

USC

With brake/position locking

Free position locking large bore size cylinder

ø40/ø50/ø63/ø80/ø100

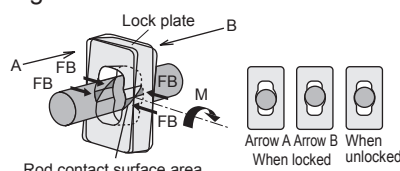
Overview

Cylinder equipped with position locking mechanism capable of stopping at any position of the stroke for standard SCA2 Series medium bore size cylinders (ø40 to ø100).

Features

High abrasion-resistant round slit method

New long life position locking mechanism is used. Applying torque M to the lock plate generates axial force F.



Lockable at any point throughout full stroke

The locking position can be at any point throughout the full stroke, including the stroke end, as long as the piston rod remains still.

No more workpiece damage

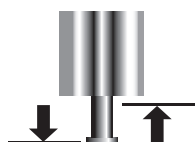
Prevents the cylinder from falling due to its own weight during power blackouts, etc. This resolves the workpiece damage issue.

Easy lock release

Loosening nut and turning release lever results in unlocking.

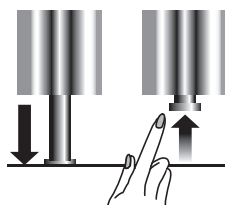
2 types of lock direction

Either forward lock or backward lock can be selected.



Lock reverse direction is free

Piston rod moves freely in reverse lock direction, and is therefore easy to remove even with workpiece clamped.



CONTENTS

Series variation	902
Operational explanation	902
● Double acting/single rod (USC)	904
● Double acting/with coil scraper (USC-G1)	904
USC common accessory dimensions	923
⚠ Safety precautions	924

The cylinder switches T2YH, T2YV, T3YH, and T3YV are scheduled for end of production at the end of December 2023.

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

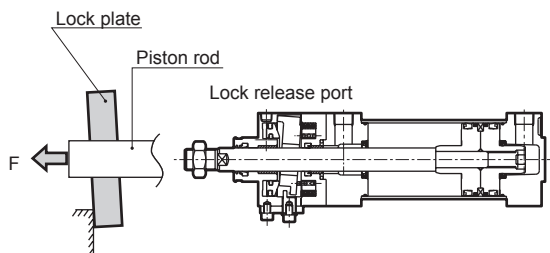
Series variation

Free position locking large bore size cylinder USC Series

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

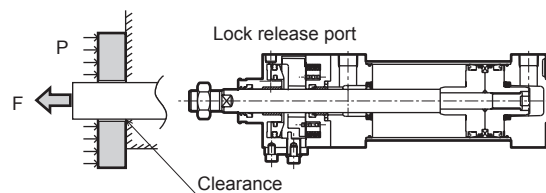
Variation	Model No. JIS symbol	Bore size (mm)	Standard stroke (mm)												(mm) Min. stroke	(mm) Max. stroke	(mm) Available stroke	(per mm) Custom stroke	Mounting		
																			Basic 00	Axial foot LB	
			25	50	75	100	150	200	250	300	350	400	450	500							
Double acting	USC	ø40	●	●	●	●	●	●	●	●	●	●	●	●	1	600	1600	1	●	●	
		ø50	●	●	●	●	●	●	●	●	●	●	●	●			2000		●	●	
		ø63	●	●	●	●	●	●	●	●	●	●	●	2500			●		●		
		ø80	●	●	●	●	●	●	●	●	●	●	●	700		2500	●		●		
		ø100	●	●	●	●	●	●	●	●	●	●	●	800		2500	●		●		
Double acting with coil scraper	USC-G1	ø40	●	●	●	●	●	●	●	●	●	●	●	●	1	600	1600	1	●	●	
		ø50	●	●	●	●	●	●	●	●	●	●	●	2000			●		●		
		ø63	●	●	●	●	●	●	●	●	●	●	2500	●			●				
		ø80	●	●	●	●	●	●	●	●	●	●	700	2500		●	●				
		ø100	●	●	●	●	●	●	●	●	●	●	800	2500		●	●				

Operational explanation



■ Lock operation

When exhausting air from lock release port, the lock plate tilts due to spring force, and the piston rod is held.



■ Unlocked

Air supply from the lock release port brings the lock plate to vertical. This creates a clearance between the lock plate and the piston rod, allowing the rod to move freely.

●: Standard ○: Option ■: Not available

Mounting									Cushion				Option						Accessory					Switch	Page	
	Rod side flange	Head side flange	Head side special flange	Eye bracket	Clevis bracket	Intermediate trunnion	Rod side trunnion	Head side trunnion	Without cushion	Both sides cushioned	Rod side cushioned	Head side cushioned	Bellows (100°C)	Bellows (250°C)	Piston rod material change (stainless steel)	Cushion needle position S	Cushion needle position T	Copper and PTFE free	Rod eye	Rod clevis	Eye bracket	Clevis bracket	Trunnion No. 2 bracket			
	FA	FB	FC	CA	CB	TC	TA	TB	N	B	R	H	J	L	M	S	T	P6	I	Y	B1	B2	B4			
	●	●	●	●	●	●	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	○	○	○	904
	●	●	●	●	●	●	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	○	○		
	●	●	●	●	●	●	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	○	○		
	●	●	●	●	●	●	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	○	○		
	●	●	●	●	●	●	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	○	○		
	●	●	●	●	●	●	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	○	○	○	904
	●	●	●	●	●	●	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	○	○		
	●	●	●	●	●	●	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	○	○		
	●	●	●	●	●	●	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	○	○		
	●	●	●	●	●	●	●	●	●	●	●	●	○	○	○	○	○	○	○	○	○	○	○	○		

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

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
	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

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Available stroke (mm)	Min. stroke (mm)
ø40	25/50/75/100/150/200 250/300/350/400/450 500	600	1600	1
ø50			2000	
ø63		2500		
ø80				
ø100				
		700	2500	*5
		800		

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

*2 : For types with switch, minimum stroke varies depending on the mounting method. Refer to the table on the following page.
When the stroke 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 of 1 mm can be manufactured. Take into account the stroke tolerance when placing an order.

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

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

Min. stroke with switch (T-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 (L-shaped lead wire).

*2: When the stroke 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 (L-shaped lead wire).

*2: When the stroke 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 (L-shaped lead wire).

*2: When the stroke 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 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 (L-shaped lead wire). T2YD does not have a L-shaped lead wire (V).

*2: When the stroke 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 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 (L-shaped lead wire).

*2: When the stroke 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.

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

Switch specifications (T-switch)

● 1-color/2-color LED/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	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)		No 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-switch)

Item	Strong magnetic field proof, reed 2-wire	
	H0	H0Y (2-color LED)
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	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 (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	1.26x10 ²	1.88x10 ²	2.51x10 ²	3.77x10 ²	5.03x10 ²	6.28x10 ²	7.54x10 ²	8.80x10 ²	1.01x10 ³	1.13x10 ³	1.26x10 ³
	Pull	1.06x10 ²	1.58x10 ²	2.11x10 ²	3.17x10 ²	4.22x10 ²	5.28x10 ²	6.33x10 ²	7.39x10 ²	8.44x10 ²	9.50x10 ²	1.06x10 ³
ø50	Push	1.96x10 ²	2.95x10 ²	3.93x10 ²	5.89x10 ²	7.85x10 ²	9.82x10 ²	1.18x10 ³	1.37x10 ³	1.57x10 ³	1.77x10 ³	1.96x10 ³
	Pull	1.65x10 ²	2.47x10 ²	3.30x10 ²	4.95x10 ²	6.60x10 ²	8.25x10 ²	9.90x10 ²	1.15x10 ³	1.32x10 ³	1.48x10 ³	1.65x10 ³
ø63	Push	3.12x10 ²	4.68x10 ²	6.23x10 ²	9.35x10 ²	1.25x10 ³	1.56x10 ³	1.87x10 ³	2.18x10 ³	2.49x10 ³	2.81x10 ³	3.12x10 ³
	Pull	2.80x10 ²	4.20x10 ²	5.61x10 ²	8.41x10 ²	1.12x10 ³	1.40x10 ³	1.68x10 ³	1.96x10 ³	2.24x10 ³	2.52x10 ³	2.80x10 ³
ø80	Push	5.03x10 ²	7.54x10 ²	1.01x10 ³	1.51x10 ³	2.01x10 ³	2.51x10 ³	3.02x10 ³	3.52x10 ³	4.02x10 ³	4.52x10 ³	5.03x10 ³
	Pull	4.54x10 ²	6.80x10 ²	9.07x10 ²	1.36x10 ³	1.81x10 ³	2.27x10 ³	2.72x10 ³	3.17x10 ³	3.63x10 ³	4.08x10 ³	4.54x10 ³
ø100	Push	7.85x10 ²	1.18x10 ³	1.57x10 ³	2.36x10 ³	3.14x10 ³	3.93x10 ³	4.71x10 ³	5.50x10 ³	6.28x10 ³	7.07x10 ³	7.85x10 ³
	Pull	7.15x10 ²	1.07x10 ³	1.43x10 ³	2.14x10 ³	2.86x10 ³	3.57x10 ³	4.29x10 ³	5.00x10 ³	5.72x10 ³	6.43x10 ³	7.15x10 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 proof 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
*1

F Lock direction

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

H Switch quantity
*3

I Option
*5

J Accessory
*6

⚠ Precautions for model No. selection

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

*2 : Refer to page 905 for the min. stroke 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 medium 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 : 100mm
- F** Lock direction : Forward locking
- G** Switch model No. : Reed T0H switch, lead wire 1m
- 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 (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 temperature	Instantaneous max. temperature
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)		
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		

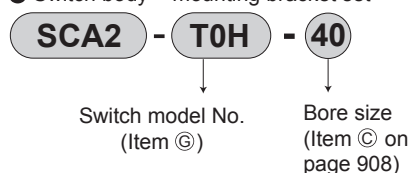
[G] Switch model No.

T-switch model No.						
Straight lead wire	L-shaped lead wire	Contact	Voltage		Indicator	Lead wire
			AC	DC		
T0H*	T0V*	Reed	●	●	1-color LED	2-wire
T5H*	T5V*		●	●	No indicator lamp	
T8H*	T8V*		●	●	1-color LED	
T1H*	T1V*	Proximity	●		1-color LED	2-wire
T2H*	T2V*			●		3-wire
T3H*	T3V*			●		
T2WH*	T2WV*			●	2-color LED	2-wire
T2YH*	T2YV*			●		
T3WH*	T3WV*			●		3-wire
T3YH*	T3YV*			●		
T3PH*	T3PV*			●	1-color LED	3-wire
T2YD*	-			●	2-color LED	2-wire
T2YDT*	-			●	AC magnetic field	
T2JH*	T2JV*			●	1-color LED off-delay	2-wire
H-switch model No.						
Grommet		Contact	Voltage		Indicator	Lead wire
			AC	DC		
HO*		Reed	●	●	Strong magn field 1-color LED	2-wire
HOY*				●	Strong magn field, 2-color LED	

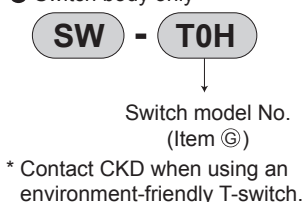
How to order switch

[T-switch]

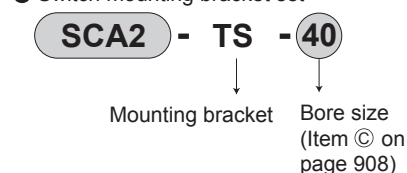
● Switch body + mounting bracket set



● Switch body only

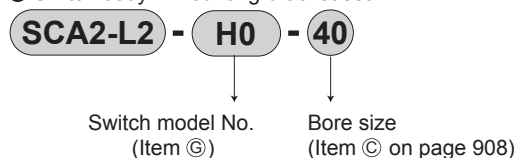


● Switch mounting bracket set

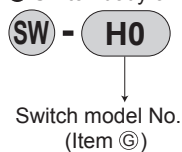


[H-switch]

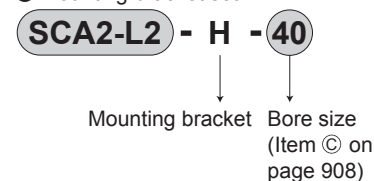
● Switch body + mounting bracket set



● Switch body only

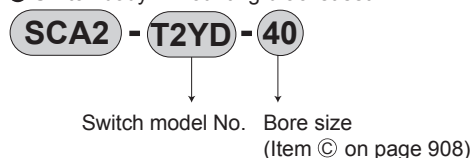


● Mounting bracket set

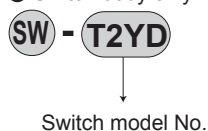


[T2YD type switch]

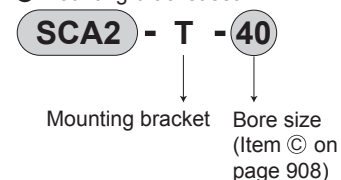
● Switch body + mounting bracket set



● 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

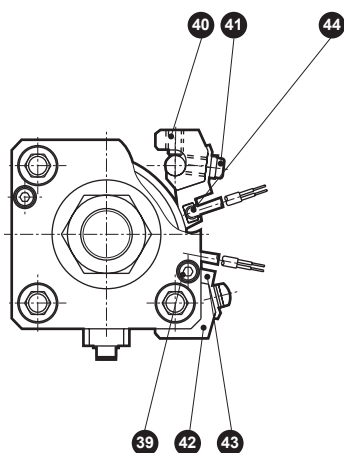
Note: The foot mounting bracket is provided as 2 pc./set.

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

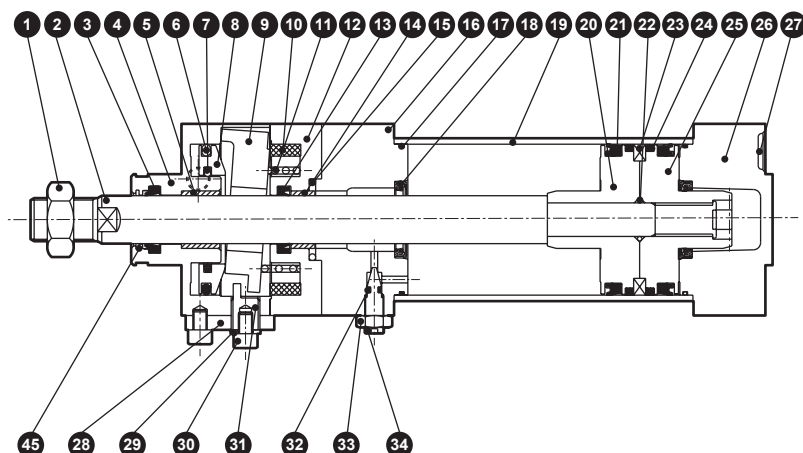
Internal structure and parts list

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

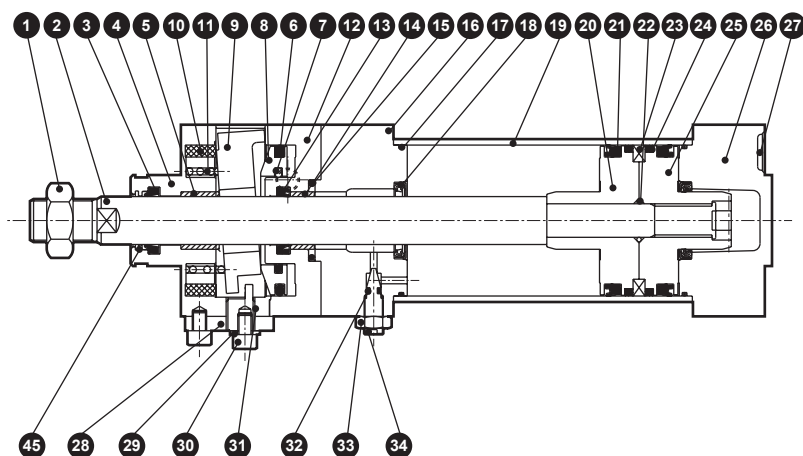
[Common for F, B]



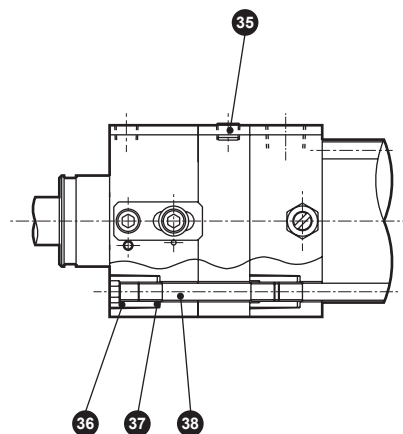
[F: Forward locking]



[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)

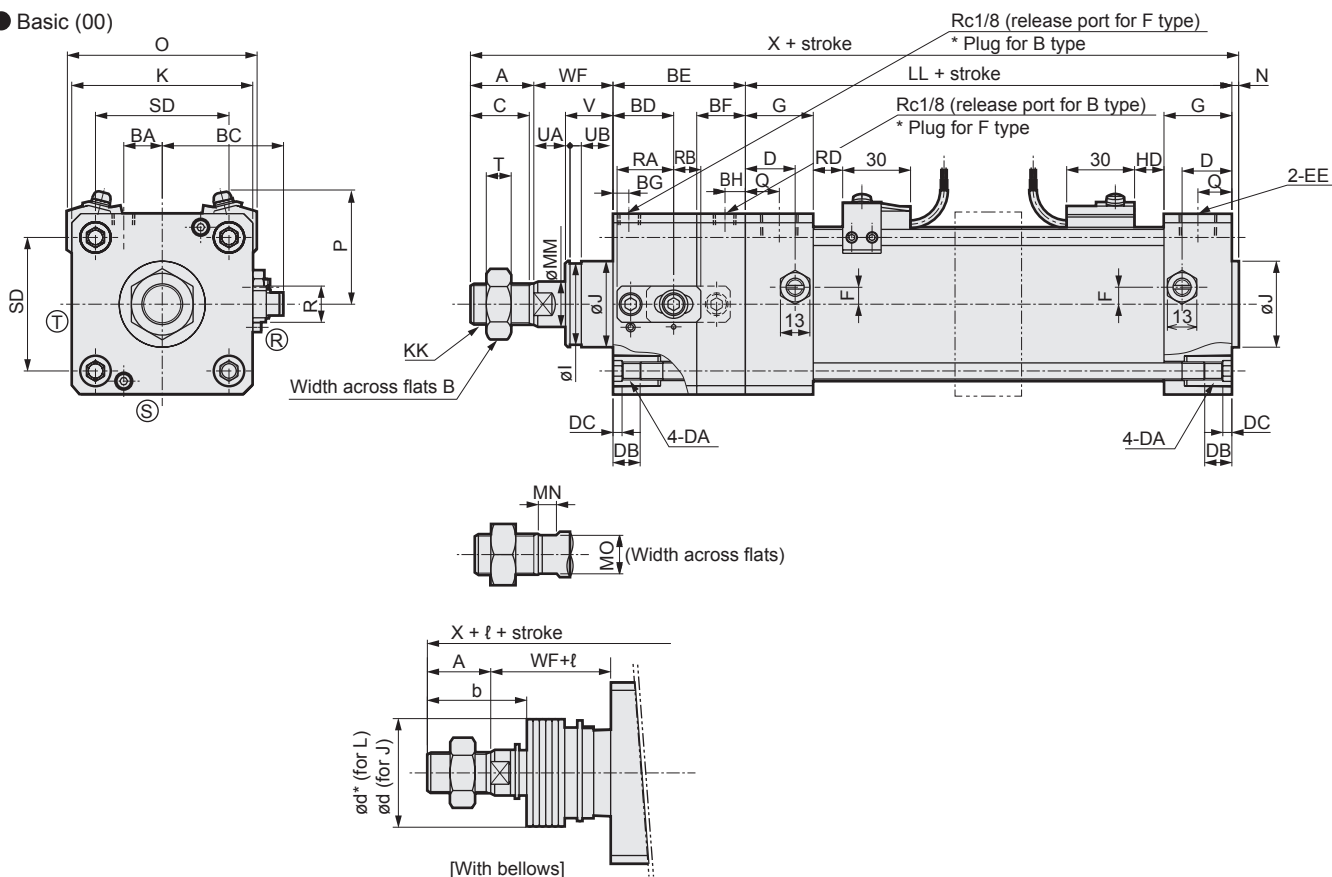
Bore size (mm)	Kit No.	Repair parts No.
ø40	USC-40K	
ø50	USC-50K	3 13 15 17
ø63	USC-63K	
ø80	USC-80K	18 21 24 32
ø100	USC-100K	

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

Dimensions

● Basic (00)



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	M14x1.5
ø50	28	27	26	10	43.5	25	54	20	7	8	20	M8	12	4	Rc3/8	0	28	38	66	M18x1.5
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	M18x1.5
ø80	36	32	34	21	62.5	33.3	71	25	8	10	26	M12	16	5	Rc1/2	0	34	43	98	M22x1.5
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	M26x1.5
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/3.0) + 8									
ø50	47	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5									
ø63	45	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5									
ø80	58.5	53	55	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5									
ø100	69.5	61	65	20	32	42	53	76	98	120	(Stroke/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 to the nearest whole number.

*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. Refer to page 922.

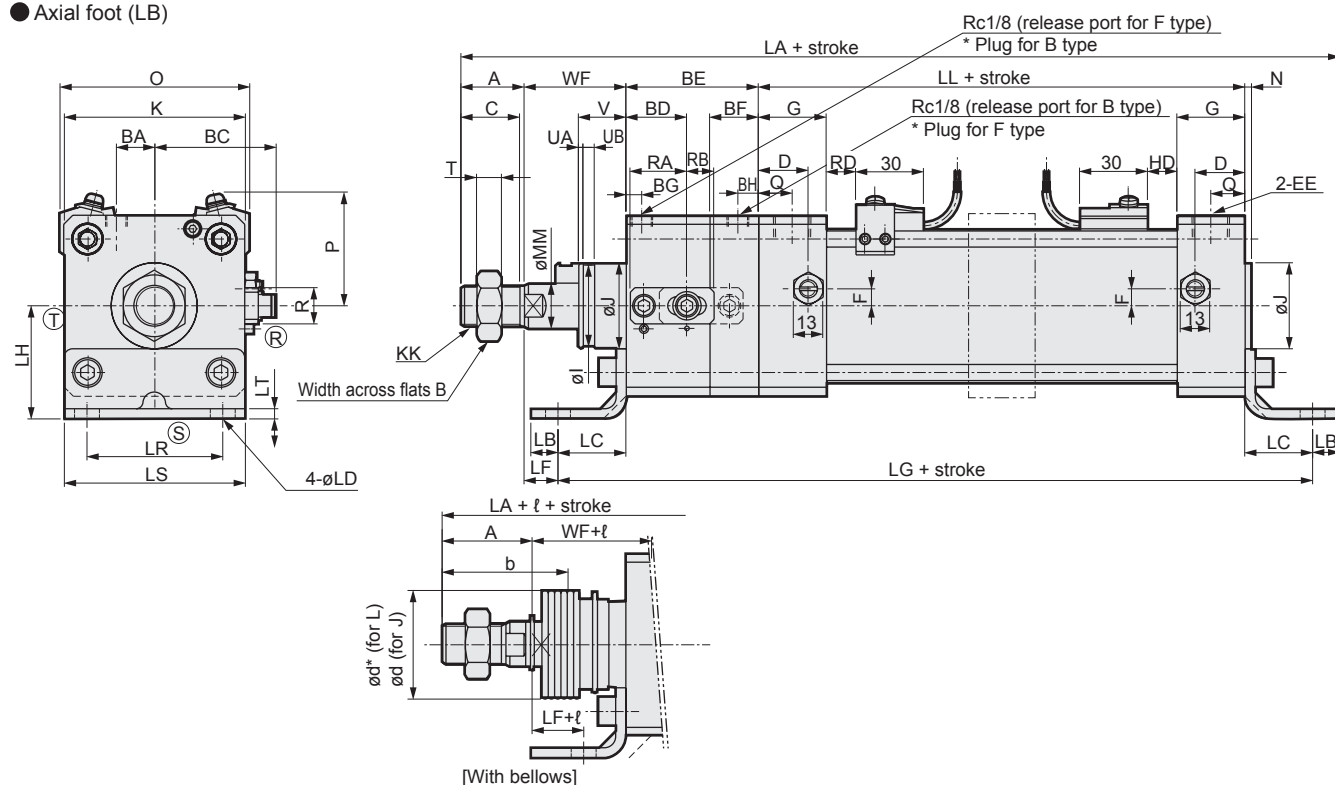
RD: Rod side max. sensitivity position

HD: Head side max. sensitivity position

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	M14x1.5	93	16	2	
ø50	28	27	26	10	43.5	25	54	20	7	8	20	Rc3/8	0	28	38	66	M18x1.5	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	M18x1.5	105	20	3	
ø80	36	32	34	21	62.5	33.3	71	25	8	10	26	Rc1/2	0	34	43	98	M22x1.5	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	M26x1.5	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																	
				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 **										
ø40	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(Stroke/3.0) + 8										
ø50	47	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5										
ø63	45	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5										
ø80	58.5	53	55	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5										
ø100	69.5	61	65	20	32	42	53	76	98	120	(Stroke/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 to the nearest whole number.

*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. Refer to page 922.

RD: Rod side max. sensitivity position

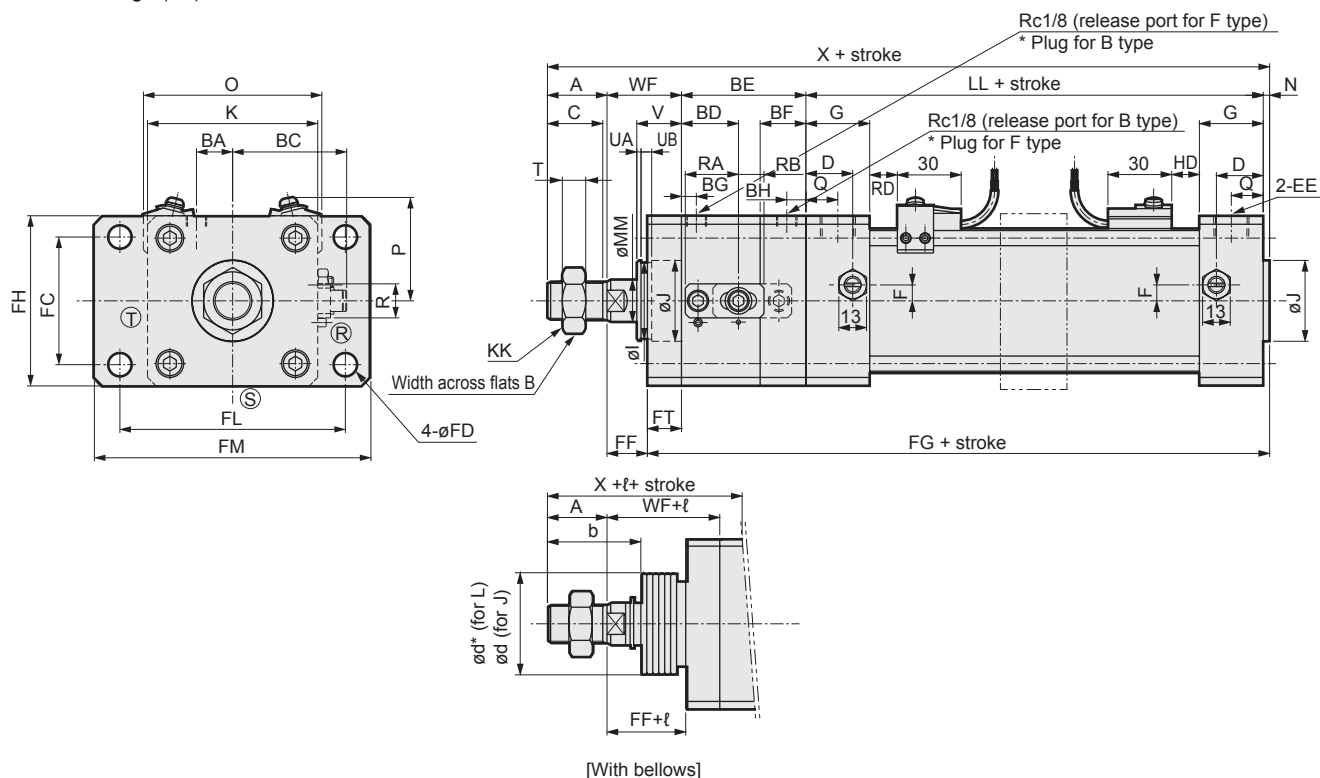
HD: Head side max. sensitivity position

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	M14x1.5	93	16	2
ø50	28	27	26	10	43.5	25	54	20	7	8	20	Rc3/8	0	28	38	66	M18x1.5	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	M18x1.5	105	20	3
ø80	36	32	34	21	62.5	33.3	71	25	8	10	26	Rc1/2	0	34	43	98	M22x1.5	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	M26x1.5	128	30	4
Code												Mounting dimensions								
Bore size	Q	T	V	R	RA	RB	I	UA	UB	WF	X	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/3.0) + 8									
ø50	47	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5									
ø63	45	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5									
ø80	58.5	53	55	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5									
ø100	69.5	61	65	20	32	42	53	76	98	120	(Stroke/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 to the nearest whole number.

*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. Refer to page 922.

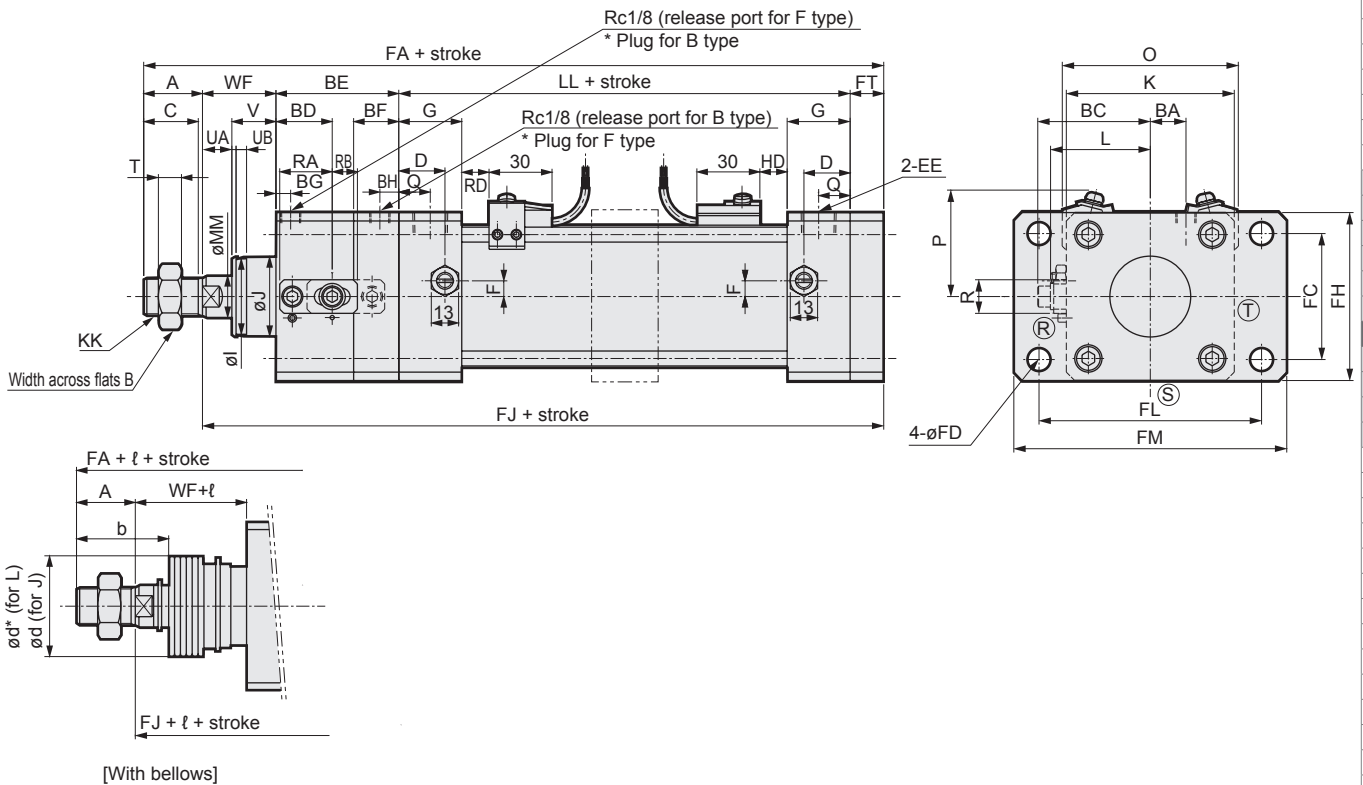
RD: Rod side max. sensitivity position

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	M14x1.5	93	16	
ø50	28	27	26	10	43.5	25	54	20	7	8	20	Rc3/8	0	28	38	66	M18x1.5	101	20	
ø63	28	27	26	17	53.5	26.8	58.5	21.5	7	9	22	Rc3/8	0	30	38	80	M18x1.5	105	20	
ø80	36	32	34	21	62.5	33.3	71	25	8	10	26	Rc1/2	0	34	43	98	M22x1.5	116	25	
ø100	45	41	43	25	72.5	38	81.5	28.5	8	10.5	28	Rc1/2	0	36	51	118	M26x1.5	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/3.0) + 8
ø50	47	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	45	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	58.5	53	55	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	69.5	61	65	20	32	42	53	76	98	120	(Stroke/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 to the nearest whole number.

*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. Refer to page 922.

RD: Rod side max. sensitivity position

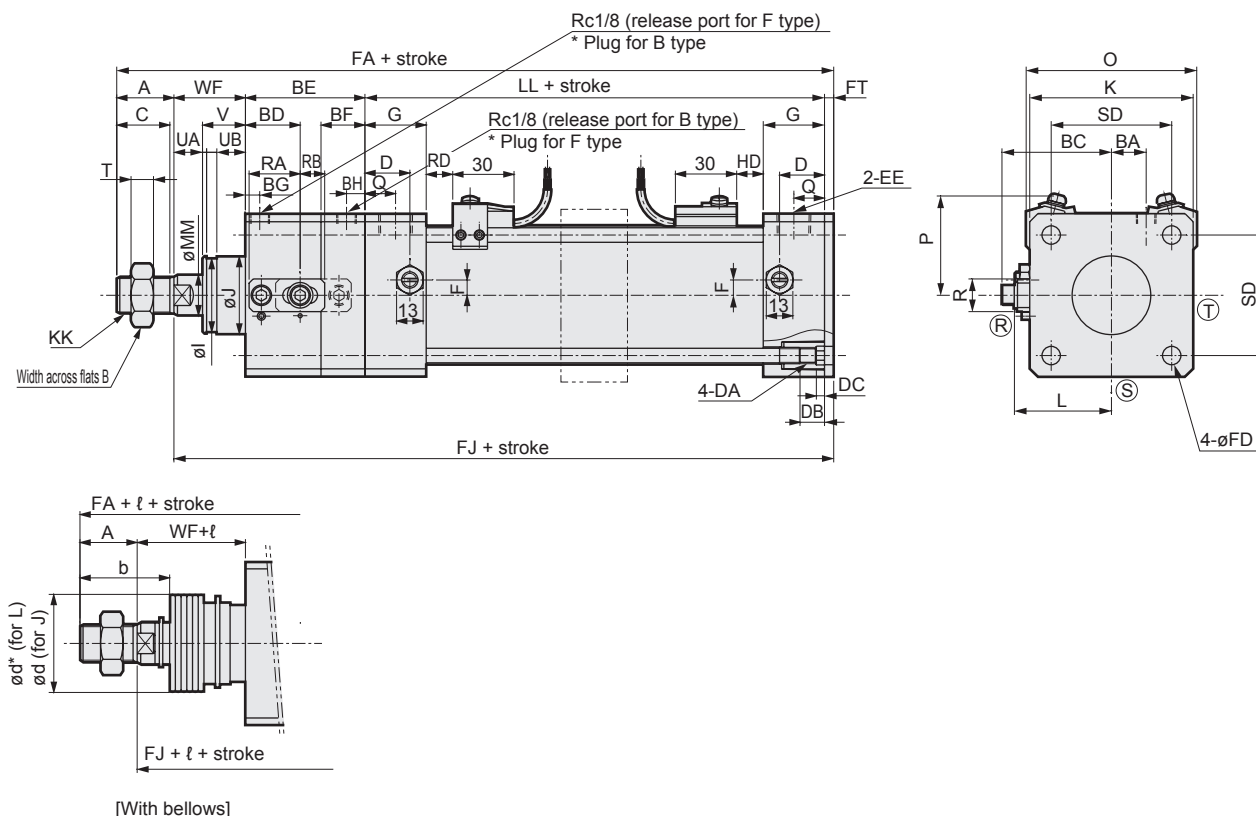
HD: Head side max. sensitivity position

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	M14x1.5
ø50	28	27	26	10	43.5	25	54	20	7	8	20	M8	12	4	Rc3/8	0	28	38	66	M18x1.5
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	M18x1.5
ø80	36	32	34	21	62.5	33.3	71	25	8	10	26	M12	16	5	Rc1/2	0	34	43	98	M22x1.5
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	M26x1.5

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 to the nearest whole number.

*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. Refer to page 922.

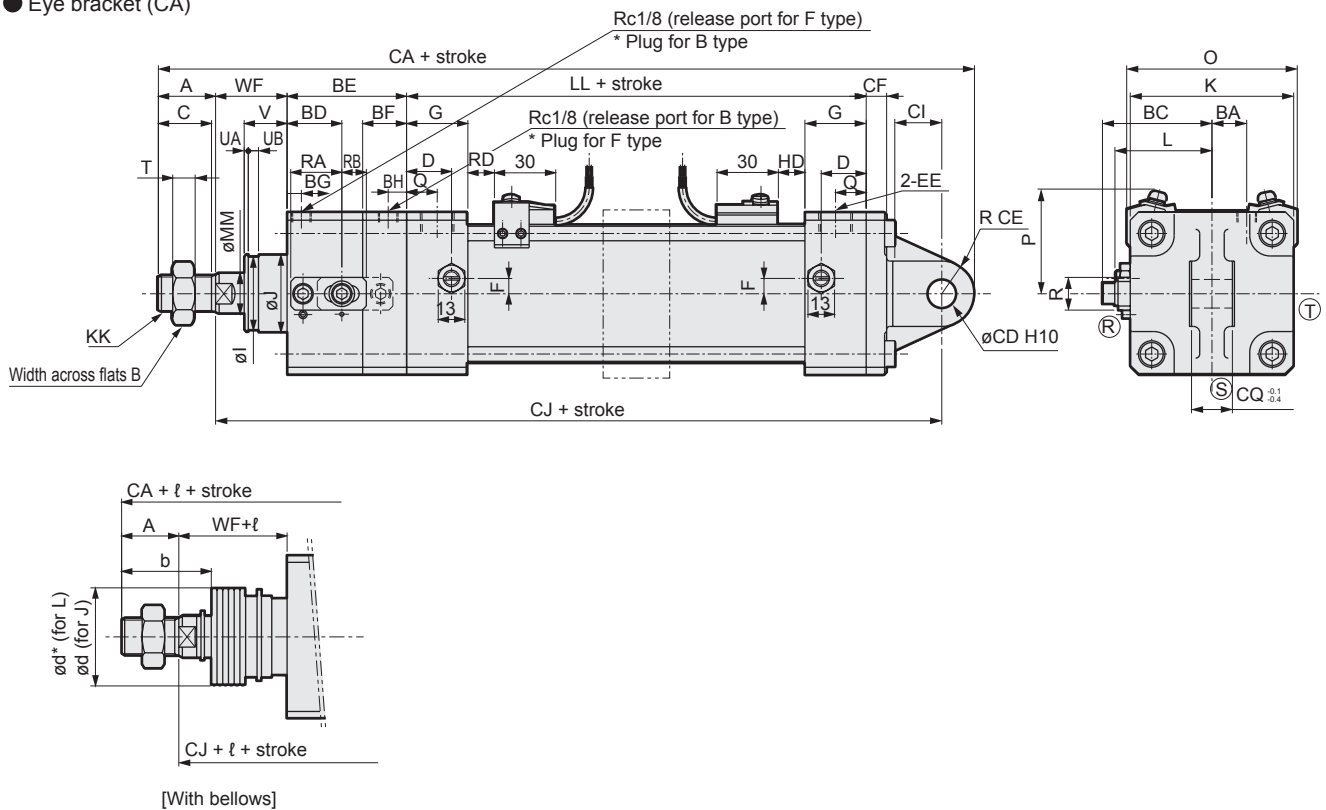
RD: Rod side max. sensitivity position

HD: Head side max. sensitivity position

Dimensions



● Eye bracket (CA)



Code	Eye bracket (CA) basic dimensions																			
	A	B	C	BA	BC	BD	BE	BF	BG	BH	D	EE	F	G	J	K	KK	LL	MM	
Bore size	ø40	22	22	20	7.5	39.5	22	47	18	7	7	18	Rc1/4	7.5	26	31	57	M14x1.5	93	16
	ø50	28	27	26	10	43.5	25	54	20	7	8	20	Rc3/8	0	28	38	66	M18x1.5	101	20
	ø63	28	27	26	17	53.5	26.8	58.5	21.5	7	9	22	Rc3/8	0	30	38	80	M18x1.5	105	20
	ø80	36	32	34	21	62.5	33.3	71	25	8	10	26	Rc1/2	0	34	43	98	M22x1.5	116	25
	ø100	45	41	43	25	72.5	38	81.5	28.5	8	10.5	28	Rc1/2	0	36	51	118	M26x1.5	128	30
Code	Bore size	Q	T	V	R	RA	RB	I	UA	UB	WF	Mounting dimensions								
		L	CA	CD	CE	CF	CI	CJ	CQ											
	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	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	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	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	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	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/3.0) + 8
ø50	47	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	45	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	58.5	53	55	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	69.5	61	65	20	32	42	53	76	98	120	(Stroke/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
ø40	66	41.5	11	11	41.5	10	10	41.5	5	5	40	13	13	42	4
ø50	73	43	13	13	43	12	12	43	7	7	44.5	15	15	44	6
ø63	85	47	13	13	47	12	12	47	7	7	50	15	15	47	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
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

*1 : Round up to the nearest whole number.

*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. Refer to page 922.

RD: Rod side max. sensitivity position

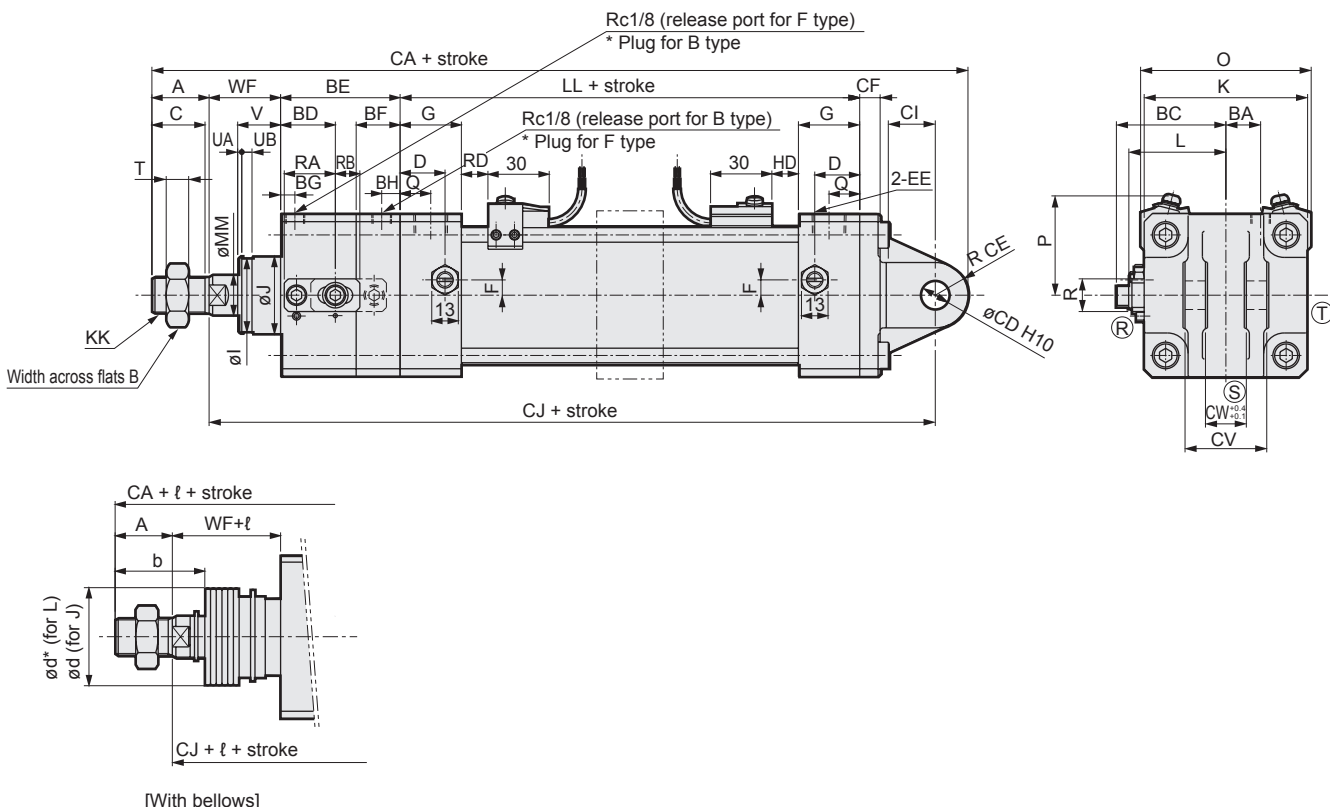
HD: Head side max. sensitivity position

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



● 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	M14x1.5	93	16
ø50	28	27	26	10	43.5	25	54	20	7	8	20	Rc3/8	0	28	38	66	M18x1.5	101	20
ø63	28	27	26	17	53.5	26.8	58.5	21.5	7	9	22	Rc3/8	0	30	38	80	M18x1.5	105	20
ø80	36	32	34	21	62.5	33.3	71	25	8	10	26	Rc1/2	0	34	43	98	M22x1.5	116	25
ø100	45	41	43	25	72.5	38	81.5	28.5	8	10.5	28	Rc1/2	0	36	51	118	M26x1.5	128	30
Code	Q	T	V	R	RA	RB	I	UA	UB	WF	Mounting dimensions								
Bore size											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/3.0) + 8								
ø50	47	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5								
ø63	45	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5								
ø80	58.5	53	55	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5								
ø100	69.5	61	65	20	32	42	53	76	98	120	(Stroke/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 to the nearest whole number.

*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. Refer to page 922.

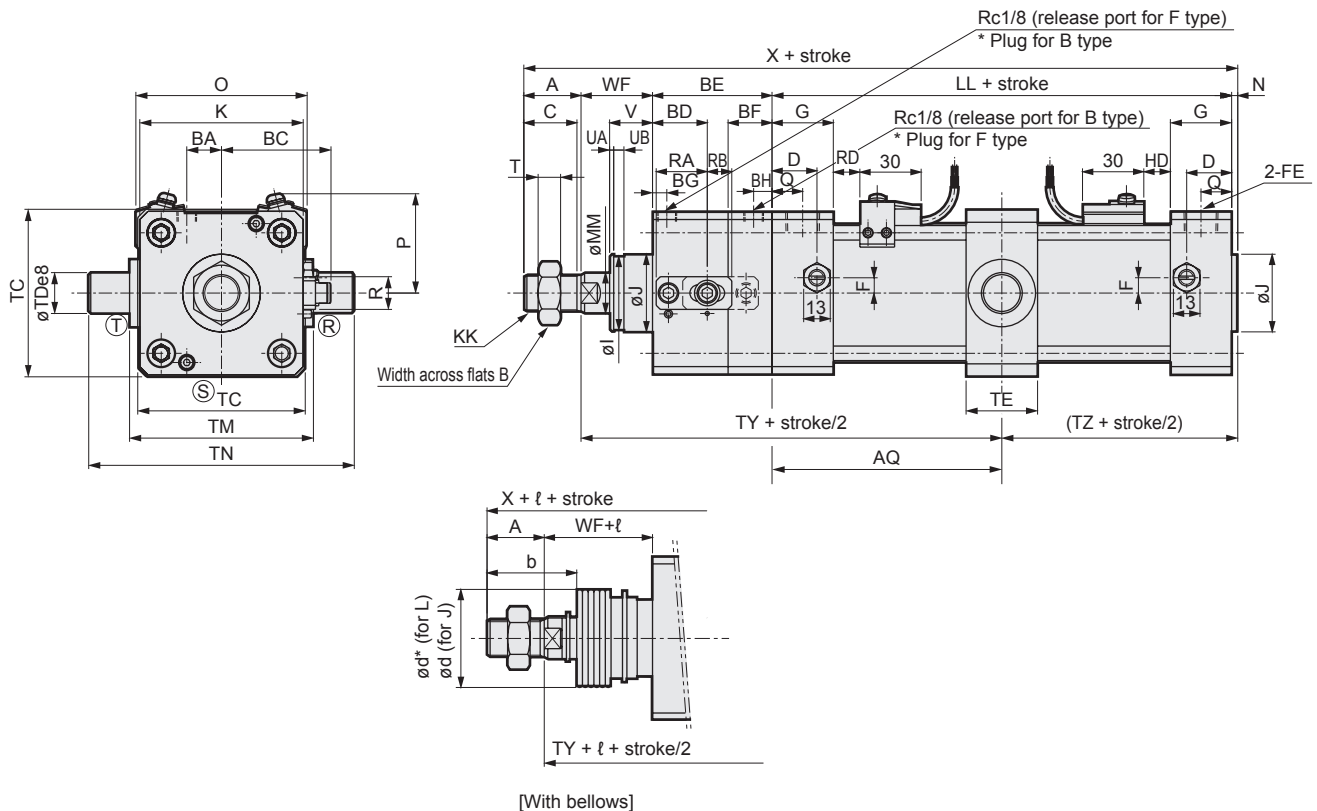
RD: Rod side max. sensitivity position

HD: Head side max. sensitivity position

Dimensions



● Intermediate trunnion (TC)



Code	Intermediate trunnion (TC) basic dimensions																			
	A	B	C	BA	BC	BD	BE	BF	BG	BH	D	EE	F	G	J	K	KK	LL	MM	N
Bore size	22	22	20	7.5	39.5	22	47	18	7	7	18	Rc1/4	7.5	26	31	57	M14x1.5	93	16	2
ø40	28	27	26	10	43.5	25	54	20	7	8	20	Rc3/8	0	28	38	66	M18x1.5	101	20	2.5
ø50	28	27	26	17	53.5	26.8	58.5	21.5	7	9	22	Rc3/8	0	30	38	80	M18x1.5	105	20	3
ø63	36	32	34	21	62.5	33.3	71	25	8	10	26	Rc1/2	0	34	43	98	M22x1.5	116	25	3.5
ø80	45	41	43	25	72.5	38	81.5	28.5	8	10.5	28	Rc1/2	0	36	51	118	M26x1.5	128	30	4
Code	Q	T	V	R	RA	RB	I	UA	UB	WF	X	AQ	Mounting dimensions							
Bore size													TC	TD	TE	TM	TN	TY	TZ	
ø40	13	8	18.5	16	18	10	29	2	5	33.5	197.5	46.5+ Stroke2	57	16	-0.032-0.059	30	63	95	127	48.5
ø50	14	11	20.5	16	18	10	36	2	5	37	222.5	50.5+ Stroke2	67	18	-0.032-0.059	30	80	116	141.5	53
ø63	15	11	21	16	25	12	36	2	5	35	229.5	52.5+ Stroke2	82	20	-0.040-0.073	35	90	130	146	55.5
ø80	17	13	23.5	16	25	12	41	2	5	48	274.5	58+ Stroke2	100	25	-0.040-0.073	40	115	165	177	61.5
ø100	18	16	32	16	25	12	49	3	6	53	311.5	64+ Stroke2	121	35	-0.050-0.089	50	135	205	198.5	68

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/3.0) + 8
ø50	47	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø63	45	47	48	22	36	49	63	90	119	146	(Stroke/3.6) + 7.5
ø80	58.5	53	55	14	26	38	49	72	96	119	(Stroke/4.3) + 2.5
ø100	69.5	61	65	20	32	42	53	76	98	120	(Stroke/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 to the nearest whole number.

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

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

RD: Rod side max. sensitivity position

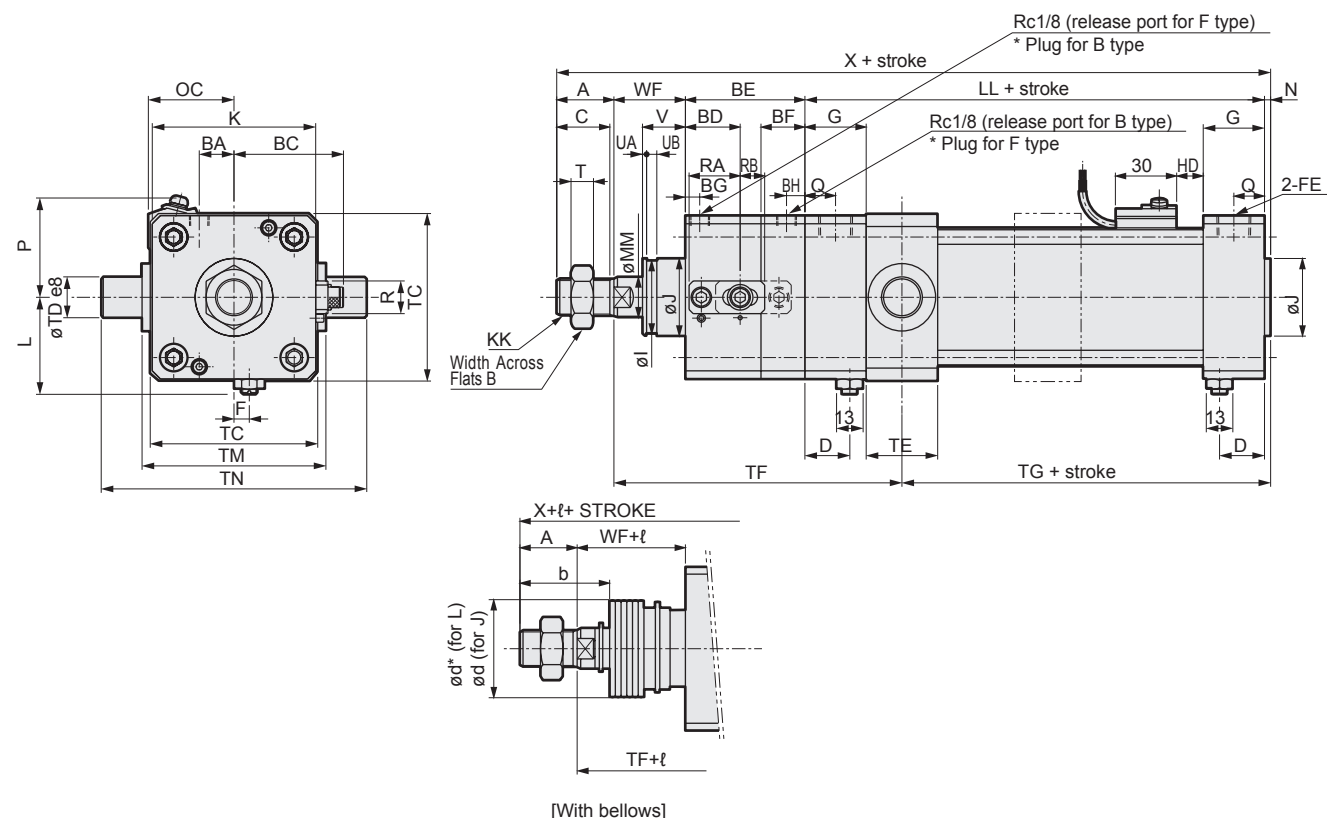
HD: Head side max. sensitivity position

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 trunnion (TA)



Code		Rod trunnion (TA) 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	M 14 x 1.5	93	16	2	
ø50		28	27	26	10	43.5	25	54	20	7	8	20	Rc3/8	0	28	38	66	M 18 x 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	M 18 x 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	M 22 x 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	M 26 x 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																				
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/3.0) + 8										
ø50		47	47	48	22	36	49	63	90	119	146	(stroke/3.6) + 7.5										
ø63		45	47	48	22	36	49	63	90	119	146	(stroke/3.6) + 7.5										
ø80		58.5	53	55	14	26	38	49	72	96	119	(stroke/4.3) + 2.5										
ø100		69.5	61	65	20	32	42	53	76	98	120	(stroke/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	P	HD										
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 to the nearest whole number.

*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. Refer to page 922.

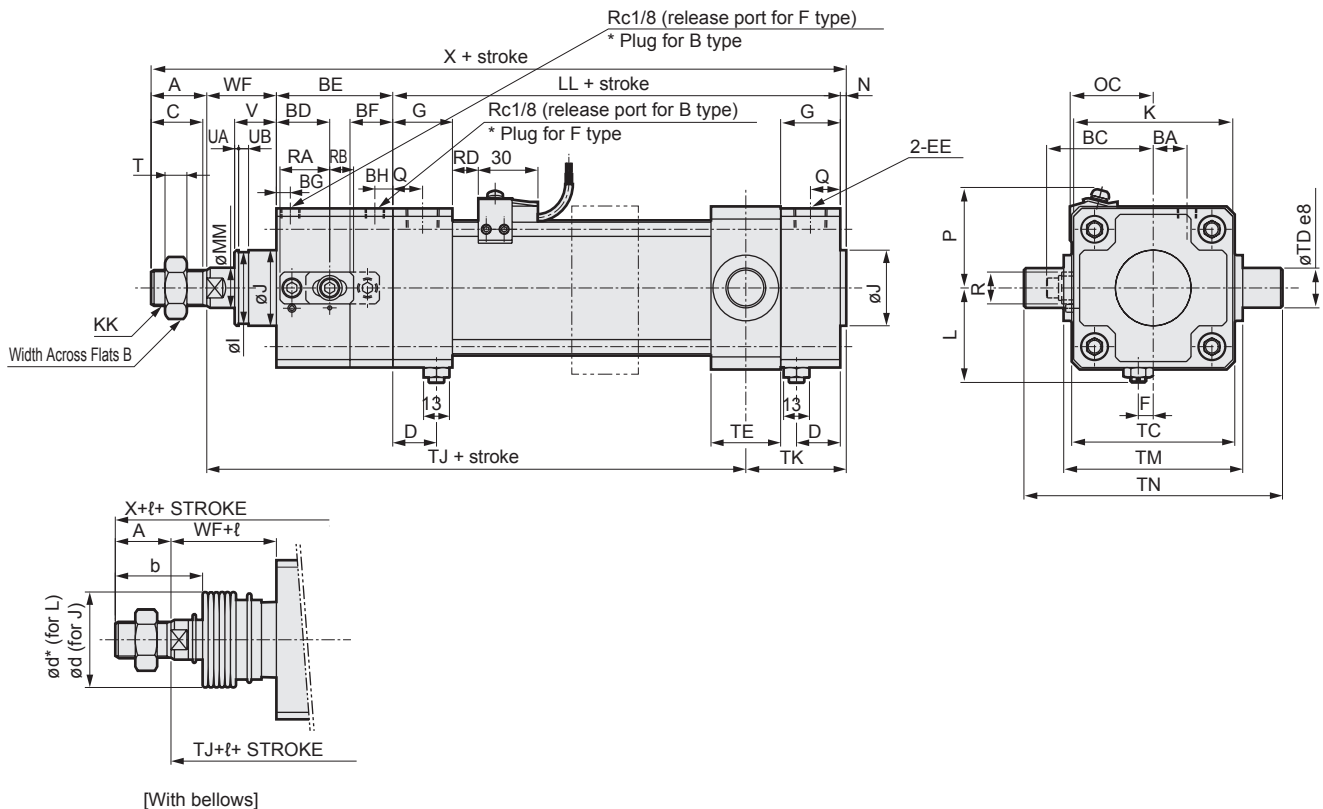
RD: Rod side max. sensitivity position

HD: Head side max. sensitivity position

dimensions



● Head side trunnion (TB)



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	M 14 x 1.5	93	16	2
	ø50	28	27	26	10	43.5	25	54	20	7	8	20	Rc3/8	0	28	38	66	M 18 x 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	M 18 x 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	M 22 x 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	M 26 x 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										
	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/3.0) + 8
ø50	47	47	48	22	36	49	63	90	119	146	(stroke/3.6) + 7.5
ø63	45	47	48	22	36	49	63	90	119	146	(stroke/3.6) + 7.5
ø80	58.5	53	55	14	26	38	49	72	96	119	(stroke/4.3) + 2.5
ø100	69.5	61	65	20	32	42	53	76	98	120	(stroke/4.5) + 9

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*
ø40	41	40	40	25.5	41.5	58.5	75.5	108.5	141.5	174.5	(stroke/3.0) + 8
ø50	47	47	48	22	36	49	63	90	119	146	(stroke/3.6) + 7.5
ø63	45	47	48	22	36	49	63	90	119	146	(stroke/3.6) + 7.5
ø80	58.5	53	55	14	26	38	49	72	96	119	(stroke/4.3) + 2.5
ø100	69.5	61	65	20	32	42	53	76	98	120	(stroke/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 to the nearest whole number.

*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. 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

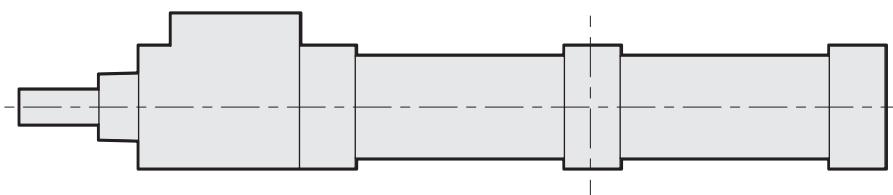
About non-sag block

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

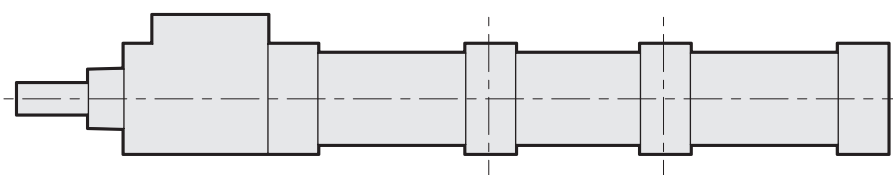
The number of non-sag blocks to be added differs depending on the bore size and the stroke as shown in the table below.

Number of non-sag blocks depending on stroke

Tube size (mm)	Stroke (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
	1500 to 2000	1
ø80	2001 to 2500	2
	1500 to 2000	1
ø100	2001 to 2500	2
	1500 to 2000	1

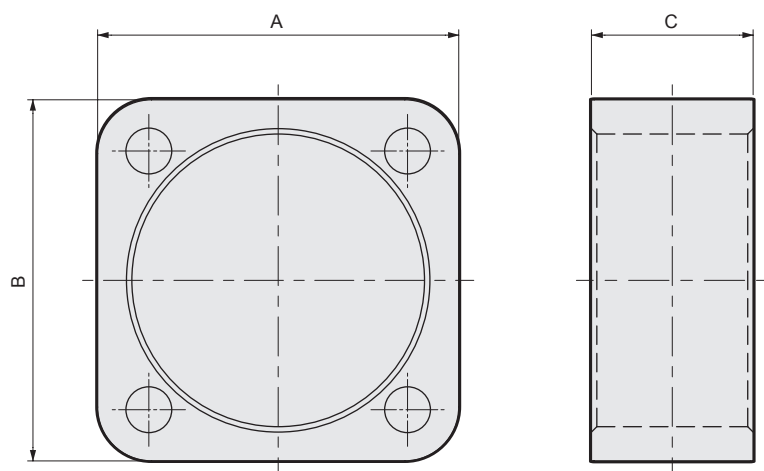


One non-sag block: To be added to the middle point between the covers.



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

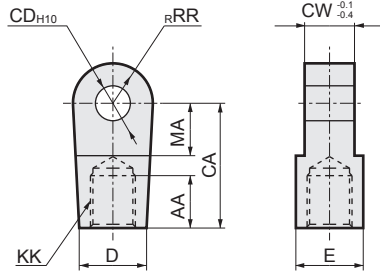
Tube size (mm)	Non-sag block dimensions		
	A	B	C
ø40	56	57	30
ø50	66	67	30
ø63	81	82	35
ø80	99	100	40
ø100	120	121	50

Accessory dimensions (rod eye/clevis bracket/pin)

● Rod eye (I)



Material: Cast iron
Painting

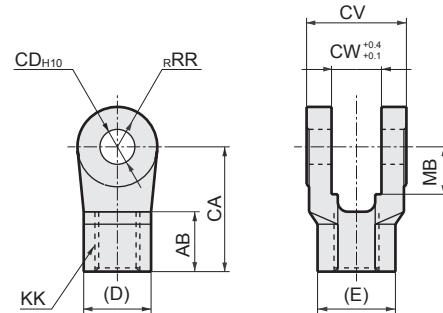


Model No.	Bore size (mm)	AA	CA	CD	CW	D	E	KK	MA	RR	Weight (kg)
S1-I-40	40	20	50	12	18	27	27	M14x1.5	21	16	0.26
S1-I-50	50	21	50	12	18	27	27	M18x1.5	21	16	0.24
S1-I-63	63	21	50	14	20	27	27	M18x1.5	21	16	0.25
S1-I-80	80	30	70	20	28	46	41	M22x1.5	30	25	0.88
S1-I-100	100	30	70	20	28	46	41	M26x1.5	30	25	0.84

● 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	M14x1.5	19	16	0.25
S1-Y-50	50	24	50	12	36	18	27	31.2	M18x1.5	19	16	0.24
S1-Y-63	63	24	50	14	40	20	27	31.2	M18x1.5	19	16	0.26
S1-Y-80	80	35	70	20	56	28	41	47.3	M22x1.5	30	25	0.90
S1-Y-100	100	35	70	20	56	28	41	47.3	M26x1.5	30	25	0.85

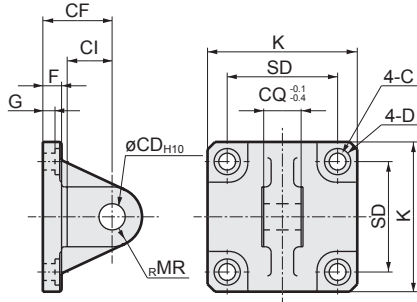
*1: The MB dimension is the effective length of the CW dimension.

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

● Eye bracket (B1)



Material: Cast iron
Painting

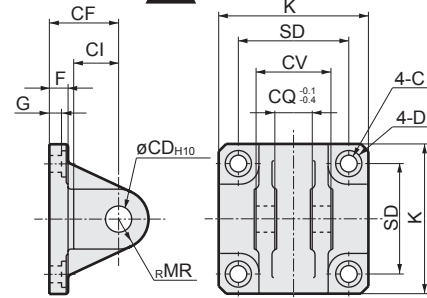


Model No.	Bore size (mm)	C	CD	CF	CI	CQ	D	F	G	K	MR	SD	Weight (kg)
S1-B1-40	40	9	12	32	18	18	14	10	6.5	57	12	40.5	0.32
S1-B1-50	50	9	12	32	18	18	14	10	6.5	66	12	48	0.38
S1-B1-63	63	9	14	37	24	20	14	10	6.5	80	16	59	0.57
S1-B1-80	80	14	20	52	30	28	20	14	10.5	98	20	74	1.27
S1-B1-100	100	14	20	52	30	28	20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

● Clevis bracket (B2)



Material: Cast iron
Painting

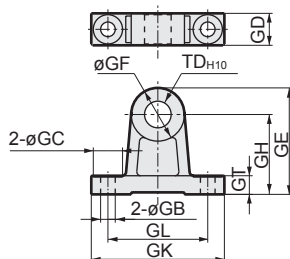


Model No.	Bore size (mm)	C	CD	CF	CI	CV	CQ	D	F	G	K	MR	SD	Weight (kg)
S1-B2-40	40	9	12	32	18	36	18	14	10	6.5	57	12	40.5	0.36
S1-B2-50	50	9	12	32	18	36	18	14	10	6.5	66	12	48	0.41
S1-B2-63	63	9	14	37	24	40	20	14	10	6.5	80	16	59	0.62
S1-B2-80	80	14	20	52	30	56	28	20	14	10.5	98	20	74	1.48
S1-B2-100	100	14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



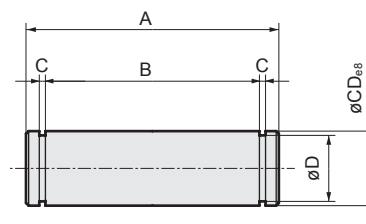
Model No.	GB	GC	GD	GE	GF	GH	GK	GL	GT	TD	Weight (kg)
S1-B4-40	9	17	19	61	32	45	80	60	12	16	0.25
S1-B4-50	9	17	19	63	36	45	85	65	12	18	0.28
S1-B4-63	11	22	24	80	40	60	100	75	14	20	0.52
S1-B4-80	14	24	26	85	50	60	115	85	14	25	0.70
S1-B4-100	14	24	35	107	64	75	130	100	17	35	1.48

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



Safety Precautions

Be sure to read this section before use.

Refer to Intro Page 73 for general information of the cylinder, and to Intro Page 80 for general information of the cylinder switch.

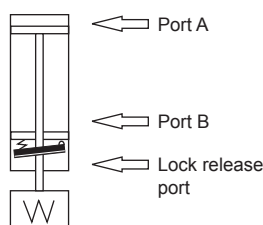
Product-specific cautions: Free position locking large bore size cylinder USC Series

Design/selection

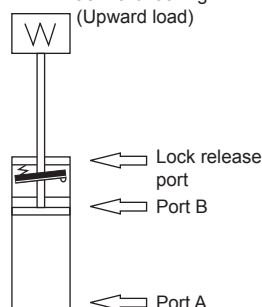
WARNING

- Cylinder with position locking mechanism (for holding cylinder stationary).
Emergency stops (while the cylinder is in operation) can significantly decrease the service life.
- If back pressure is applied to the locking mechanism, the lock may be released. Use a discrete valve, or use an individual exhaust manifold.
- Do not apply torque to the rod when brakes are applied because the locking force may decrease, creating a dangerous condition. Also, use this product in mechanisms in which the rod does not rotate.
- To release the lock, when using forward locking, supply pressure to port B, and when using backward locking, supply pressure to port A. Check that load is not applied to the locking mechanism. When both ports A and B are exhausted and the piston is locked, if pressure is supplied to port A for forward locking or to port B for backward locking, the lock may not be released or, even if released, the piston rod may pop out, creating a hazard.

Forward locking
(Downward load)



Backward locking
(Upward load)

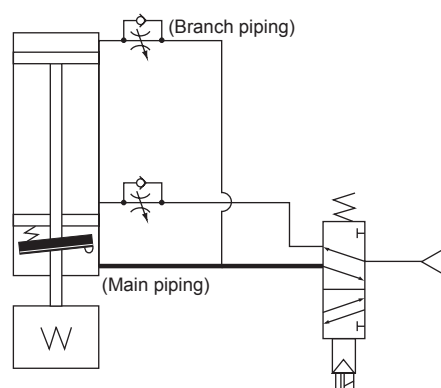


- Do not use multiple synchronized cylinders with position locking. If the synchronization deviates, an excess moment load or load concentration is applied to the cylinder locked first, risking lock release defects, shortened service life, or damage.

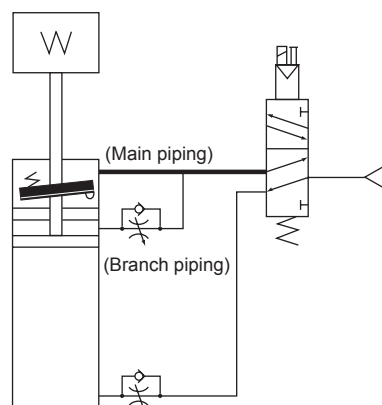
CAUTION

- Basic circuit diagram
Arrange the air piping of this cylinder as shown in the figure below. Arranging the pipes differently from the figure below, such as piping the position locking part as a single unit, may cause problems such as delayed response.
- 1. Be sure to branch the piping of this cylinder after the valve into the position locking part (lock release port as main piping) and cylinder part (cylinder port as branch piping) as shown in the figure below.
- 2. Be sure to design the piping so that the lock is released before the cylinder starts operating. Failure to do so may prevent unlocking or cause the piston rod to jump out.

Forward locking
(Downward load)



Backward locking
(Upward load)



Using the emergency stop with the air piping as shown in the figure above will move the cylinder backward in a forward locking and forward in a backward locking, returning it to the original position. (When there is no residual pressure, the cylinder stops at that point.)

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

Mounting, installation and adjustment

⚠ WARNING

- Do not apply torque to the rod when brakes are applied because the locking force may decrease, creating a dangerous condition. Also, use this product in mechanisms in which the rod does not rotate.
- Do not apply grease to the piston rod during operation because the locking force may decrease, creating a dangerous condition.

⚠ CAUTION

- Main piping in the basic circuit diagram on the previous page should be thicker and shorter than branch piping.
- Be sure to provide a guide separately when using multiple synchronized cylinders. Using only the cylinder may impair synchronicity and cause the rod to twist, leading to malfunctions.

Use/maintenance

⚠ WARNING

- Do not apply additional grease to the piston rod or wipe off the grease that is already applied.
- Do not disassemble the lock, as doing so may be dangerous.
- Always use the product with the dust cover on, except for when performing manual release, in order to prevent failure or malfunction.
- For safety purposes, prevent the load from falling under its own weight during maintenance.

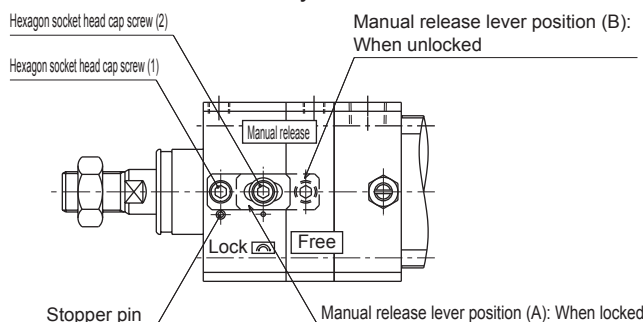
⚠ CAUTION

- When locking the first time after leaving the lock released for a long time, a delayed response may occur in the lock.
Do not leave the lock pressurized, and operate the lock at each cylinder operation.
(Use the basic circuit diagram shown on page 924)
- Keeping the cylinder with pressure applied to the lock mechanism may cause the lock to release. Do not use 3-position closed center and 3-position P.A.B connection solenoid valves.
- Due to the structure, the piston rod drops by about 1 mm when the lock is applied.
- If no air pressure is supplied in vertical mounting, etc., locking force may not be sufficient when the lock is manually released. This may cause the rod to move (drop) with the load's weight.
For safety, take the following measures before manually releasing the lock:

- Move the load to the bottom end.
- Provide a stopper to the load
- Apply air pressure to the cylinder to balance the load.

- Be sure to set the manual release bolt to the locking position in normal use.

■ How to unlock manually



● Unlocking

- 1) Loosen the hexagon socket head cap screw (1) 3 or 4 turns.
- 2) Loosen the hexagon socket head cap screw (2) 1 or 2 turns.
- 3) Rotate the release lever by 180° from the manual release lever position (A) to (B) in the direction of the arrow.
- 4) The piston rod is freed.

● Locking

- 1) Rotate the release lever by 180° from the manual release lever position (B) to (A) in the direction of the arrow.
- 2) Tighten the hexagon socket head cap screw (1) where the release lever comes in contact with the stopper pin.
- 3) Tighten the hexagon socket head cap screw (2).
- 4) The piston rod is locked.

Note: Be sure to rotate the release lever in the direction of the arrow when manually unlocking.
The release lever must not be removed.
The release lever can be turned by loosening the hexagon socket head cap screw (2) by 1 or 2 turns. Excessive loosening may cause the release lever to come off.
Tighten the hexagon socket head cap screw at 8 to 11 N·m.

- The cylinder body may be damaged or may malfunction if a unit with excessive inertia, etc., is actuated. Use within the allowable absorbed energy range.