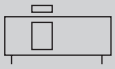


Rodless cylinder double acting

SRL3 Series

● Bore size: ø12, ø16, ø20, ø25, ø32
ø40, ø50, ø63, ø80, ø100 or equiv.

JIS symbol



RoHS CAD

Specifications

Item		SRL3									
Bore size	mm	ø12	ø16	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
Actuation		Double acting									
Working fluid		Compressed air									
Max. working pressure	MPa	0.7 (≈100 psi, 7 bar)									
Min. working pressure	MPa	0.2 (≈29 psi, 2 bar)			0.1 (≈15 psi, 1 bar)				0.05 (≈7.3 psi, 0.5 bar)		
Proof pressure	MPa	1.05 (≈150 psi, 10.5 bar)									
Ambient temperature	°C	5 (41°F) to 60 (140°F)									
Port size		M5		Rc1/8		Rc1/4		Rc3/8		Rc1/2	
Stroke tolerance	mm	$^{+2.0}_{0}$ (to 1000), $^{+2.5}_{0}$ (to 3000), $^{+3.0}_{0}$ (to 5000)									
Working piston speed	mm/s	50 to 2000 (standard piping) (*1)									
Cushion		Air cushion									
Lubrication		Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication. Once lubricated, the cylinder will need periodic lubrication.)									

*1: For common port piping, the working piston speed varies depending on the stroke. Contact CKD.

Allowable absorbed energy

Bore size (mm)	Cushioned		Without cushion	With shock absorber (initial set point)	
	Max absorbed energy (J)	Cushion stroke (mm)	Max absorbed energy (J)	Absorbed energy (J)	Effective stroke (mm)
ø12 or equiv.	0.03	14.5	0.003	2.4	5.5
ø16 or equiv.	0.22	19.2	0.007	2.4	5.5
ø20 or equiv.	0.59	22.2	0.010	5.7	7
ø25 or equiv.	1.40	20.9	0.015	10	9
ø32 or equiv.	2.57	23.5	0.030	18	13
ø40 or equiv.	4.27	23.9	0.050	50	16.5
ø50 or equiv.	9.13	24.9	0.072	86	21
ø63 or equiv.	17.4	29.6	0.138	86	21
ø80 or equiv.	40	45.8	0.393	143	25
ø100 or equiv.	67	45.8	0.622	143	25

Stroke

Bore size (mm)	Standard stroke (mm)	Max. stroke (mm)	Min. stroke (mm)
ø12 or equiv. ø16 or equiv. ø20 or equiv. ø25 or equiv. ø32 or equiv. ø40 or equiv. ø50 or equiv. ø63 or equiv. ø80 or equiv. ø100 or equiv.	200/300 400/500 600/700 800/900 1000	5000	1

* The custom stroke is available in 1 mm increments.

Number of installed M-switches and min. stroke (mm)

Switch quantity	1		2		3		4		5		6	
Switch model No. / Bore size (mm)	M*V	M*H	M*V	M*H	M*V	M*H	M*V	M*H	M*V	M*H	M*V	M*H
ø12 or equiv.	10	10	30	45(70)	60	90(120)	90	135(170)	120	180(220)	150	225(270)
ø16 or equiv.	10	10	30	45(70)	60	90(120)	90	135(170)	120	180(220)	150	225(270)
ø20 or equiv.	10	10	30	45(70)	60	90(120)	90	135(170)	120	180(220)	150	225(270)
ø25 or equiv.	10	10	30	45(70)	60	90(120)	90	135(170)	120	180(220)	150	225(270)
ø32 or equiv.	10	10	30	45	60	90	90	135	120	180	150	225
ø40 or equiv.	10	10	30	45	60	90	90	135	120	180	150	225
ø50 or equiv.	15	15	30	45	60	90	90	135	120	180	150	225
ø63 or equiv.	15	15	30	45	60	90	90	135	120	180	150	225
ø80 or equiv.	25		50		100		150		200		250	
ø100 or equiv.	25		50		100		150		200		250	

Note: Values in ( ) are the min. stroke with switch of the full stroke adjustable.

Number of installed T-switches and min. stroke (mm)

Switch quantity	1		2		3		4		5		6	
Switch model No. / Bore size (mm)	T*V	T*H	T*V	T*H	T*V	T*H	T*V	T*H	T*V	T*H	T*V	T*H
ø12 or equiv.	5	5	45	50(70)	85	100(120)	125	150(170)	165	200(220)	205	250(270)
ø16 or equiv.	5	5	45	50(70)	85	100(120)	125	150(170)	165	200(220)	205	250(270)
ø20 or equiv.	5	5	45	50(70)	85	100(120)	125	150(170)	165	200(220)	205	250(270)
ø25 or equiv.	10	10	45	50(70)	85	100(120)	125	150(170)	165	200(220)	205	250(270)
ø32 or equiv.	10	10	45	50	85	100	125	150	165	200	205	250
ø40 or equiv.	10	10	45	50	85	100	125	150	165	200	205	250
ø50 or equiv.	10	10	45	50	85	100	125	150	165	200	205	250
ø63 or equiv.	10	10	45	50	85	100	125	150	165	200	205	250
ø80 or equiv.	15	15	45	50	85	100	125	150	165	200	205	250
ø100 or equiv.	15	15	45	50	85	100	125	150	165	200	205	250

Note: Values in ( ) are the min. stroke with switch of the full stroke adjustable.

Switch specifications (M-switch)

● 1-color/2-color LED

Item	2-wire proximity		3-wire proximity		
	M2V,M2H	M2WV (2-color LED)	M3H/M3V	M3PH/M3PV (made to order)	M3WV
Applications	Dedicated for programmable controller		For programmable controller, relay, IC circuit, compact solenoid valve		
Output method	-		NPN output	PNP output	NPN output
Power supply voltage	-		4.5 to 28 VDC		10 to 28 VDC
Load voltage	10 to 30 VDC		30 VDC or less		
Load current	5 to 30 mA		100 mA or less	100 mA or less	100 mA or less
Indicator	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)
Leakage current	1 mA or less		10 μA or less	0.05 mA or less	10 μA or less
Weight g	1 m:22 3 m:57 5 m:93				

Item	2-wire reed			
	M0V,M0H		M5V,M5H	
Applications	Programmable controller, relay		For programmable controller, relay, IC circuit (without indicator lamp), serial connection	
Power supply voltage	-		-	
Load voltage	12/24 VDC	110 VAC	5/12/24 VDC	110 VAC or less
Load current	5 to 50 mA	7 to 20 mA	50 mA or less	20 mA or less
Indicator	LED (Lit when ON)		No indicator lamp	
Leakage current	0 mA			
Weight g	1 m:22 3 m:57 5 m:93			

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

Switch specifications (T-switch)

● 2-color LED

Item	2-wire proximity		3-wire proximity	
	T2YH/T2YV	T2WH/T2WV	T3YH/T3YV	T3WH/T3WV
Applications	Dedicated for programmable controller		For programmable controller, relay	
Output method	-		NPN output	NPN output
Power supply voltage	-		10 to 28 VDC	
Load voltage	10 to 30 VDC	24 VDC ±10%	30 VDC or less	
Load current	5 to 20 mA(*3)		50 mA or less	
Indicator	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)	Red/green LED (Lit when ON)
Leakage current	1 mA or less		10 μA or less	
Weight g	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80	1 m:33 3 m:87 5 m:142	1 m:18 3 m:49 5 m:80

● For AC magnetic field

Item	Proximity switch
	T2YD, T2YDT (*4)
Applications	Dedicated for programmable controller
Indicator	Red/green LED (Lit when ON)
Load voltage	24 VDC ±10%
Load current	5 to 20 mA
Internal voltage drop	6V or less
Leakage current	1.0 mA or less
Weight g	1 m:61 3 m:166 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 field.

Cylinder weight

Unit: kg

Bore size (mm)	Weight for 0 mm stroke				Mounting bracket weight		Additional weight per St = 100mm
	Basic (00)	Foot		Switch weight	T type	M type	
		(LB)	(LB1)				
ø12 or equiv.	0.24	0.25	0.26	Refer to the weight in the switch specifications.	0.005	0.001	0.10
ø16 or equiv.	0.32	0.33	0.35				0.13
ø20 or equiv.	0.52	0.54	0.58				0.18
ø25 or equiv.	1.0	1.1	1.1				0.28
ø32 or equiv.	1.5	1.6	1.7				0.36
ø40 or equiv.	2.4	2.5	-				0.53
ø50 or equiv.	3.5	3.6	-				0.75
ø63 or equiv.	6.1	6.4	-				1.11
ø80 or equiv.	18.4	19.0	-				2.32
ø100 or equiv.	26.2	27.2	-				3.38

How to order

No switch (built-in magnet for switch)

SRL3 - 00 - 12 ○ B - 200 ——— B

With switch (built-in magnet for switch)

SRL3 - 00 - 12 ○ B - 200 - M0H - R - B

Ⓐ Mounting *1, *2

Ⓑ Bore size

Ⓒ Port thread

Ⓓ Cushion

Ⓔ Stroke

Ⓕ Switch model No. *4

Ⓖ Switch quantity

Ⓗ Option *5, *6 *7, *8 *9

⚠ Precautions for model No. selection

*1 : Mounting bracket will be shipped assembled with the product.

*2 : For 12, 16, 20, 25 and 32 bore sizes with option code "R" or "T", the mounting will be "00" or "LB1". (Piping with "LB" is not possible for option codes "R" and "T".)

*3 : Refer to page 1574 for the min. stroke with switch.

*4 : Switches other than Ⓕ Switch model No. are also available. (Made to order) Refer to Ending Page 1 for details.

5 : "" of L* and N* indicates the number of sets. When more than one set are necessary, specify "L2" (for LB) or "N2" (for LB1). 2 pcs./set

*6 : For the port and cushion needle position codes, refer to dimensions on pages 1582 to 1587.

*7 : In the case of the standard with ø12 to ø25, remove the cover, attach a flat nut and install the full stroke adjusting bracket. A flat nut is attached to option "A3" to enable retrofitting the full stroke adjusting bracket without removing the cover.

*8 : In "H", the thread size for ø12 and ø16 will be "M4" and that for ø20 will be "M5".

*9 : Check the option combinations in "Option selection table" on the next page.

*10 : Copper and PTFE free as standard. (Except for type with shock absorber)

[Example of model No.]

SRL3-00-12B-200-M0H-R-B

Model: Rodless cylinder

Ⓐ Mounting : Basic
Ⓑ Bore size : ø12 mm
Ⓒ Port thread : M5
Ⓓ Cushion : Both sides cushioned
Ⓔ Stroke : 200 mm
Ⓕ Switch model No. : Reed M0H switch, lead wire 1 m
Ⓖ Switch quantity : 1 on R side
Ⓗ Option : Port position F, cushion needle position B

Code	Description
Ⓐ Mounting	
00	Basic
LB	Axial foot
LB1	Axial foot (ø12 to ø32 only)
Ⓑ Bore size (mm)	
12	ø12
16	ø16
20	ø20
25	ø25
32	ø32
40	ø40
50	ø50
63	ø63
80	ø80
100	ø100
Ⓒ Port thread	
Blank	Rc thread (M5 for ø12 and ø16)
N	NPT thread (ø20 or more) (made-to-order product)
G	G thread (ø20 or more) (made-to-order product)
Ⓓ Cushion	
B	Both sides cushioned
R	R side cushioned
L	L side cushioned
N	Without cushion

Ⓔ Stroke (mm)

Bore size	Stroke *3	Custom stroke
ø12 to ø100	**1 to 5000**	**In 1 mm increments**

Ⓕ Switch model No.

Axial lead wire	Radial lead wire	Contact	Voltage AC	Voltage DC	Indicator	Lead wire
M0H*	**M0V***	Reed	●	●	1-color LED	2-wire
M5H*	**M5V***	Reed	●	●	No indicator lamp	2-wire
M2H*	**M2V***	Proximity		●	1-color LED	
-	**M2WV***	Proximity		●	2-color LED	2-wire
M3H*	**M3V***	Proximity		●	1-color LED	
-	**M3WV***	Proximity		●	2-color LED	3-wire
M3PH*	**M3PV***	Proximity		●	1-color LED (custom)	3-wire
T2WH*	**T2WV***	Proximity		●	2-color LED	2-wire
T2YH*	**T2YV***	Proximity		●		
T3WH*	**T3WV***	Proximity		●		3-wire
T3YH*	**T3YV***	Proximity		●		
T2YD*	**-**	Proximity		●	2-color LED for AC magnetic field	2-wire
T2YDT*	**-**	Proximity		●		

*** Lead wire length**	
Blank	1 m (standard)
3	3 m (option)
5	5 m (option)
Ⓖ Switch quantity	
R	1 on R side
L	1 on L side
D	2
T	3
4	4 (when there are more than 4 switches, indicate switch quantity.)

Ⓗ Option

		Bore size (ø)	12	16	20	25	32	40	50	63	80	100
A		Both-sides full stroke adjustable, shock absorber	●	●	●	●	●	●	●	●	●	●
A1		R side full stroke adjustable, shock absorber	●	●	●	●	●	●	●	●	●	●
A2		L side full stroke, adjustable, shock absorber	●	●	●	●	●	●	●	●	●	●
A3		Full stroke adjustable, adjusting bracket to be added	●	●	●	●						
Y		Floating fitting	●	●	●	●	●	●	●	●	●	●
Y1		Thin floating fitting	●	●	●	●	●	●	●	●		
L*		Intermediate support bracket (for 00, LB)	●	●	●	●	●	●	●	●	●	●
N*		Intermediate support bracket (for LB1)	●	●	●	●	●					
H		Larger thread for table installation	●	●	●							
U		Height adjustment plate	●	●	●	●	●	●	●	●	●	●
Blank	Port position	F (Standard)	●	●	●	●	●	●	●	●	●	●
R	Port position	R (Common port)	●	●	●	●	●	●	●	●	●	●
B	Port position	F	●	●	●	●	●	●	●	●	●	●
T	Port position	R (Common port)	●	●	●	●	●	●	●	●	●	●
D	Port position	D				●	●	●	●	●	●	●
S	Port position	D					●	●	●	●	●	●
X	Port position	F (Common port)									●	●

Cushion needle position: F (Standard), F, B, B, F, D, F

Option selection table

●: Available ▪: Not available

Option		Both side full stroke adjustable, with shock absorber	R side full stroke adjustable, with shock absorber	L side full stroke adjustable, with shock absorber	Full stroke adjustable with adjusting bracket to be added later	Floating fitting	Thin floating fitting	Intermediate support bracket (for 00, LB)	Intermediate support bracket (for LB1)	Larger thread for table installation	Height adjustment plate	Port position F, cushion needle position F (standard)	Port position R, cushion needle position F (common port)	Port position F, cushion needle position B	Port position R, cushion needle position B (common port)	Port position D, cushion needle position F	Port position D, cushion needle position D	Port position F, cushion needle position F (common port)
	Code	A	A1	A2	A3	Y	Y1	L*	N*	H	U	Blank	R	B	T	D	S	X
Option	A		▪	▪	▪	●	●	●	●	●	●	●	●	●	●	●	●	●
	A1	▪		▪	▪	●	●	●	●	●	●	●	●	●	●	●	•	•
	A2	▪	▪		▪	●	●	●	●	●	●	●	●	●	●	●	●	●
	A3	▪	▪	▪		●	●	●	●	●	●	●	•	●	●	●	●	▪
	Y	▪	▪	▪	▪		▪	●	●	▪	▪	●	●	●	●	●	●	●
	Y1	▪	▪	▪	▪	▪		●	●	▪	▪	●	●	●	●	●	●	▪
	L*	▪	▪	▪	▪	▪	▪		▪	●	●	●	●	●	●	●	●	●
	N*	▪	▪	▪	▪	▪	▪	▪		●	●	●	●	●	●	●	●	▪
	H	▪	▪	▪	▪	▪	▪	▪	▪		▪	●	●	●	●	●	●	▪
	U	▪	▪	▪	▪	▪	▪	▪	▪	▪		●	●	●	●	●	●	●
	Blank	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪		▪	▪	▪	▪	▪	▪
	R	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪		▪	▪	▪	▪	▪
	B	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪		▪	▪	▪	▪
	T	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪		▪	▪	▪
	D	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪		▪	▪
	S	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪		▪
	X	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	

*1 : Some combinations are not available depending on the bore size. Be sure to check the Ⓗ Option in "How to order" on the previous page.
*2 : LB1 with port position D is not possible. (ø25, ø32)

Specifications for rechargeable battery (Catalog No. CC-1226A)

● Design compatible with rechargeable battery manufacturing process

SRL3 - ····· - P4*

Theoretical thrust table

(Unit: N)

Bore size (mm)	Operating direction	Working pressure MPa							
		0.05	0.1	0.2	0.3	0.4	0.5	0.6	0.7
ø12	Push/Pull	–	–	27.7	41.5	55.3	69.1	83.0	96.8
ø16	Push/Pull	–	–	43.2	64.8	86.4	$1.08x10^2$	$1.30x10^2$	$1.51x10^2$
ø20	Push/Pull	–	–	62.9	94.4	$1.26x10^2$	$1.57x10^2$	$1.89x10^2$	$2.20x10^2$
ø25	Push/Pull	–	54.2	$1.08x10^2$	$1.63x10^2$	$2.17x10^2$	$2.71x10^2$	$3.25x10^2$	$3.80x10^2$
ø32	Push/Pull	–	81.4	$1.63x10^2$	$2.44x10^2$	$3.26x10^2$	$4.07x10^2$	$4.88x10^2$	$5.70x10^2$
ø40	Push/Pull	–	$1.27x10^2$	$2.53x10^2$	$3.80x10^2$	$5.06x10^2$	$6.33x10^2$	$7.60x10^2$	$8.86x10^2$
ø50	Push/Pull	–	$1.99x10^2$	$3.98x10^2$	$5.96x10^2$	$7.95x10^2$	$9.94x10^2$	$1.19x10^3$	$1.39x10^3$
ø63	Push/Pull	$1.57x10^2$	$3.14x10^2$	$6.27x10^2$	$9.41x10^2$	$1.25x10^3$	$1.57x10^3$	$1.88x10^3$	$2.20x10^3$
ø80	Push/Pull	$2.53x10^2$	$5.06x10^2$	$1.01x10^3$	$1.52x10^3$	$2.03x10^3$	$2.53x10^3$	$3.04x10^3$	$3.54x10^3$
ø100	Push/Pull	$3.96x10^2$	$7.91x10^2$	$1.58x10^3$	$2.37x10^3$	$3.16x10^3$	$3.95x10^3$	$4.74x10^3$	$5.53x10^3$