Heavy Duty Stopper Cylinder

Series RSH/RS1H

ø20, ø32 ø50, ø63, ø80

How to Order

Heavy Duty Stopper Cylinder ø20, ø32

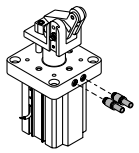
Heavy Duty Stopper Cylinder ø50, ø63, ø80

RSH	32			20	D	L				Z73		
RS1H	50			30	D	L				Z73		

Bore size

20	20mm
32	32mm

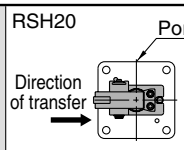
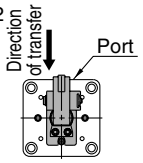
Piping direction

Nil	Flange side 

Cylinder stroke

15	15mm (RSH20)
20	20mm (RSH32)

Positional relationship of lever and port

Nil	RSH20  RSH32 

Bore size

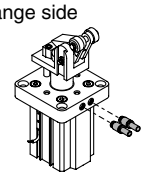
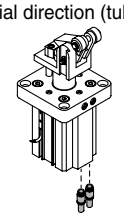
50	50mm
63	63mm
80	80mm

Port thread type

Nil	M*
	Rc
TN	NPT
TF	G

*The tube I.D. of 20 is only available to port size M screws.

Piping direction

Nil	Flange side 
A	Axial direction (tube) 

Cylinder stroke

30	30mm (RS1H50, 63)
40	40mm (RS1H80)

Action

D	Double acting type
B	Double acting spring type
T	Single acting/Spring extended

Roller material

L	Resin
M	Carbon steel

Option Note 1)

Nil	Without option
D	With lock mechanism
C	With cancel cap
S Note 2)	With lever detection switch

Note 1) Options can be combined. Indicate the part No. according to the priority order of D.C.S.

Note 2) **Lever detection switch type**

Type	Applicable model
E2E-X1C1	RSH 20·30
E2E-X2D1-N	RS1H 50·63·80

Number of auto switches (auto switch number mounted)

Nil	2 pcs.
S	1 pc.

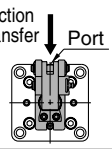
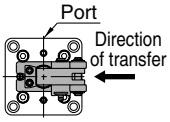
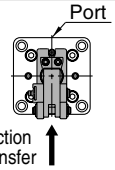
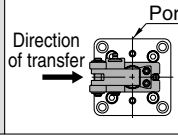
Auto switch

Nil	Without auto switch (Built-in magnet cylinder)

*Refer to page 2 for auto switch model numbers.

*The auto switch is included in the package (not assembled.)

Positional relationship of lever and port

Nil	
P	
Q	
R	

SMC

Applicable auto switches/Refer to pages 10 through 15 for detailed auto switch specifications.

Type	Special function	Electrical entry	Indicator light	Wiring (output)	Load voltage			Auto switch models		Lead wire length (m)*			Applicable load	
					DC		AC	Electrical entry direction		0.5 (Nil)	3 (L)	5 (Z)		
								Perpendicular	In-line					
Reed switch	—	Grommet	Yes	3-wire (NPN equiv)	–	5V	—	—	Z76	●	●	–	IC circuit	—
				2-wire	24V	12V	100V	—	Z73	●	●	●	—	Relay, PLC
			No			5V, 12V	100V or less	—	Z80	●	●	–	IC circuit	
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24V	5V, 12V	—	Y69A	Y59A	●	●	○	IC circuit	Relay, PLC
				3-wire (PNP)				Y7PV	Y7P	●	●	○		
				2-wire		12V		Y69B	Y59B	●	●	○	—	
	Diagnostic indication (2-color display)			3-wire (NPN)		5V, 12V		Y7NWV	Y7NW	●	●	○	IC circuit	
				3-wire (PNP)				Y7PWV	Y7PW	●	●	○		
				2-wire		12V		Y7BWV	Y7BW	●	●	○	—	
	Water resistance (2-color display)							—	Y7BA	–	●	○		

*Lead wire length symbols: 0.5m·····Nil (Example) Y69B
3m·····L (Example) Y69BL
5m·····Z (Example) Y69BZ

**Solid state switches marked with a "○" symbol are produced upon receipt of order.

RSH

RS1H

Specifications

Model		RSH		RS1H		
Bore size (mm)		20	32	50	63	80
Action		Double acting, Double acting spring, Single acting (Spring extended)				
Style of rod end		Lever with built-in shock absorber type				
Fluid		Air				
Proof pressure		1.5MPa				
Max. operating pressure		1.0MPa				
Ambient and fluid temperature		–10 to 60°C (with no condensation)				
Lubrication		Not required (non-lube)				
Cushion		Rubber bumper				
Stroke length tolerance		$+^{1.4}_{0}$				
Mounting		Flange				
Port size	For use in Japan	M5 x 0.8	Rc 1/8	Rc 1/8	Rc 1/4	Rc 1/4
	For use in U.S.A.	–	NPT 1/8	NPT 1/8	NPT 1/4	NPT 1/4
	For use in Europe	–	G 1/8	G 1/8	G 1/4	G 1/4
Auto switch		Can be installed				

Bore size, Standard strokes

(mm)

Model	Bore size (mm)	Standard stroke
RSH	20	15
	32	20
RS1H	50	30
	63	30
	80	40

Weights

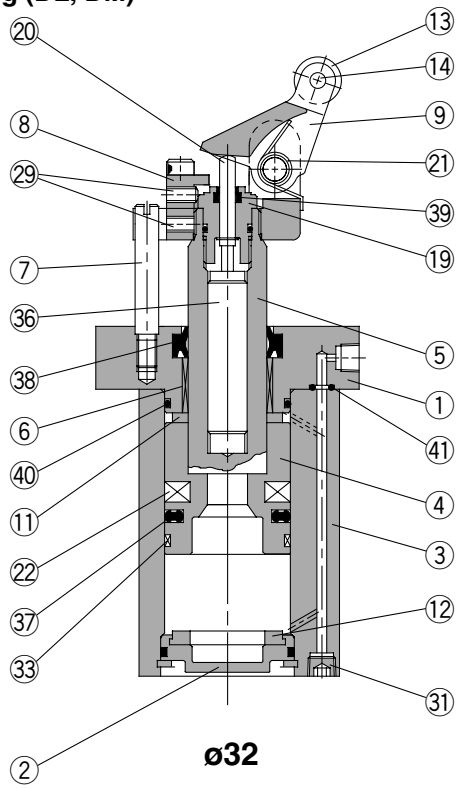
(kg)

Action	Rod end configuration	Bore size (mm)	Weight
Double acting type Double acting spring type Single acting spring extended	Lever with built-in shock absorber type	20	0.41
		32	0.75
		50	2.03
		63	3.56
		80	6.33

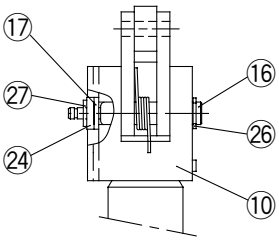
Construction

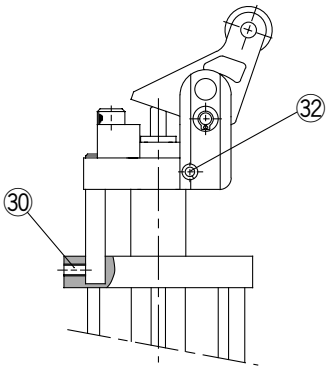
ø20, ø32

Double acting (DL, DM)



ø32

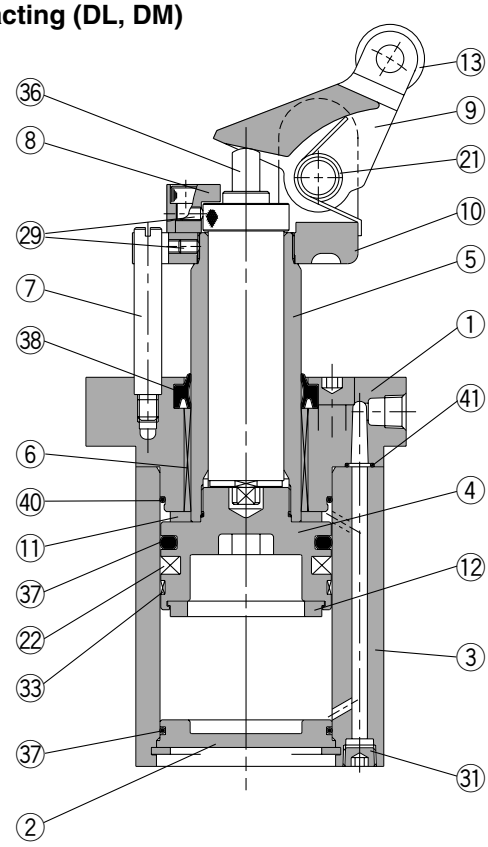


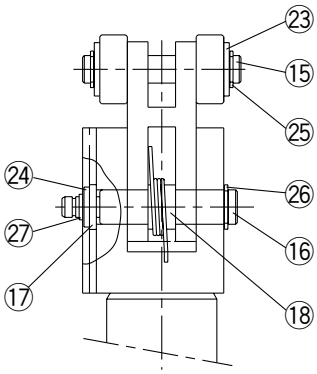


ø20

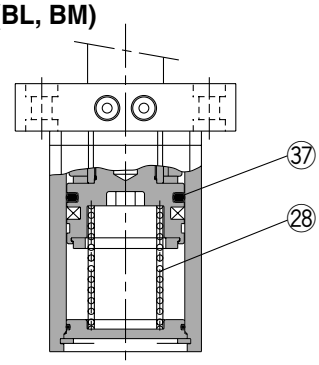
ø50, ø63, ø80

Double acting (DL, DM)

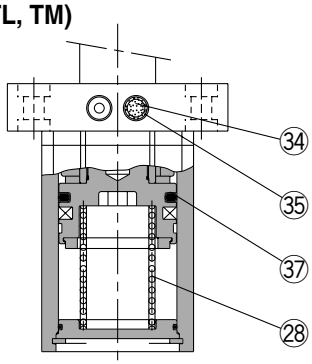




Double acting spring type (BL, BM)



Single acting spring extended (TL, TM)



Construction

Parts list (Single acting)

No.	Description	Material	Note
1	Rod cover	Aluminium alloy	Metallic painted
2	Bottom plate	Aluminium alloy	Chromate
3	Cylinder tube	Aluminium alloy	Hard anodized
4	Piston	Aluminium alloy	Chromate
5	Piston rod	ø20: Stainless steel ø32, ø50, ø63, ø80: Carbon steel	Hard chromium electro plating
6	Bushing	Bronze alloy	
7	Guide rod	Carbon steel	Hard chromium electro plating
8	Stopper screw	Stainless steel	
9	Lever	Carbon steel	Nickel plated
10	Lever holder	Carbon steel	Nickel plated
11	Bumper A	Urethane rubber	
12	Bumper B	Urethane rubber	
13	Roller	Resin	–□□L
		Carbon steel	–□□M
14	Spring pin	Carbon tool steel	ø20, 32 only
15	Roller pin	Carbon steel	
16	Lever pin	Carbon steel	
17	Ring A	Aluminium alloy	Clear anodized
18	Ring B	Aluminium alloy	Clear anodized
19	Adjustment dial	Aluminium alloy	ø20, 32 only
20	End rod	Special steel	ø20, 32 only
21	Lever spring	Stainless steel wire	
22	Magnet	Magnet	
23	Flat washer	Steel wire	Nickel plated
24	Flat washer	Steel wire	Nickel plated
25	C type snap ring for shaft	Carbon tool steel	
26	C type snap ring for shaft	Carbon tool steel	
27	C type snap ring for shaft	Carbon tool steel	
28	Return spring	Piano wire	
29	Hexagon socket head set screw	Chrome molybdenum steel	
30	Hexagon socket head set screw	Chrome molybdenum steel	ø20 only
31	Hexagon socket head plug	Chrome molybdenum steel	Nickel plated
32	Spring pin	Carbon tool steel	ø20 only
33	Wear ring	Resin	
34	Element	Bronze	ø20 is socket set screw
35	Snap ring	Steel wire	
36	Shock absorber	—	
37	Piston seal	NBR	
38	Rod seal	NBR	
39	Scraper	NBR	ø20, 32 only
40	Tube gasket	NBR	
41	O-ring	NBR	

Replacement parts: Seal kit

Bore size (mm)	Kit no.			Contents
	Double acting	Double acting spring type	Single acting	
20	RSH20D-PS	RSH20T-PS		Set of items 37 to 41 in above table
32	RSH32D-PS	RSH32T-PS		
50	RSH50D-PS	RSH50T-PS		Set of items 37 to 41 in above table (not including 39)
63	RSH63D-PS	RSH63T-PS		
80	RSH80D-PS	RSH80T-PS		

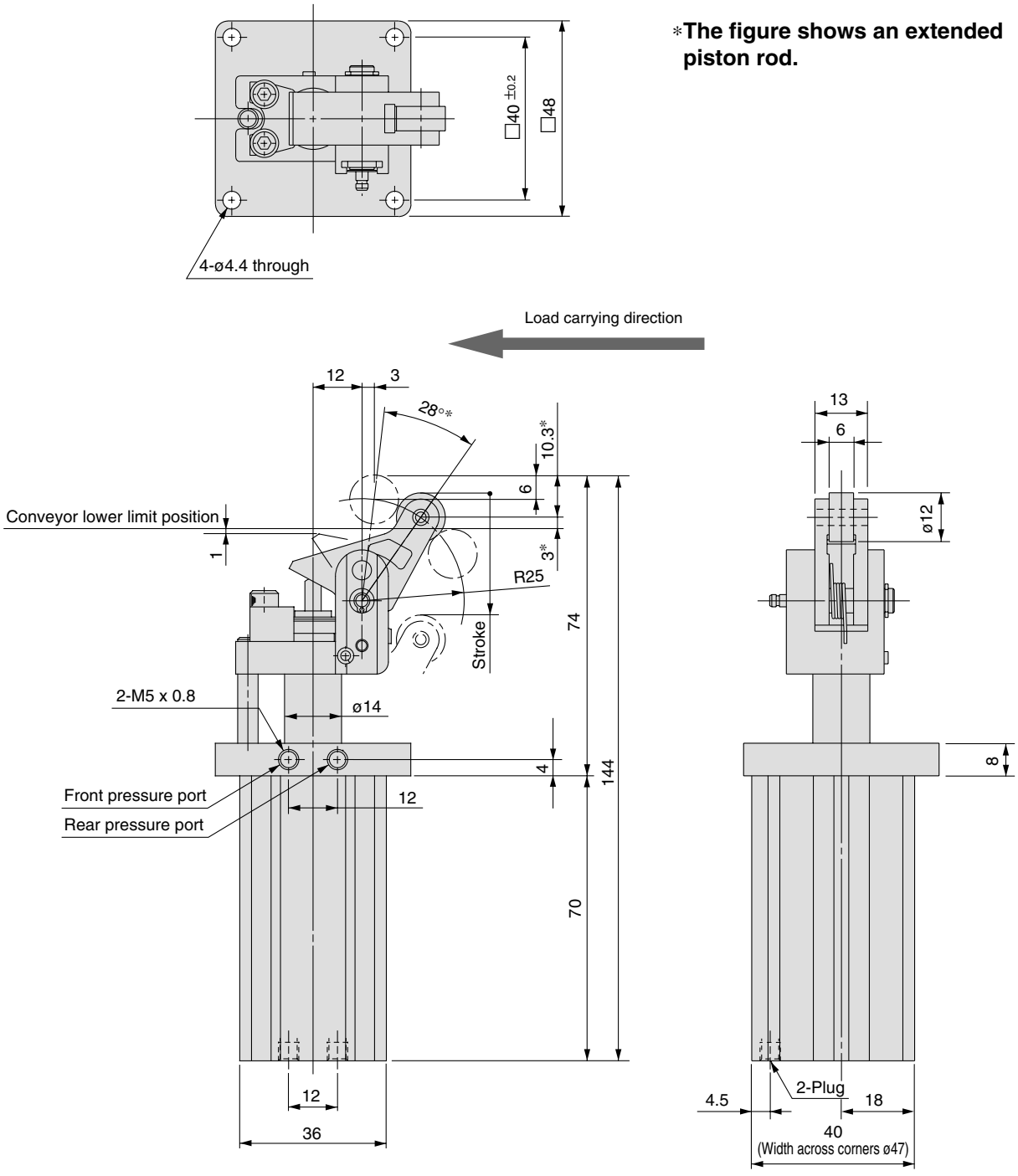
∗The seal kits for ø20 to ø32 consist of items 37 to 41 and those for ø50 to ø80 consist of items 37 to 41. Please order them by using the seal kit number corresponding to each bore size.

Replacement parts: Shock absorber

Bore size (mm)	Order no.
20	RSH-R20
32	RSH-R32
50	RS1H-R50
63	RS1H-R63
80	RS1H-R80

Dimensions/Bore size: ø20

RSH20-15□□

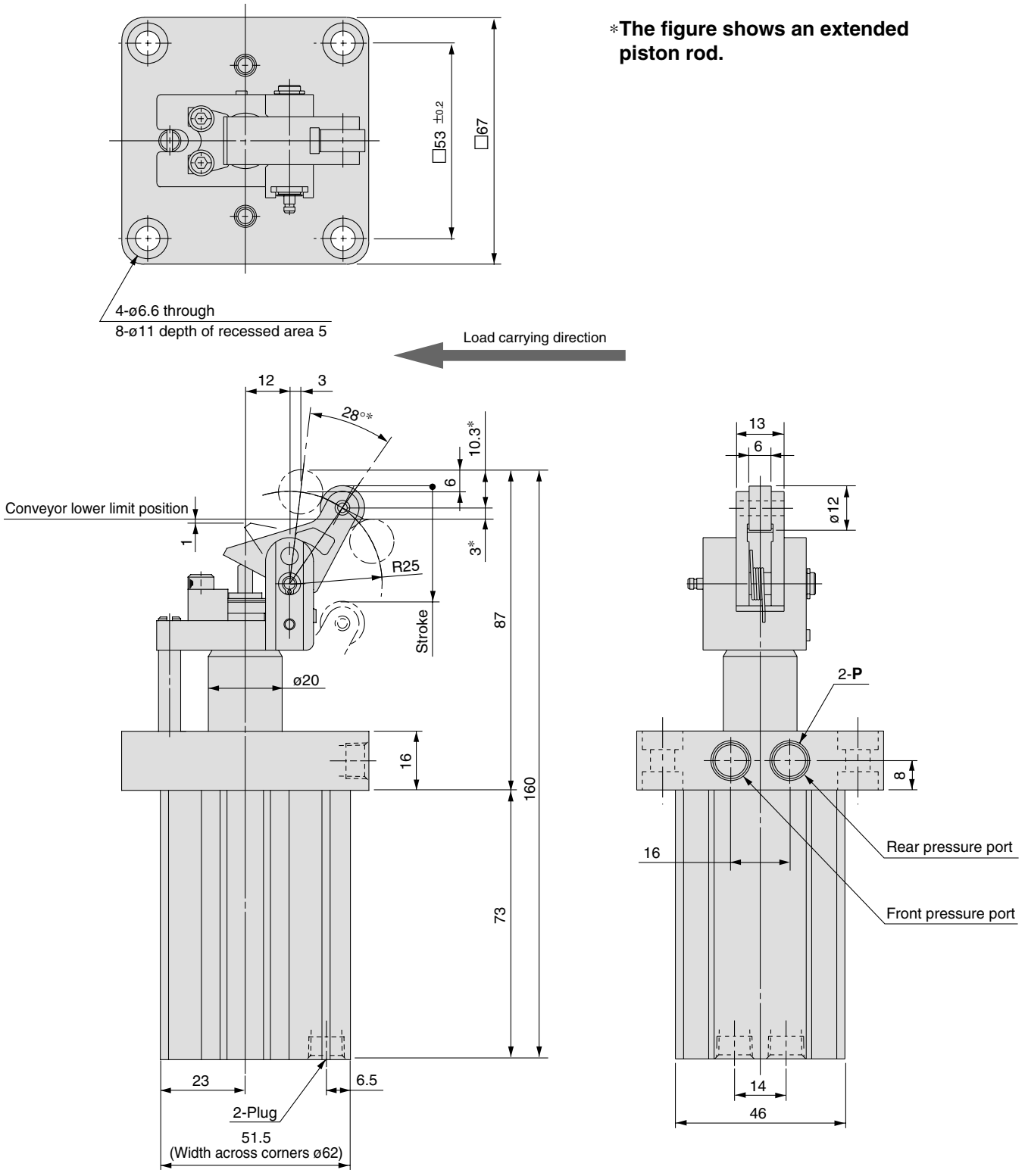


∗The figure shows an extended piston rod.

Note 1) The figure shows dimensions at the maximum energy absorption capacity.
Note 2) Dimensions with auto switch are identical to the above.
Note 3) The dimensions marked with "∗" vary according to adjustment of the shock absorber dial.

Dimensions/Bore size: ø32

RSH32-20□□

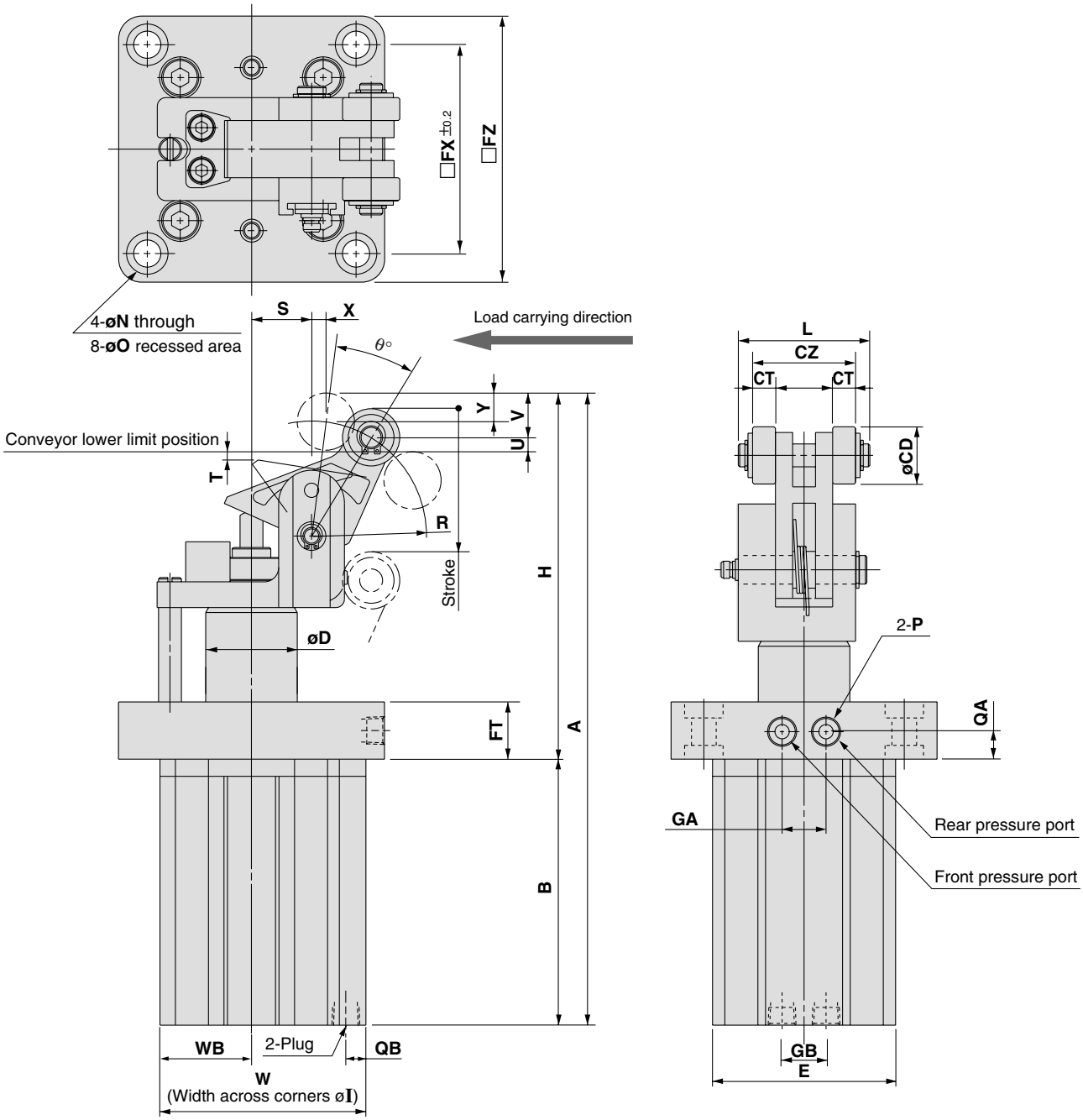


Note 1) The figure shows dimensions at the maximum energy absorption capacity.
Note 2) Dimensions with auto switch are identical to the above.
Note 3) The dimensions marked with "*" vary according to adjustment of the shock absorber dial.

P (Piping port)		
Nil	TN	TF
Rc 1/8	NPT 1/8	G 1/8

Dimensions/Bore size: ø50, ø63, ø80

RS1H 50 / 63 / 80 -□□□



(mm)

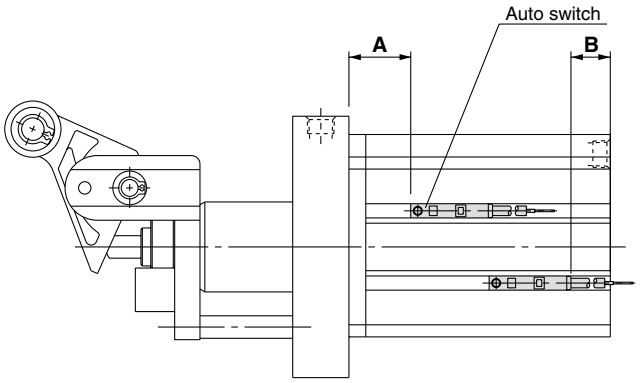
Bore size (mm)	Stroke	A	B	CD	CT	CZ	D	E	FT	FX	FZ	GA	GB	H	Width across corners I	L	N	O	QA	QB
50	30	221	93	20	8	36	32	64	20	73	93	16	16	128	85	45	9	14 depth 5	10	7
63	30	243.5	99	20	10	45	40	77	25	90	114	24	24	144.5	103	54	11	18 depth 6	12.5	8.5
80	40	299.5	128	25	10	45	50	98	25	110	138	24	35	171.5	132	56	13	20 depth 6	12.5	10

Bore size (mm)	Stroke	R	S	T	U	V	W	WB	X	Y	θ°
50	30	40	21	2	5.5	15.5	72	32	5	10	24
63	30	47	24.5	3.5	6.4	16	87.5	38.5	5	10	24
80	40	54	31	3	6.7	19.4	109	49	6	12.5	23

Model	**P** (Piping port)		
	Nil	TN	TF
RS1H50	Rc 1/8	NPT 1/8	G 1/8
RS1H63	Rc 1/4	NPT 1/4	G 1/4
RS1H80	Rc 1/4	NPT 1/4	G 1/4

Note 1) Dimensions with auto switch are identical to the above.
Note 2) The figure shows an extended piston rod.

Auto Switch Proper Mounting Position



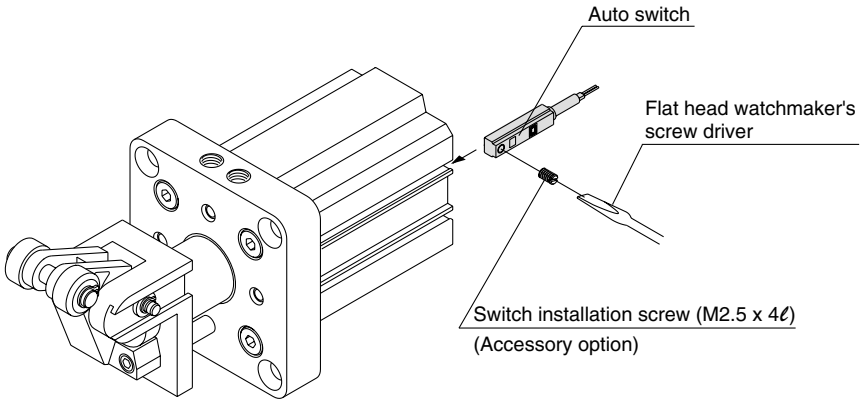
Auto switch proper mounting position

Auto switch models / Bore size (mm)	D-Z7□ D-Z80 D-Y59□ D-Y7P D-Y7□W		D-Y69□ D-Y7PV D-Y7□WV		D-Y7BAL	
	A	**B**	**A**	**B**	**A**	**B**
20	18	8(6.5)	18	9.5	18	2
32	13.5	10.5(9)	13.5	12	13.5	4.5
50	22	12(10.5)	22	13.5	22	6
63	24.5	15.5(14)	24.5	17	24.5	9.5
80	37	22(20.5)	37	23.5	37	16

The values inside ( ) are for D-Z73.

How to Install Auto Switch

To set the auto switch, insert the auto switch into the switch groove from the direction shown in the drawing to the below, After placing it in the mounting position, use a flat head watchmakers screw driver to tighten the mounting screw which is included.



Note) When adjusting the auto switch mounting screws, use a flat head watchmaker's screwdriver.
The guideline of the tightening torque is 0.05 to 0.1 Nm.
Turn another 90° from the position where tightening is felt by hand.

Lever Detection Switch (Proximity Switch)

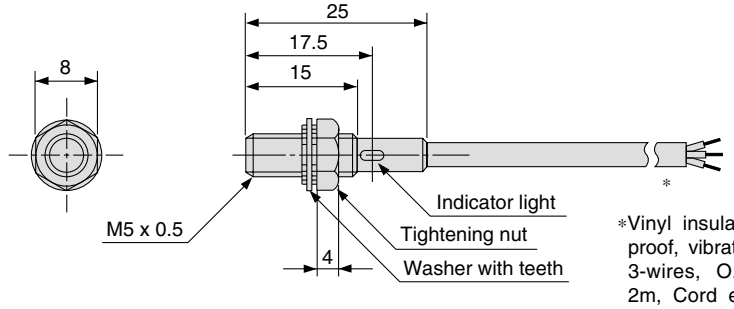
Proximity switch specifications/Maker: OMRON Co. Ltd.

Model	E2E-X1C1	E2E-X2D1-N
Applicable cylinder bore size	RSH20, 32	RS1H50, 63, 80
Output type	Normally open	
Power supply voltage (Operating voltage range)	12 to 24VDC (10 to 30VDC), Ripple10% or less (P-P)	
Current consumption (Leakage current)	17mA or less	0.8mA or less
Response frequency	3kHz	1.5kHz
Control output (chest)	Open collector maximum 100mA	3 to 100mA
Indicator light	Detection indication (Red LED)	Operation indication (Red LED), Set operation indication (Green LED)
Ambient temperature	–25 to 70°C (No freezing)	
Operating ambient humidity	35 to 95% RH	
Residual voltage Note 1)	2V or less	3V or less
Withstand voltage Note 2)	500VAC	1000VAC
Vibration	Endurance 10 to 55 Hz, Duplex amplitude 1.5mm X,Y,Z direction each 2h	
Impact	Endurance 500m/s² (approx. 50G), X, Y, Z direction each 10 times	
Enclosure	IEC standards IP67 (Immersion proof shape and oil proof shape by JEM standards)	

Note 1) At load current 100mA and cord length of 2m
Note 2) Between case and whole charging part

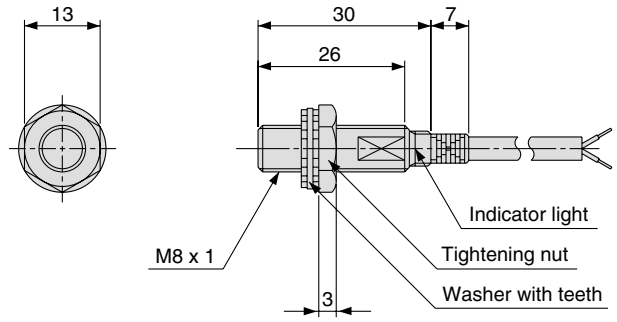
Dimensions

E2E-X1C1 (For RSH20, 32)



∗Vinyl insulation round cord (oil proof, vibration proof) 0.14mm², 3-wires, O.D. ø2.9, Standard 2m, Cord extension (Individual metal piping), Max. 100m

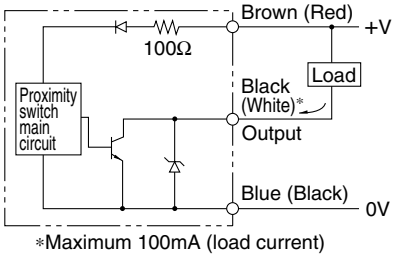
E2E-X2D1-N (For RS1H50, 63, 80)



∗Vinyl insulation round cord ø3.5 (18/ø0.12), 2-wire, Standard 2m, Cord extension (Individual metal piping), Max. 200m

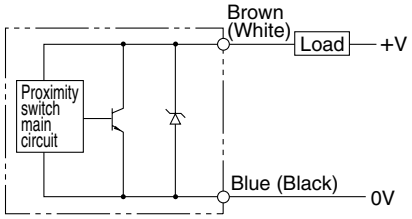
Output Circuit

E2E-X1C1/3-wire



∗Maximum 100mA (load current)

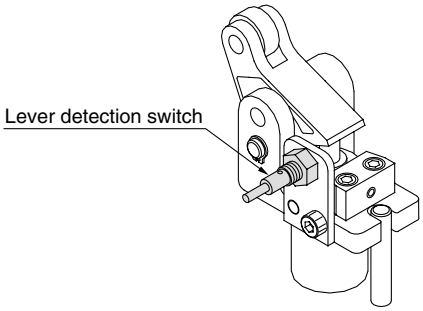
E2E-X2D1-N/2-wire



Mounting Position

●E2E-X1C1 (For RSH20, 32)

While holding the lever in the detection range of the switch, screw in the switch gradually until the indicator light (red) turns on. Then, screw the switch in further, halfway between the turn-on point and the lever.



●E2E-X2D1-N (For RS1H50, 63, 80)

While holding the lever in the detection range of the switch, screw in the switch until the indicator light (green) turns on. Then, give an additional half rotation of screw. After that, incline the lever by 90° and confirm that the indicator light is not on and does not show either red or green.