Release piston	Steel	Zinc chromate	31	Release cam	Steel	
9	Lock plate	Special steel		32	Needle gasket	Nitrile rubber	
10	Cushion rubber	Urethane rubber		33	Needle nut	Copper alloy	
11	Spring	Steel	Black finish	34	Cushion needle	Copper alloy	
12	Brake body B	Aluminum alloy	Black alumite	35	Blanking plug	Steel	
13	Rod packing	Nitrile rubber		36	Round nut	Steel	Zinc chromate
14	Bush	Oil impregnated bearing alloy		37	Conical spring washer	Steel	Black finish
15	Gasket	Nitrile rubber		38	Tie rod	Steel	Zinc chromate
16	Rod cover	Aluminum alloy die-casting	Paint	39	Hexagon socket head cap screw	Steel	
17	Cylinder gasket	Nitrile rubber		40	Hexagon socket set screw	Steel	Black finish
18	Cushion packing	Urethane rubber, steel		41	Cross-recessed pan head machine screw	Steel	Zinc chromate
19	Cylinder tube	Aluminum alloy	Hard alumite	42	Switch mounting base	Aluminum alloy	
20	Piston R	Aluminum alloy die-casting		43	Switch holder	Aluminum alloy	
21	Piston packing	Nitrile rubber		44	Cylinder switch		
22	Piston gasket	Nitrile rubber		45	Coil scraper	Phosphor bronze	With coil scraper only
23	Magnet	Plastic					

Repair parts list (standard)

Bore size (mm)	Kit No.	Repair parts No.
ø40	USC-40K	
ø50	USC-50K	3 13 15 17
ø63	USC-63K	
ø80	USC-80K	18 21 24 32
ø100	USC-100K	

Note: When you detach the lock mechanism part to replace repair parts, do not disassemble the lock mechanism part since a spring may pop out or the expected performance may become unreliable.

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending



Code	A	B	C	BA	BC	BD	BE	BF	BG	BH	D	DA	DB	DC	EE	F	G	J	K	KK				
Bore size																								
ø40	22	22	20	7.5	39.5	22	47	18	7	7	18	M8	12	4	Rc1/4	7.5	26	31	57	M14×1.5				
ø50	28	27	26	10	43.5	25	54	20	7	8	20	M8	12	4	Rc3/8	0	28	38	66	M18×1.5				
ø63	28	27	26	17	53.5	26.8	58.5	21.5	7	9	22	M8	12	4	Rc3/8	0	30	38	80	M18×1.5				
ø80	36	32	34	21	62.5	33.3	71	25	8	10	26	M12	16	5	Rc1/2	0	34	43	98	M22×1.5				
ø100	45	41	43	25	72.5	38	81.5	28.5	8	10.5	28	M12	16	5	Rc1/2	0	36	51	118	M26×1.5				
Code	LL	MM	MN	MO	N	Q	SD	T	V	R	RA	RB	I	UA	UB	WF	X							
Bore size																								
ø40	93	16	8	14	2	13	40.5	8	18.5	16	18	10	29	2	5	33.5	197.5							
ø50	101	20	8	17	2.5	14	48	11	20.5	16	18	10	36	2	5	37	222.5							
ø63	105	20	8	17	3	15	59	11	21	16	25	12	36	2	5	35	229.5							
ø80	116	25	11	22	3.5	17	74	13	23.5	16	25	12	41	2	5	48	274.5							
ø100	128	30	13	27	4	18	90	16	32	16	25	12	49	3	6	53	311.5							
Code	With bellows																							
Bore size	b	d	d*	ℓ																				
				50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	Over 500 *1													
ø40	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke length/3.0) + 8													
ø50	47	47	48	22	36	49	63	90	119	146	(Stroke length/3.6) + 7.5													
ø63	45	47	48	22	36	49	63	90	119	146	(Stroke length/3.6) + 7.5													
ø80	58.5	53	55	14	26	38	49	72	96	119	(Stroke length/4.3) + 2.5													
ø100	69.5	61	65	20	32	42	53	76	98	120	(Stroke length/4.5) + 9													
Code	With switch																							
Bore size (mm)	O	T0,T5,T2,T3			T1,T2Y,T3Y,T2J T2YD/T			T8			T2W,T3W			H0*										
		P	RD	HD	P	RD	HD	P	RD	HD	P	RD	HD	P	RD	HD								
ø40	66	41.5	11	11	41.5	10	10	41.5	5	5	40	13	13	42	4	4								
ø50	73	43	13	13	43	12	12	43	7	7	44.5	15	15	44	6	6								
ø63	85	47	13	13	47	12	12	47	7	7	50	15	15	47	6	6								
ø80	105	57	14.5	14.5	57	13.5	13.5	57	8.5	8.5	60	16.5	16.5	58	7.5	7.5								
ø100	121	63	18.5	18.5	63	17.5	17.5	63	12.5	12.5	68	20.5	20.5	64	11.5	11.5								

*1 : Round up below decimal point.

*2 : (R), (S) and (T) indicate the cushion needle position.

*3 : For the dimensions of the accessories, refer to page 923.

*4 : Non-sag block (2-dashed line) will be added depending on the stroke length. Refer to page 922.

RD: Rod side max. sensitivity position

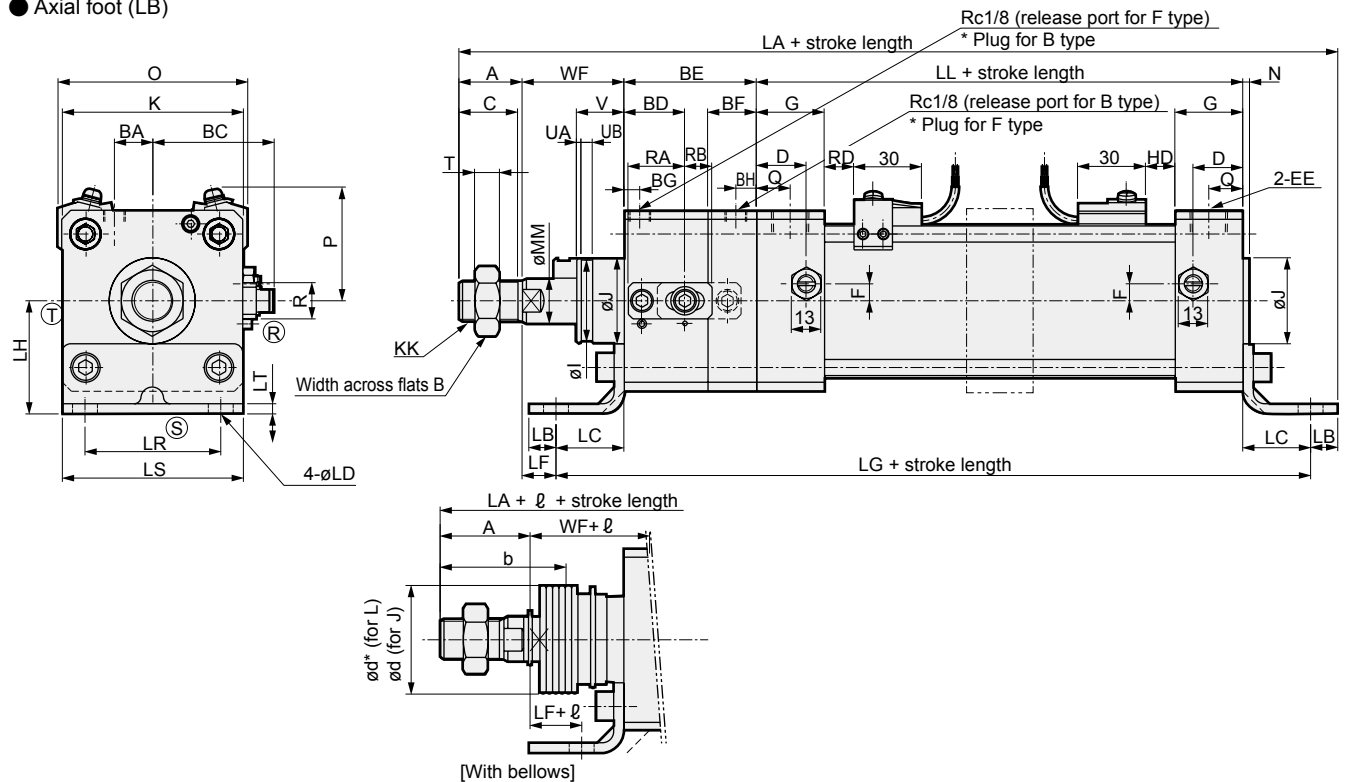
HD: Head side max. sensitivity position

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

Dimensions



● Axial foot (LB)



Code	Axial foot (LB) basic dimensions																				
Bore size	A	B	C	BA	BC	BD	BE	BF	BG	BH	D	EE	F	G	J	K	KK	LL	MM	N	
ø40	22	22	20	7.5	39.5	22	47	18	7	7	18	Rc1/4	7.5	26	31	57	M14×1.5	93	16	2	
ø50	28	27	26	10	43.5	25	54	20	7	8	20	Rc3/8	0	28	38	66	M18×1.5	101	20	2.5	
ø63	28	27	26	17	53.5	26.8	58.5	21.5	7	9	22	Rc3/8	0	30	38	80	M18×1.5	105	20	3	
ø80	36	32	34	21	62.5	33.3	71	25	8	10	26	Rc1/2	0	34	43	98	M22×1.5	116	25	3.5	
ø100	45	41	43	25	72.5	38	81.5	28.5	8	10.5	28	Rc1/2	0	36	51	118	M26×1.5	128	30	4	
Code	Q	T	V	R	RA	RB	I	UA	UB	WF	X	Mounting dimensions									
Bore size												LA	LB	LC	LD	LF	LG	LH	LR	LS	LT
ø40	13	8	18.5	16	18	10	29	2	5	33.5	197.5	225	10	19.5	9	14	179	40	40	57	3.2
ø50	14	11	20.5	16	18	10	36	2	5	37	222.5	254	12	22	9	15	199	40	46	66	4.5
ø63	15	11	21	16	25	12	36	2	5	35	229.5	268.5	12	30	11	5	223.5	50	60	80	4.5
ø80	17	13	23.5	16	25	12	41	2	5	48	274.5	322	14	37	14	11	261	60	74	98	6
ø100	18	16	32	16	25	12	49	3	6	53	311.5	359.5	21	31	14	22	271.5	67	80	118	6
Code	With bellows																				
Bore size	b	d	d*	ℓ								Over 500 *1									
				50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500											
ø40	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke length/3.0) + 8										
ø50	47	47	48	22	36	49	63	90	119	146	(Stroke length/3.6) + 7.5										
ø63	45	47	48	22	36	49	63	90	119	146	(Stroke length/3.6) + 7.5										
ø80	58.5	53	55	14	26	38	49	72	96	119	(Stroke length/4.3) + 2.5										
ø100	69.5	61	65	20	32	42	53	76	98	120	(Stroke length/4.5) + 9										
Code	With switch																				
Bore size (mm)	O	T0,T5,T2,T3			T1,T2Y,T3Y,T2J T2YD/T			T8			T2W,T3W			H0*							
		P	RD	HD	P	RD	HD	P	RD	HD	P	RD	HD	P	RD	HD					
ø40	66	41.5	11	11	41.5	10	10	41.5	5	5	40	13	13	42	4	4					
ø50	73	43	13	13	43	12	12	43	7	7	44.5	15	15	44	6	6					
ø63	85	47	13	13	47	12	12	47	7	7	50	15	15	47	6	6					
ø80	105	57	14.5	14.5	57	13.5	13.5	57	8.5	8.5	60	16.5	16.5	58	7.5	7.5					
ø100	121	63	18.5	18.5	63	17.5	17.5	63	12.5	12.5	68	20.5	20.5	64	11.5	11.5					

*1 : Round up below decimal point.

*2 : ®, ® and ① indicate the cushion needle position.

*3 : For the dimensions of the accessories, refer to page 923.

*4 : Non-sag block (2-dashed line) will be added depending on the stroke length. Refer to page 922.

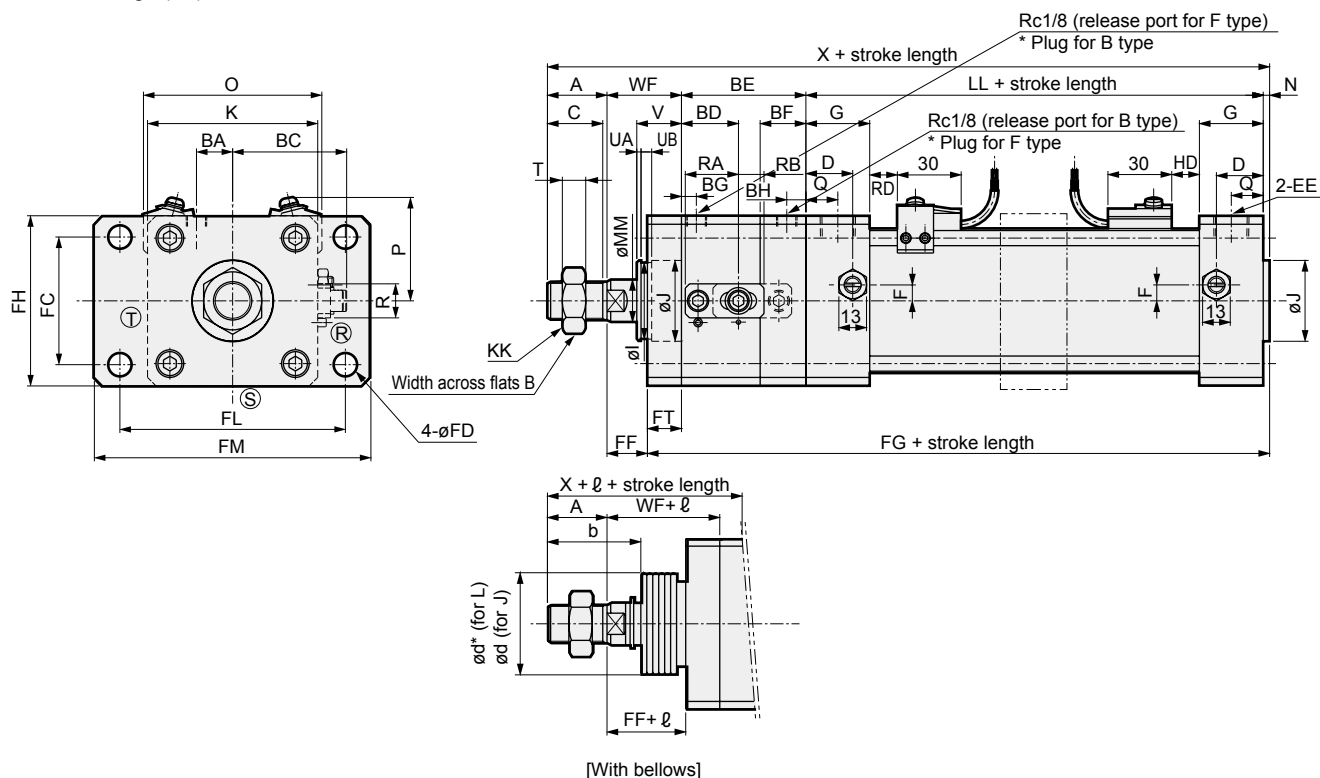
RD: Rod side max. sensitivity position

HD: Head side max. sensitivity position

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

Dimensions

● Rod side flange (FA)



Code	Rod side flange (FA) basic dimensions																			
Bore size	A	B	C	BA	BC	BD	BE	BF	BG	BH	D	EE	F	G	J	K	KK	LL	MM	N
ø40	22	22	20	7.5	39.5	22	47	18	7	7	18	Rc1/4	7.5	26	31	57	M14×1.5	93	16	2
ø50	28	27	26	10	43.5	25	54	20	7	8	20	Rc3/8	0	28	38	66	M18×1.5	101	20	2.5
ø63	28	27	26	17	53.5	26.8	58.5	21.5	7	9	22	Rc3/8	0	30	38	80	M18×1.5	105	20	3
ø80	36	32	34	21	62.5	33.3	71	25	8	10	26	Rc1/2	0	34	43	98	M22×1.5	116	25	3.5
ø100	45	41	43	25	72.5	38	81.5	28.5	8	10.5	28	Rc1/2	0	36	51	118	M26×1.5	128	30	4
Code	Q	T	V	R	RA	RB	I	UA	UB	WF	X	Mounting dimensions								
Bore size	FC	FD	FF	FG	FH	FL	FM	FT												
ø40	13	8	18.5	16	18	10	29	2	5	33.5	197.5	40	9	21.5	154	57	80	100	12	
ø50	14	11	20.5	16	18	10	36	2	5	37	222.5	47	9	25	169.5	65	85	108	12	
ø63	15	11	21	16	25	12	36	2	5	35	229.5	60	11	19	182.5	80	106	130	16	
ø80	17	13	23.5	16	25	12	41	2	5	48	274.5	74	14	29	209.5	98	125	153	19	
ø100	18	16	32	16	25	12	49	3	6	53	311.5	88	14	34	232.5	118	144	180	19	
Code	With bellows																			
Bore size	b	d	d*	ℓ																
	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	Over 500 *1												
ø40	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke length/3.0) + 8									
ø50	47	47	48	22	36	49	63	90	119	146	(Stroke length/3.6) + 7.5									
ø63	45	47	48	22	36	49	63	90	119	146	(Stroke length/3.6) + 7.5									
ø80	58.5	53	55	14	26	38	49	72	96	119	(Stroke length/4.3) + 2.5									
ø100	69.5	61	65	20	32	42	53	76	98	120	(Stroke length/4.5) + 9									
Code	With switch																			
Bore size (mm)	O	T0,T5,T2,T3			T1,T2Y,T3Y,T2J T2YD/T			T8			T2W,T3W			H0*						
		P	RD	HD	P	RD	HD	P	RD	HD	P	RD	HD	P	RD	HD				
ø40	66	41.5	11	11	41.5	10	10	41.5	5	5	40	13	13	42	4	4				
ø50	73	43	13	13	43	12	12	43	7	7	44.5	15	15	44	6	6				
ø63	85	47	13	13	47	12	12	47	7	7	50	15	15	47	6	6				
ø80	105	57	14.5	14.5	57	13.5	13.5	57	8.5	8.5	60	16.5	16.5	58	7.5	7.5				
ø100	121	63	18.5	18.5	63	17.5	17.5	63	12.5	12.5	68	20.5	20.5	64	11.5	11.5				

*1 : Round up below decimal point.

*2 : ®, ® and ① indicate the cushion needle position.

*3 : For the dimensions of the accessories, refer to page 923.

*4 : Non-sag block (2-dashed line) will be added depending on the stroke length. Refer to page 922.

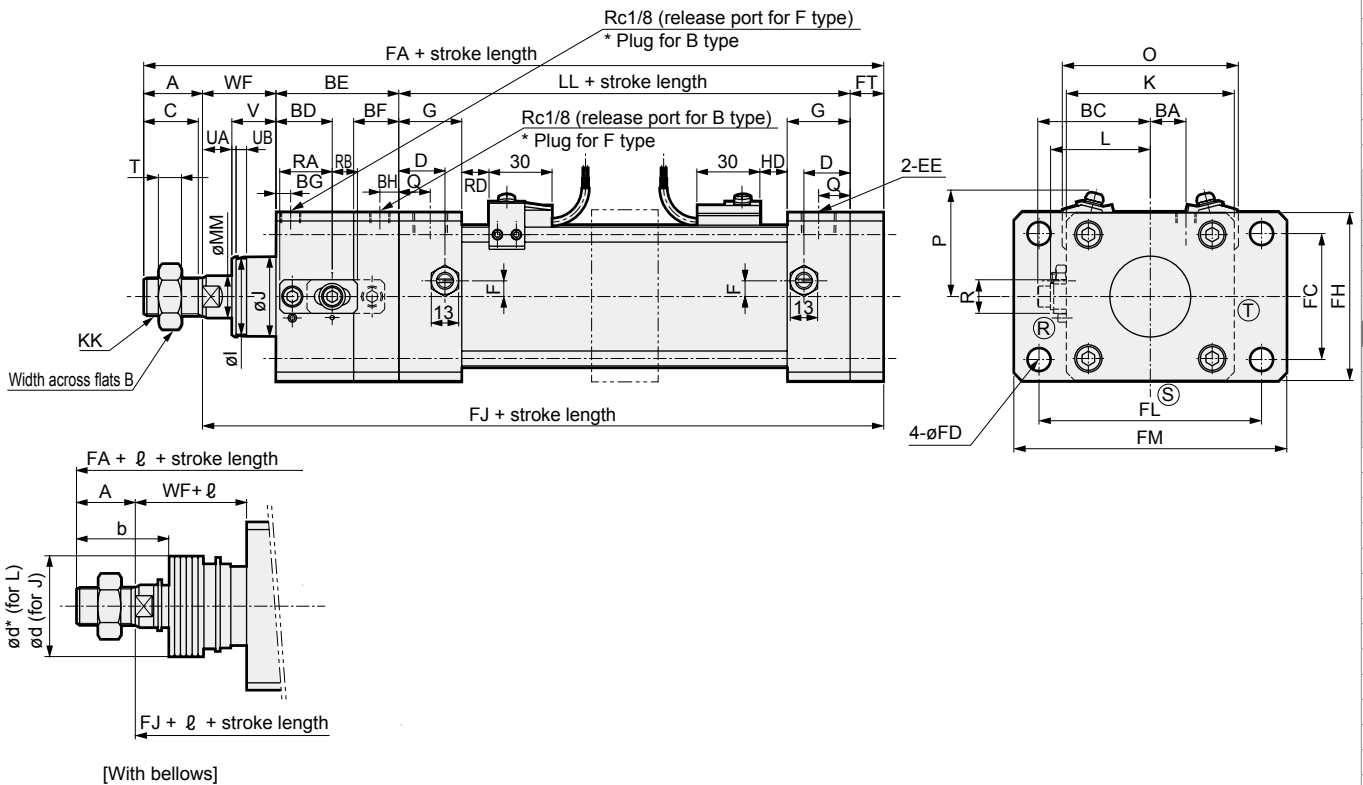
RD: Rod side max. sensitivity position

HD: Head side max. sensitivity position

Dimensions



● Head side flange (FB)



Code	Head side flange (FB) basic dimensions																		
Bore size	A	B	C	BA	BC	BD	BE	BF	BG	BH	D	EE	F	G	J	K	KK	LL	MM
ø40	22	22	20	7.5	39.5	22	47	18	7	7	18	Rc1/4	7.5	26	31	57	M14×1.5	93	16
ø50	28	27	26	10	43.5	25	54	20	7	8	20	Rc3/8	0	28	38	66	M18×1.5	101	20
ø63	28	27	26	17	53.5	26.8	58.5	21.5	7	9	22	Rc3/8	0	30	38	80	M18×1.5	105	20
ø80	36	32	34	21	62.5	33.3	71	25	8	10	26	Rc1/2	0	34	43	98	M22×1.5	116	25
ø100	45	41	43	25	72.5	38	81.5	28.5	8	10.5	28	Rc1/2	0	36	51	118	M26×1.5	128	30

Code	Q	T	V	R	RA	RB	I	UA	UB	WF	X	Mounting dimensions								
Bore size	Q	T	V	R	RA	RB	I	UA	UB	WF	X	L	FA	FC	FD	FH	FJ	FL	FM	FT
ø40	13	8	18.5	16	18	10	29	2	5	33.5	197.5	38 to 39.5	207.5	40	9	57	185.5	80	100	12
ø50	14	11	20.5	16	18	10	36	2	5	37	222.5	41 to 43.5	232	47	9	65	204	85	108	12
ø63	15	11	21	16	25	12	36	2	5	35	229.5	47.5 to 50	242.5	60	11	80	214.5	106	130	16
ø80	17	13	23.5	16	25	12	41	2	5	48	274.5	56 to 59	290	74	14	98	254	125	153	19
ø100	18	16	32	16	25	12	49	3	6	53	311.5	66 to 69	326.5	88	14	118	281.5	144	180	19

Code	With bellows										
	b	d	d*	ℓ							
Bore size				50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	Over 500 ^{*1}
ø40	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke length/3.0) + 8
ø50	47	47	48	22	36	49	63	90	119	146	(Stroke length/3.6) + 7.5
ø63	45	47	48	22	36	49	63	90	119	146	(Stroke length/3.6) + 7.5
ø80	58.5	53	55	14	26	38	49	72	96	119	(Stroke length/4.3) + 2.5
ø100	69.5	61	65	20	32	42	53	76	98	120	(Stroke length/4.5) + 9

Code	With switch															
Bore size (mm)	O	T0,T5,T2,T3			T1,T2Y,T3Y,T2J T2YD/T			T8			T2W,T3W			H0*		
		P	RD	HD	P	RD	HD	P	RD	HD	P	RD	HD	P	RD	HD
ø40	66	41.5	11	11	41.5	10	10	41.5	5	5	40	13	13	42	4	4
ø50	73	43	13	13	43	12	12	43	7	7	44.5	15	15	44	6	6
ø63	85	47	13	13	47	12	12	47	7	7	50	15	15	47	6	6
ø80	105	57	14.5	14.5	57	13.5	13.5	57	8.5	8.5	60	16.5	16.5	58	7.5	7.5
ø100	121	63	18.5	18.5	63	17.5	17.5	63	12.5	12.5	68	20.5	20.5	64	11.5	11.5

*1 : Round up below decimal point.

*2 : ®, ® and ① indicate the cushion needle position.

*3 : For the dimensions of the accessories, refer to page 923.

*4 : Non-sag block (2-dashed line) will be added depending on the stroke length. Refer to page 922.

RD: Rod side max. sensitivity position

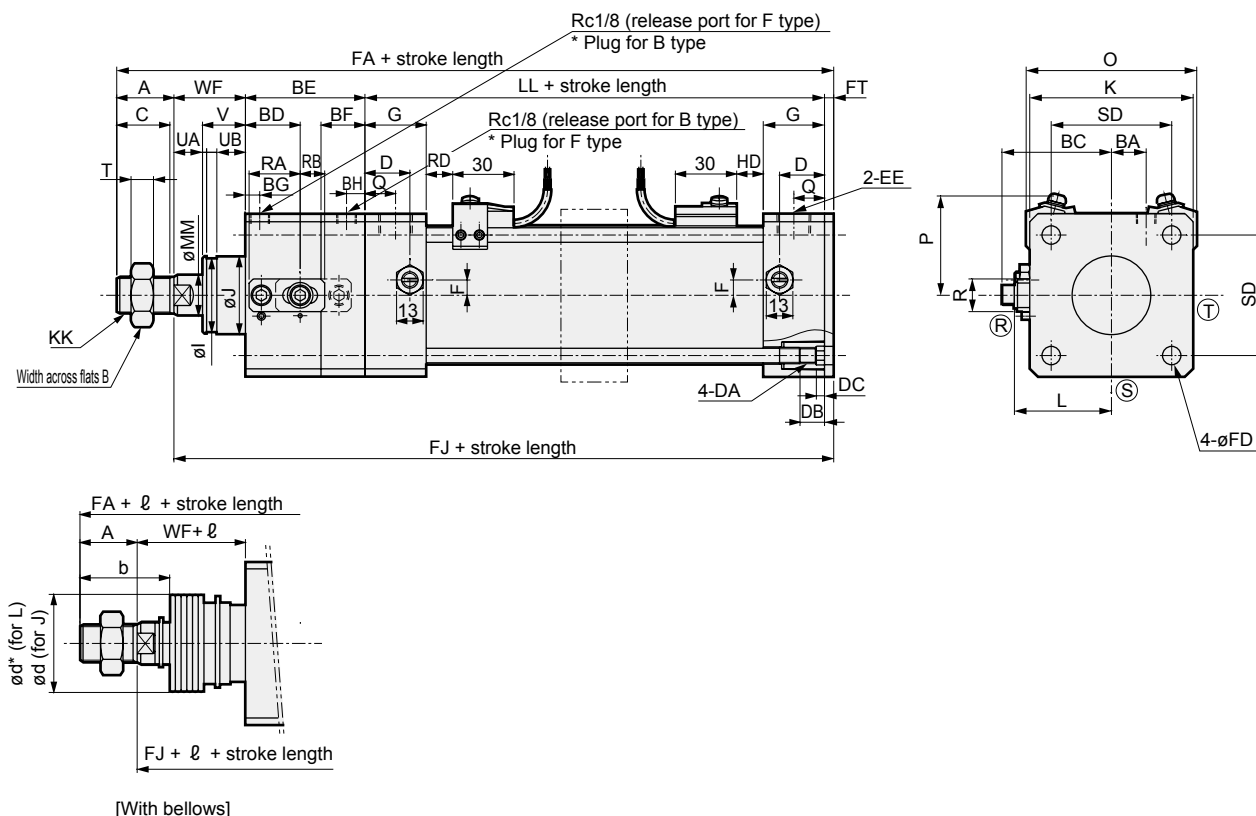
HD: Head side max. sensitivity position

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

Dimensions



● Head side special flange (FC)



Code	Head side special flange (FC) basic dimensions																			
Bore size	A	B	C	BA	BC	BD	BE	BF	BG	BH	D	DA	DB	DC	EE	F	G	J	K	KK
ø40	22	22	20	7.5	39.5	22	47	18	7	7	18	M8	12	4	Rc1/4	7.5	26	31	57	M14×1.5
ø50	28	27	26	10	43.5	25	54	20	7	8	20	M8	12	4	Rc3/8	0	28	38	66	M18×1.5
ø63	28	27	26	17	53.5	26.8	58.5	21.5	7	9	22	M8	12	4	Rc3/8	0	30	38	80	M18×1.5
ø80	36	32	34	21	62.5	33.3	71	25	8	10	26	M12	16	5	Rc1/2	0	34	43	98	M22×1.5
ø100	45	41	43	25	72.5	38	81.5	28.5	8	10.5	28	M12	16	5	Rc1/2	0	36	51	118	M26×1.5
Code															Mounting dimensions					
Bore size	LL	MM	Q	SD	T	V	R	RA	RB	I	UA	UB	WF	X	L		FA	FD	FJ	FT
ø40	93	16	13	40.5	8	18.5	16	18	10	29	2	5	33.5	197.5	38 to 39.5		200	9	178	4.5
ø50	101	20	14	48	11	20.5	16	18	10	36	2	5	37	222.5	41 to 43.5		224.5	9	196.5	4.5
ø63	105	20	15	59	11	21	16	25	12	36	2	5	35	229.5	47.5 to 50		231	11	203	4.5
ø80	116	25	17	74	13	23.5	16	25	12	41	2	5	48	274.5	56 to 59		277	14	241	6
ø100	128	30	18	90	16	32	16	25	12	49	3	6	53	311.5	66 to 69		313.5	14	268.5	6

Code	With bellows									
Bore size	b	d	d*	l						Over 500 *1
ø40	41	40	40	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500
ø50	47	47	48	25.5	41.5	58.5	75.5	108.5	141.5	174.5
ø63	45	47	48	22	36	49	63	90	119	146
ø80	58.5	53	55	14	26	38	49	72	96	119
ø100	69.5	61	65	20	32	42	53	76	98	120

Code	With switch															
Bore size (mm)	O	T0,T5,T2,T3			T1,T2Y,T3Y,T2J T2YD/T			T8			T2W,T3W			H0*		
		P	RD	HD	P	RD	HD	P	RD	HD	P	RD	HD	P	RD	HD
ø40	66	41.5	11	11	41.5	10	10	41.5	5	5	40	13	13	42	4	4
ø50	73	43	13	13	43	12	12	43	7	7	44.5	15	15	44	6	6
ø63	85	47	13	13	47	12	12	47	7	7	50	15	15	47	6	6
ø80	105	57	14.5	14.5	57	13.5	13.5	57	8.5	8.5	60	16.5	16.5	58	7.5	7.5
ø100	121	63	18.5	18.5	63	17.5	17.5	63	12.5	12.5	68	20.5	20.5	64	11.5	11.5

*1 : Round up below decimal point.

*2 : (R), (S) and (T) indicate the cushion needle position.

*3 : For the dimensions of the accessories, refer to page 923.

*4 : Non-sag block (2-dashed line) will be added depending on the stroke length. Refer to page 922.

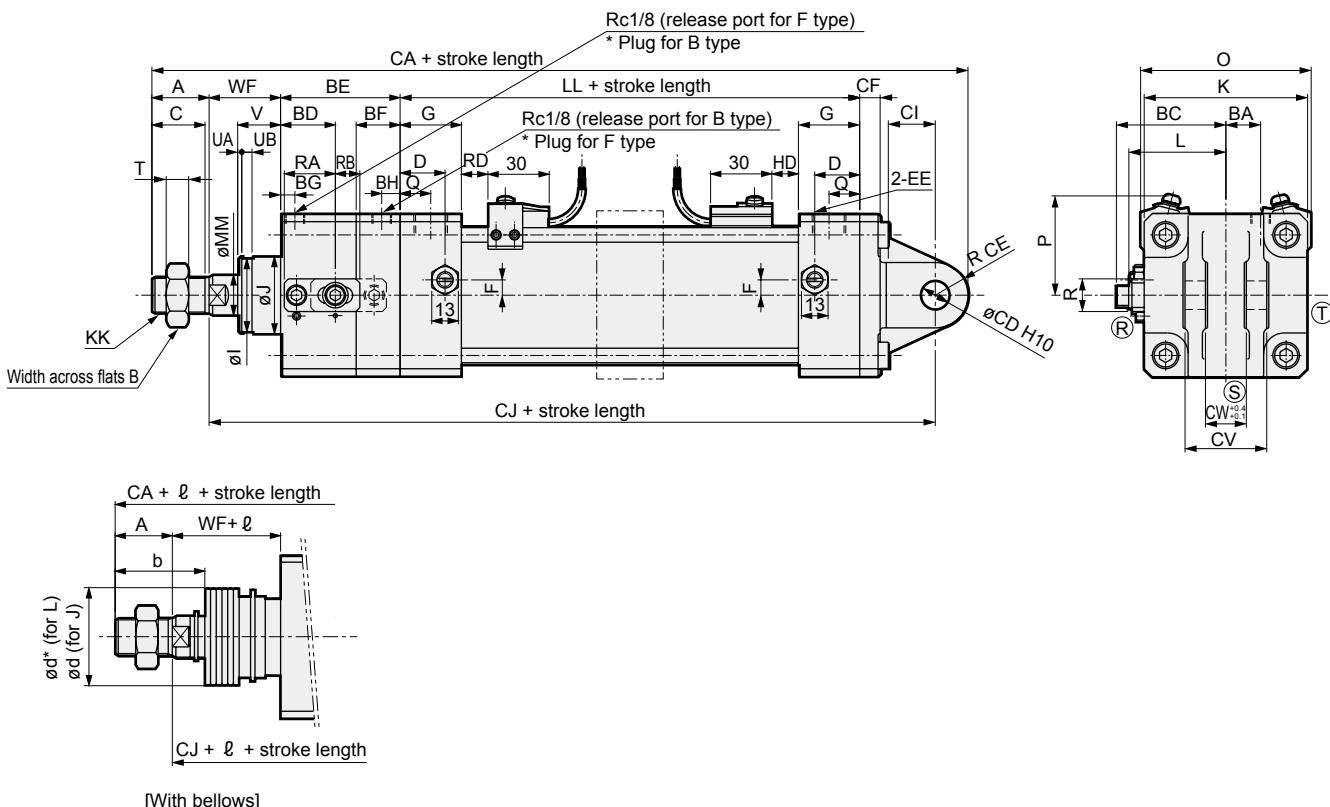
RD: Rod side max. sensitivity position

HD: Head side max. sensitivity position

Dimensions



● Clevis bracket (CB)



Code	Clevis bracket (CB) basic dimensions																			
Bore size	A	B	C	BA	BC	BD	BE	BF	BG	BH	D	EE	F	G	J	K	KK	LL	MM	
ø40	22	22	20	7.5	39.5	22	47	18	7	7	18	Rc1/4	7.5	26	31	57	M14×1.5	93	16	
ø50	28	27	26	10	43.5	25	54	20	7	8	20	Rc3/8	0	28	38	66	M18×1.5	101	20	
ø63	28	27	26	17	53.5	26.8	58.5	21.5	7	9	22	Rc3/8	0	30	38	80	M18×1.5	105	20	
ø80	36	32	34	21	62.5	33.3	71	25	8	10	26	Rc1/2	0	34	43	98	M22×1.5	116	25	
ø100	45	41	43	25	72.5	38	81.5	28.5	8	10.5	28	Rc1/2	0	36	51	118	M26×1.5	128	30	
Code											Mounting dimensions									
Bore size	Q	T	V	R	RA	RB	I	UA	UB	WF	L		CA	CD	CE	CF	CI	CJ	CV	CW
ø40	13	8	18.5	16	18	10	29	2	5	33.5	38 to 39.5		239.5	12 ^{+0.070 0}	12	10	18	205.5	36	18
ø50	14	11	20.5	16	18	10	36	2	5	37	41 to 43.5		264	12 ^{+0.070 0}	12	10	18	224	36	18
ø63	15	11	21	16	25	12	36	2	5	35	47.5 to 50		279.5	14 ^{+0.070 0}	16	10	24	235.5	40	20
ø80	17	13	23.5	16	25	12	41	2	5	48	56 to 59		343	20 ^{+0.084 0}	20	14	30	287	56	28
ø100	18	16	32	16	25	12	49	3	6	53	66 to 69		379.5	20 ^{+0.084 0}	20	16	30	314.5	56	28
Code	With bellows																			
Bore size	b	d	d*	ℓ																
	50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	Over 500 ^{*1}												
ø40	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke length/3.0) + 8									
ø50	47	47	48	22	36	49	63	90	119	146	(Stroke length/3.6) + 7.5									
ø63	45	47	48	22	36	49	63	90	119	146	(Stroke length/3.6) + 7.5									
ø80	58.5	53	55	14	26	38	49	72	96	119	(Stroke length/4.3) + 2.5									
ø100	69.5	61	65	20	32	42	53	76	98	120	(Stroke length/4.5) + 9									
Code	With switch																			
Bore size (mm)	O	T0,T5,T2,T3			T1,T2Y,T3Y,T2J T2YD/T			T8			T2W,T3W			H0*						
		P	RD	HD	P	RD	HD	P	RD	HD	P	RD	HD	P	RD	HD				
	ø40	66	41.5	11	11	41.5	10	10	41.5	5	5	40	13	13	42	4	4			
ø50	73	43	13	13	43	12	12	43	7	7	44.5	15	15	44	6	6				
ø63	85	47	13	13	47	12	12	47	7	7	50	15	15	47	6	6				
ø80	105	57	14.5	14.5	57	13.5	13.5	57	8.5	8.5	60	16.5	16.5	58	7.5	7.5				
ø100	121	63	18.5	18.5	63	17.5	17.5	63	12.5	12.5	68	20.5	20.5	64	11.5	11.5				

*1 : Round up below decimal point.

*2 : (R), (S) and (T) indicate the cushion needle position.

*3 : For the dimensions of the accessories, refer to page 923.

*4 : Non-sag block (2-dashed line) will be added depending on the stroke length. Refer to page 922.

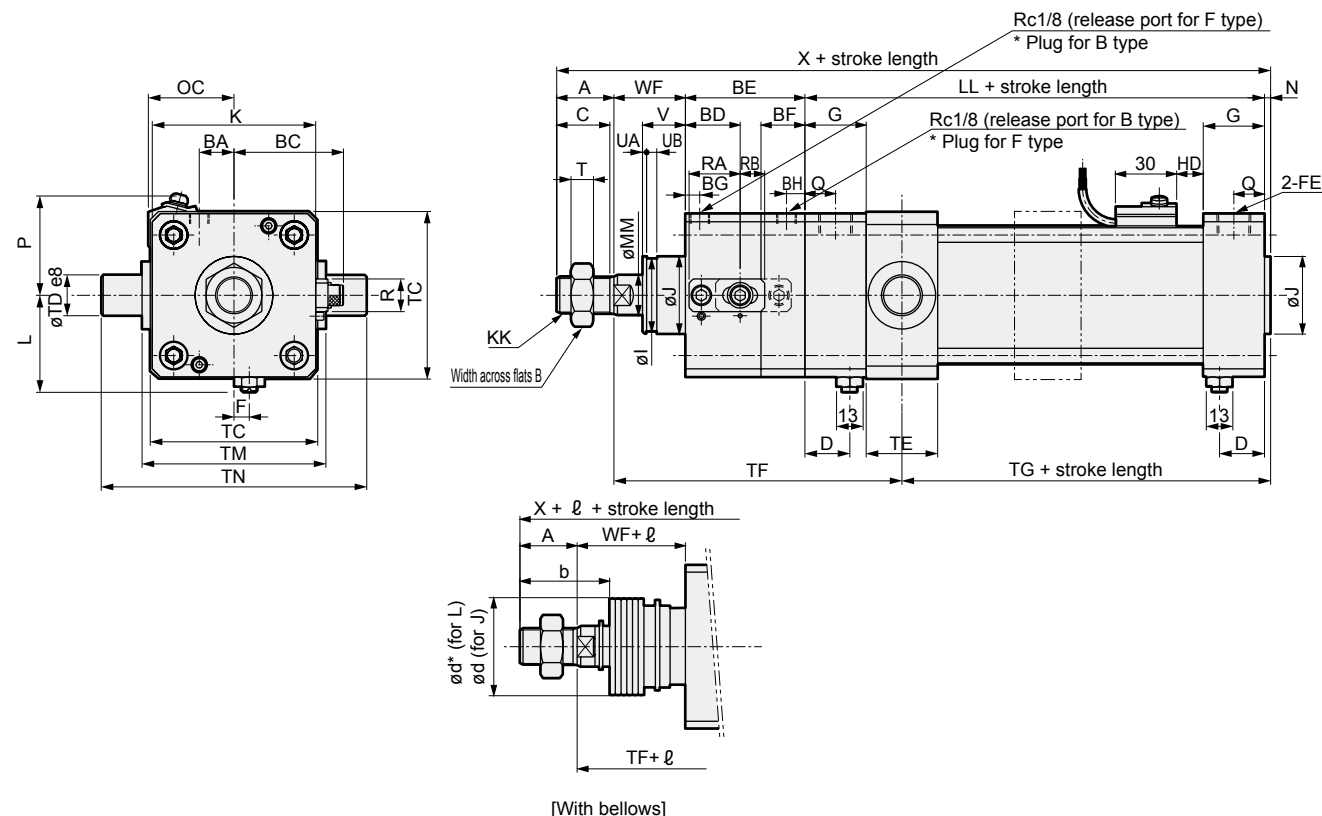
RD: Rod side max. sensitivity position

HD: Head side max. sensitivity position

Dimensions



● Rod side trunnion (TA)



Code	Rod type trunnion (TA) basic dimensions																					
	A	B	C	BA	BC	BD	BE	BF	BG	BH	D	EE	F	G	J	K	KK	LL	MM	N		
Bore size																						
ø40	22	22	20	7.5	39.5	22	47	18	7	7	18	Rc1/4	7.5	26	31	57	M14×1.5	93	16	2		
ø50	28	27	26	10	43.5	25	54	20	7	8	20	Rc3/8	0	28	38	66	M18×1.5	101	20	2.5		
ø63	28	27	26	17	53.5	26.8	58.5	21.5	7	9	22	Rc3/8	0	30	38	80	M18×1.5	105	20	3		
ø80	36	32	34	21	62.5	33.3	71	25	8	10	26	Rc1/2	0	34	43	98	M22×1.5	116	25	3.5		
ø100	45	41	43	25	72.5	38	81.5	28.5	8	10.5	28	Rc1/2	0	36	51	118	M26×1.5	128	30	4		
Code												Mounting dimensions										
Bore size	Q	T	V	R	RA	RB	I	UA	UB	WF	X	L		TC	TD		TE	TF	TG	TM	TN	
ø40	13	8	18.5	16	18	10	29	2	5	33.5	197.5	38 to 39.5		57	16	-0.032 -0.059		30	121.5	54	63	95
ø50	14	11	20.5	16	18	10	36	2	5	37	222.5	41 to 43.5		67	18	-0.032 -0.059		30	134	60.5	80	116
ø63	15	11	21	16	25	12	36	2	5	35	229.5	47.5 to 50		82	20	-0.040 -0.073		35	141	60.5	90	130
ø80	17	13	23.5	16	25	12	41	2	5	48	274.5	56 to 59		100	25	-0.040 -0.073		40	173	65.5	115	165
ø100	18	16	32	16	25	12	49	3	6	53	311.5	66 to 69		121	35	-0.050 -0.089		50	195.5	71	135	205

Code	With bellows										
	b	d	d*	ℓ							
Bore size				50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	Over 500 ^{*1}
ø40	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke length/3.0) + 8
ø50	47	47	48	22	36	49	63	90	119	146	(Stroke length/3.6) + 7.5
ø63	45	47	48	22	36	49	63	90	119	146	(Stroke length/3.6) + 7.5
ø80	58.5	53	55	14	26	38	49	72	96	119	(Stroke length/4.3) + 2.5
ø100	69.5	61	65	20	32	42	53	76	98	120	(Stroke length/4.5) + 9

Code	With switch									
Bore size (mm)	O	T0,T5 T2,T3	T1,T2Y,T3Y T2J,T2YD/T	T8		T2W,T3W		H0*		
		P	HD	P	HD	P	HD	P	HD	
ø40	66	41.5	11	41.5	10	41.5	5	40	13	4
ø50	73	43	13	43	12	43	7	44.5	15	6
ø63	85	47	13	47	12	47	7	50	15	6
ø80	105	57	14.5	57	13.5	57	8.5	60	16.5	7.5
ø100	121	63	18.5	63	17.5	63	12.5	68	20.5	64

*1 : Round up below decimal point.

*2 : The position of the cushion needle cannot be changed.

*3 : For the dimensions of the accessories, refer to page 923.

*4 : Non-sag block (2-dashed line) will be added depending on the stroke length. Refer to page 922.

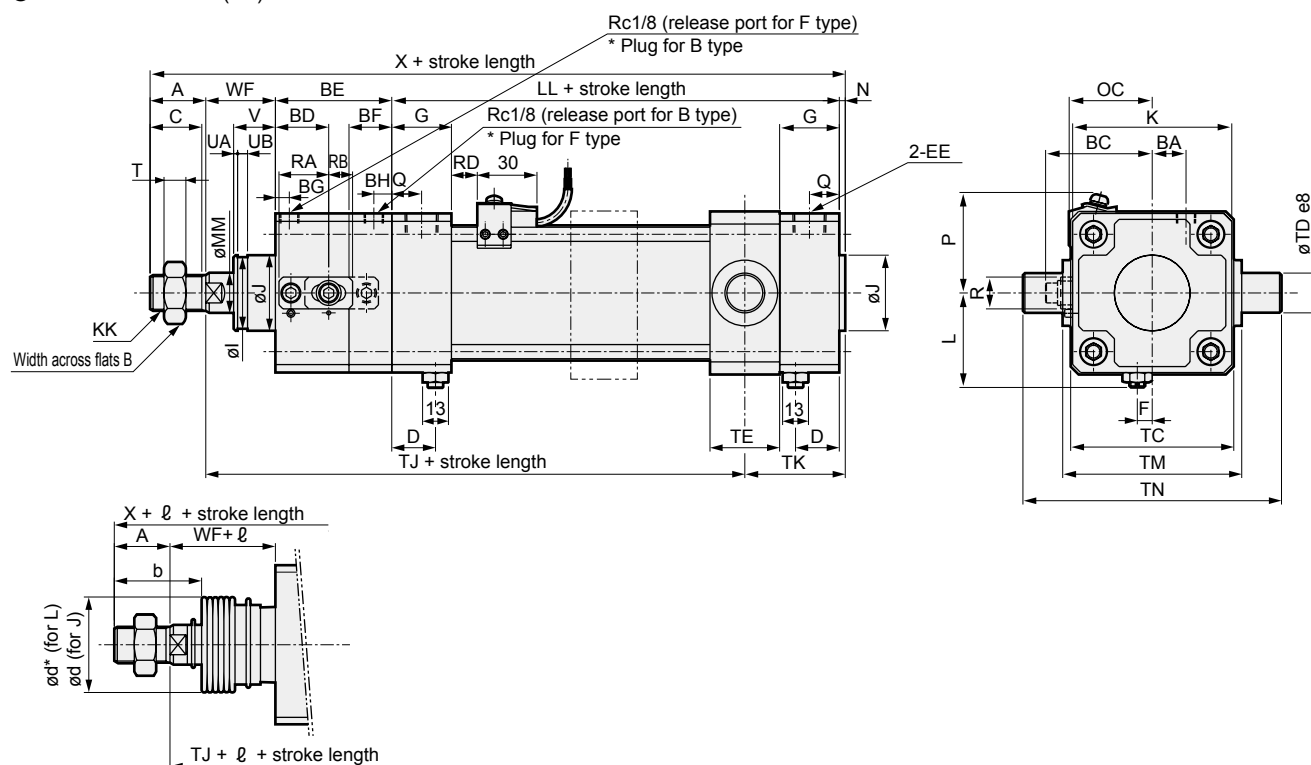
RD: Rod side max. sensitivity position

HD: Head side max. sensitivity position

Dimensions



● Head side trunnion (TB)



[With bellows]

Code	Head side trunnion (TB) basic dimensions																				
	A	B	C	BA	BC	BD	BE	BF	BG	BH	D	EE	F	G	J	K	KK	LL	MM	N	
Bore size	ø40	22	22	20	7.5	39.5	22	47	18	7	7	18	Rc1/4	7.5	26	31	57	M14×1.5	93	16	2
	ø50	28	27	26	10	43.5	25	54	20	7	8	20	Rc3/8	0	28	38	66	M18×1.5	101	20	2.5
	ø63	28	27	26	17	53.5	26.8	58.5	21.5	7	9	22	Rc3/8	0	30	38	80	M18×1.5	105	20	3
	ø80	36	32	34	21	62.5	33.3	71	25	8	10	26	Rc1/2	0	34	43	98	M22×1.5	116	25	3.5
	ø100	45	41	43	25	72.5	38	81.5	28.5	8	10.5	28	Rc1/2	0	36	51	118	M26×1.5	128	30	4
Code	Bore size	Q	T	V	R	RA	RB	I	UA	UB	WF	X	Mounting dimensions								
		L	TC	TD	TE	TJ	TK	TM	TN												
	ø40	13	8	18.5	16	18	10	29	2	5	33.5	197.5	38 to 39.5	57	16	-0.032 -0.059	30	132	43.5	63	95
	ø50	14	11	20.5	16	18	10	36	2	5	37	222.5	41 to 43.5	67	18	-0.032 -0.059	30	148.5	46	80	116
	ø63	15	11	21	16	25	12	36	2	5	35	229.5	47.5 to 50	82	20	-0.040 -0.073	35	150.5	51	90	130
	ø80	17	13	23.5	16	25	12	41	2	5	48	274.5	56 to 59	100	25	-0.040 -0.073	40	180.5	58	115	165
	ø100	18	16	32	16	25	12	49	3	6	53	311.5	66 to 69	121	35	-0.050 -0.089	50	201	65.5	135	205

Code	With bellows										
Bore size	b	d	d*	L							
				50 or less	Over 50 to 100	Over 100 to 150	Over 150 to 200	Over 200 to 300	Over 300 to 400	Over 400 to 500	Over 500 ^{*1}
ø40	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke length/3.0) + 8
ø50	47	47	48	22	36	49	63	90	119	146	(Stroke length/3.6) + 7.5
ø63	45	47	48	22	36	49	63	90	119	146	(Stroke length/3.6) + 7.5
ø80	58.5	53	55	14	26	38	49	72	96	119	(Stroke length/4.3) + 2.5
ø100	69.5	61	65	20	32	42	53	76	98	120	(Stroke length/4.5) + 9

Code	With switch										
Bore size (mm)	O	T0,T5 T2,T3		T1,T2Y,T3Y T2J,T2YD/T		T8		T2W,T3W		H0*	
		P	RD	P	RD	P	RD	P	RD	P	RD
ø40	66	41.5	11	41.5	10	41.5	5	40	13	42	4
ø50	73	43	13	43	12	43	7	44.5	15	44	6
ø63	85	47	13	47	12	47	7	50	15	47	6
ø80	105	57	14.5	57	13.5	57	8.5	60	16.5	58	7.5
ø100	121	63	18.5	63	17.5	63	12.5	68	20.5	64	11.5

*1 : Round up below decimal point.

*2 : The position of the cushion needle cannot be changed.

*3 : For the dimensions of the accessories, refer to page 923.

*4 : Non-sag block (2-dashed line) will be added depending on the stroke length. Refer to page 922.

RD: Rod side max. sensitivity position

HD: Head side max. sensitivity position

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

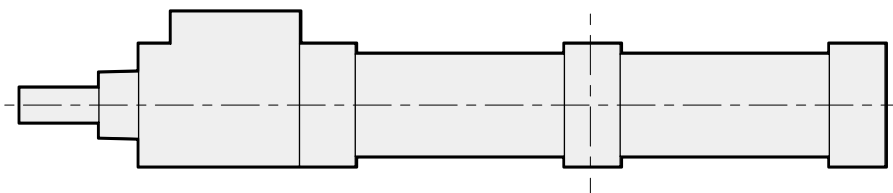
About non-sag block

Depending on its stroke length, a non-sag block will be added to the middle part of the cylinder.

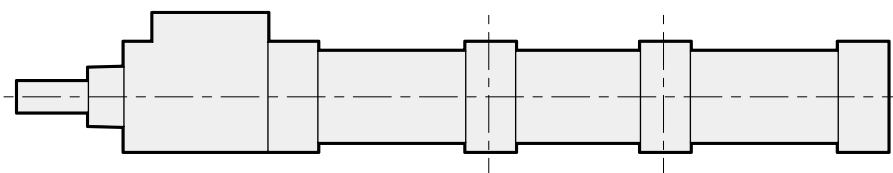
The number of non-sag blocks to be added differs depending on the bore size and the stroke length as shown in the table below.

Number of non-sag blocks depending on stroke length

Tube size (mm)	Stroke length (mm)	Number of non-sag blocks
ø40	1200 to 1600	1
	1200 to 1800	1
ø50	1801 to 2000	2
	1200 to 1800	1
ø63	1801 to 2500	2
	1200 to 1800	1
ø80	1500 to 2000	1
	2001 to 2500	2
ø100	1500 to 2000	1
	2001 to 2500	2

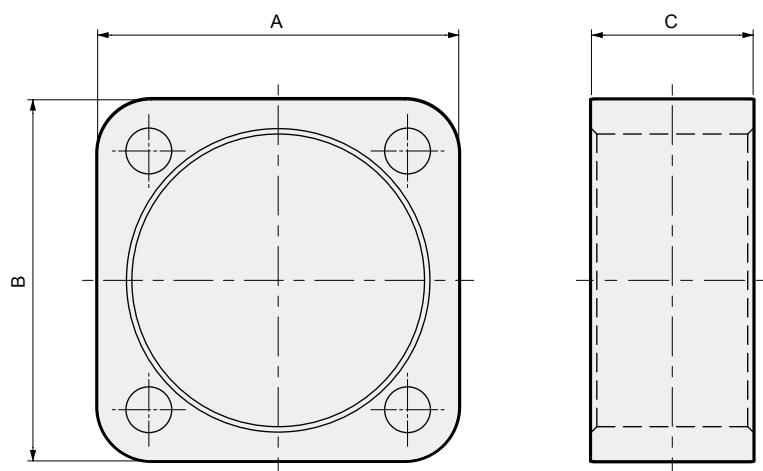


One non-sag block: To be added to the middle point between the covers.



Two non-sag blocks: mount the 2 blocks so that the length of the 2 covers will be divided into 3 equal parts.

The dimensions of non-sag blocks are as shown in the figure below. When attaching the cylinder, take into account the dimensions of the non-sag blocks.



Non-sag block dimensions table

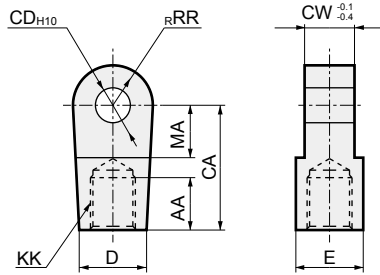
Tube size (mm)	Non-sag block dimensions		
	A	B	C
ø40	56	57	30
ø50	66	67	30
ø63	81	82	35
ø80	99	100	40
ø100	120	121	50

Accessory dimensions (rod eye/clevis bracket/pin)

● Rod eye (I)



Material: Cast iron
Painting

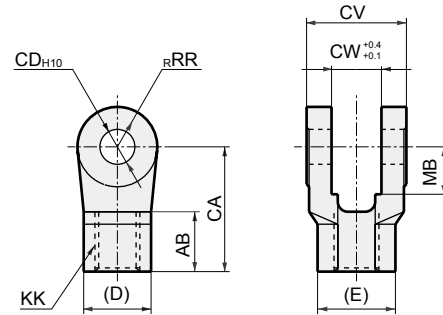


Model No.	Bore size (mm)	AA	CA	CD	CW	D	E	KK	MA	RR	Weight (kg)
S1-I-40	40	20	50	12	18	27	27	M14×1.5	21	16	0.26
S1-I-50	50	21	50	12	18	27	27	M18×1.5	21	16	0.24
S1-I-63	63	21	50	14	20	27	27	M18×1.5	21	16	0.25
S1-I-80	80	30	70	20	28	46	41	M22×1.5	30	25	0.88
S1-I-100	100	30	70	20	28	46	41	M26×1.5	30	25	0.84

● Rod clevis (Y)



Material: Cast iron
Painting



Model No.	Bore size (mm)	AB	CA	CD	CV	CW	D	E	KK	MB	RR	Weight (kg)
S1-Y-40	40	24	50	12	36	18	27	31.2	M14×1.5	19	16	0.25
S1-Y-50	50	24	50	12	36	18	27	31.2	M18×1.5	19	16	0.24
S1-Y-63	63	24	50	14	40	20	27	31.2	M18×1.5	19	16	0.26
S1-Y-80	80	35	70	20	56	28	41	47.3	M22×1.5	30	25	0.90
S1-Y-100	100	35	70	20	56	28	41	47.3	M26×1.5	30	25	0.85

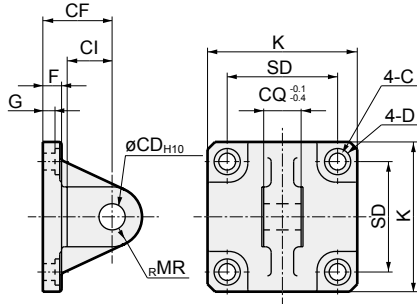
*1: The MB dimension is the effective length of the CW dimension.

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

● Eye bracket (B1)



Material: Cast iron
Painting

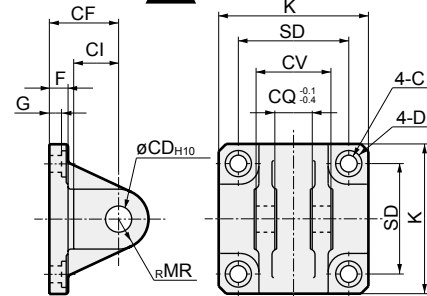


Model No.	Bore size (mm)	C	CD	CF	CI	CQ	D	F	G	K	MR	SD	Weight (kg)
S1-B1-40	40	9	12	32	18	18	14	10	6.5	57	12	40.5	0.32
S1-B1-50	50	9	12	32	18	18	14	10	6.5	66	12	48	0.38
S1-B1-63	63	9	14	37	24	20	14	10	6.5	80	16	59	0.57
S1-B1-80	80	14	20	52	30	28	20	14	10.5	98	20	74	1.27
S1-B1-100	100	14	20	52	30	28	20	16	10.5	118	20	90	1.64

● Clevis bracket (B2)



Material: Cast iron
Painting

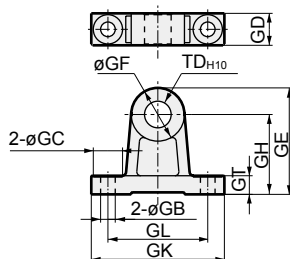


Model No.	Bore size (mm)	C	CD	CF	CI	CV	CQ	D	F	G	K	MR	SD	Weight (kg)
S1-B2-40	40	9	12	32	18	36	18	14	10	6.5	57	12	40.5	0.36
S1-B2-50	50	9	12	32	18	36	18	14	10	6.5	66	12	48	0.41
S1-B2-63	63	9	14	37	24	40	20	14	10	6.5	80	16	59	0.62
S1-B2-80	80	14	20	52	30	56	28	20	14	10.5	98	20	74	1.48
S1-B2-100	100	14	20	52	30	56	28	20	16	10.5	118	20	90	1.82

*1: A pin and a snap ring are attached.

● Trunnion No. 2 bracket

Material: Cast iron
Painting



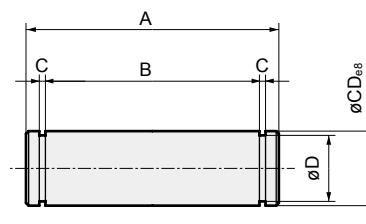
Model No.	GB	GC	GD	GE	GF	GH	GK	GL	GT	TD	Weight (kg)
S1-B4-40	9	17	19	61	32	45	80	60	12	16	0.25
S1-B4-50	9	17	19	63	36	45	85	65	12	18	0.28
S1-B4-63	11	22	24	80	40	60	100	75	14	20	0.52
S1-B4-80	14	24	26	85	50	60	115	85	14	25	0.70
S1-B4-100	14	24	35	107	64	75	130	100	17	35	1.48

Note: The trunnion No. 2 bracket is provided as 2 pcs./set.

● Pin (P)



Material: Steel
Zinc chromate treatment



Model No.	Bore size (mm)	A	B	C	D	CD	Weight (kg)	Applicable snap ring
S1-P-40	40,50	43.5	36.3	1.15	11.5	12	0.04	C type for shaft 12
S1-P-63	63	47.5	40.2	1.15	13.4	14	0.06	C type for shaft 14
S1-P-80	80,100	64	56.2	1.35	19	20	0.16	C type for shaft 20

LCM
LCR
LCG
LCW
LCX
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
UB
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCS2
RCC2
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HRL
LN
Hand
Chuk
MechHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending