Series ADR

Double Rod Cylinder

Bore Size : ϕ10, ϕ16, ϕ20, ϕ25

- HIGH LATERAL LOAD CAPABILITY
- ADJUSTABLE STROKE IS AVAILABLE
- A THIN AND COMPACT DOUBLE ROD CYLINDER
- BALL BUSHING OPTION
- AUTO SWITCH READY
- NON-LUBE SERVICE STANDARD.

How to Order

ADR M 10 — 30 — W1□ S

1 2 3 4 5 6

1 Double Rod Cylinder
(Built-in magnet : standard)

2 Type of Bearing
M : Slide bearing type
L : Ball bushing bearing type

3 Bore Size
10 : 10mm
16 : 16mm
20 : 20mm
25 : 25mm

4 Stroke(mm)
ϕ10 : 10, 15, 20, 25, 30
ϕ16 : 10, 15, 20, 25, 30, 35, 40, 45, 50
ϕ20 : 10, 15, 20, 25, 30, 35, 40, 45, 50
ϕ25 : 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 100

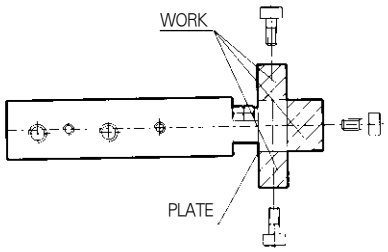
5 Type of Auto Switch
Blank : Without Auto Switch
W1H : Solid State Switch(DC24V)
W13 : Reed Switch(AC110V,DC24V)
※ Standard Auto Switch lead wire length is 1m, 3m leads available on all models by adding a "L" suffix to the part number.
Example W1H → W1HL

6 Number of Switches
Blank : 2 pcs.
S : 1 pc.
n : n pcs.

Specifications

Acting	Double Acting Double Rod
Fluid	Air
Max. Operating Pressure	10 kgf/cm²{0.98MPa}
Proof Pressure	7 kgf/cm²{0.7MPa}
Min. Operating Pressure	1 kgf/cm²{0.01MPa}
Amibient and Fluid Temperature	-10℃~+60℃
Piston Speed	30~300 mm/s
Cushion	Rubber Cushion
Lube	None(Non-Lube)
Stroke Adjustment Range	0~-5mm
Bearing	Slide Bearing, Ball Bush Bearing (Same Dimensions)

Plate Can be Mounted From Three Faces



Standard Stroke

Model	Bearing	Bore Size	Standard Stroke
ADRM	Slide Bush Bearing	10	10, 15, 20, 25, 30
		16	10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100
		20	10, 15, 20, 25, 30, 35, 40, 45, 50
		25	10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 75, 80, 90, 100
ADRL	Ball Bush Bearing	10	10, 15, 20, 25, 30
		16	10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100
		20	10, 15, 20, 25, 30, 35, 40, 45, 50
		25	10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 75, 80, 90, 100

Theoretical Force

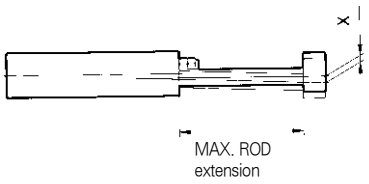
Unit:N

Model	Rod Dia (mm)	Piston Area	Operating Direction (mm²)	Operating Pressure (Mpa)						
				0.1	0.2	0.3	0.4	0.5	0.6	0.7
ADR M/L 10	6	OUT	157	15.7	31.4	47.1	62.8	78.5	94.2	110
		IN	100	10.0	20.0	30.0	40.0	50.0	60.0	70.0
ADR M/L 16	8	OUT	402	40.2	80.4	120.6	160.8	201	241.2	281.4
		IN	245	24.5	49.0	73.5	98.0	122.5	147	171.5
ADR M/L 20	10	OUT	628	62	125	188	251	314	376	439
		IN	471	47	94	141	188	235	282	329
ADR M/L 25	12	OUT	982	98.2	196	295	393	491	589	687
		IN	580	58.0	116	174	232	290	348	406

Operating Conditions

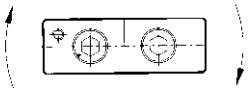
Inclination of plate end

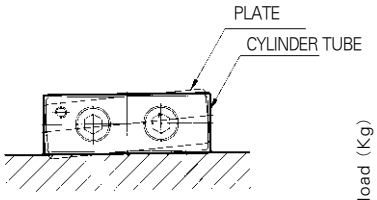
The standard amount of inclination X of the plate end whth no load applied is shown in the graph below.



Non-rotating accuracy

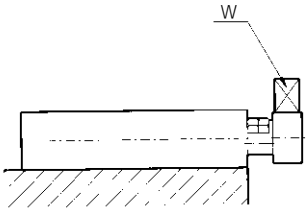
Standards of non-rotating accuracy θ° are values lower than those shown in the table below.

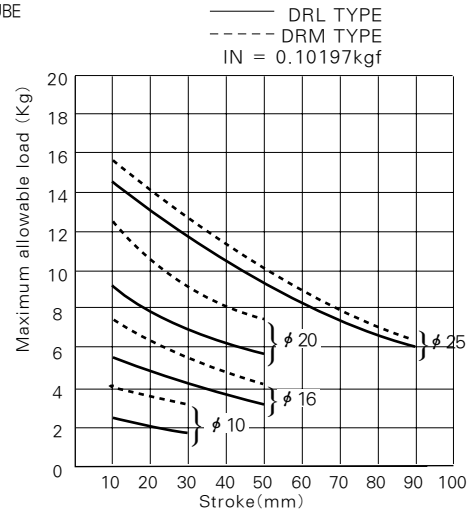




Maximum allowable load

The maximum allowable load will be lower than the values shown in the graph below when the cylinder is mounted as shown below.





Non-Rotating Accuracy

Cylinder Bore Size(mm)	ADRM (Slide bearing)	ADRL (Ball bush bearing)
ϕ 10	±0.15°	±0.15°
ϕ 16, ϕ 20	±0.15°	±0.13°
ϕ 25	±0.15°	±0.1°

Precautions

Mounting

① The Double rod cylinder can be mounted on three sides. However, the mating surface must be flat(Flatness : 0.05 (reference value) max.).
Otherwise desired piston rod operation and a malfunction may result.

② Mount the cylinder while the piston is retracted, Pay attention not to scratch or dent the slide part of the piston rod treatment Air leaks due to damaged packings may result in faulty operation.

③ Cylinder mounting face has hard alumite treatment but care should still be taken to avoid damaging it as this would result in loss of durability and faulty operation.

Piping

① The Double rod cylinder is provided with two supply ports in respective directions of operation. Change the plug position according changed, be sure to check that no air leaks from the plug. When a little amount of air still leaks, remove the plug and check the seat before reassembly.

② At the time of pipe-laying, thoroughly flush pipes and joints with air and then connect them.

③ Provide an air filter to supply sufficiently purified compressed air.

④ Cylinder tube can be used without oiling, but if you oil it, use turbine oil class-1(ISO VG32).
(Do not use machine oil or spindle oil.)

Adjustment of stroke

① The Double rod cylinder is provided with a bolt to adjust the stroke within the range of 0 to -5mm on the piston rod return side(IN).
Loosen the hexagon head bolt for adjustment.
After adjustment, completely tighten the hexagon head bolt and apply a stopper to it.

② Never use the cylinder without a damper bolt.

Ambient atmosphere

① Use the cylinder as little as possible in ambient atmospheres where the cylinder is exposed to water (hot water) or coolant.
When it is inevitable to use it in such atmospheres, protect the cylinder with a cover.

② Some atmospheres or fluids are harmful to the main body of the cylinder or packing.
Please contact us when special use is desired.

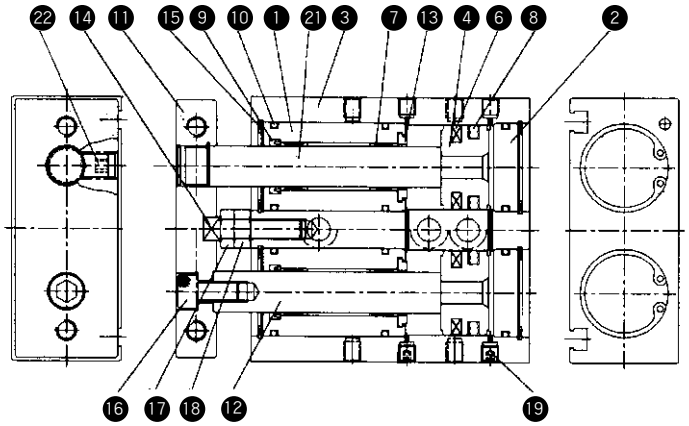
Disassembly and maintenance

① Remove the plate at the end for disassembling.
Disassembling is permitted only for replacement of packing or other necessary operations to prevent malfunction.

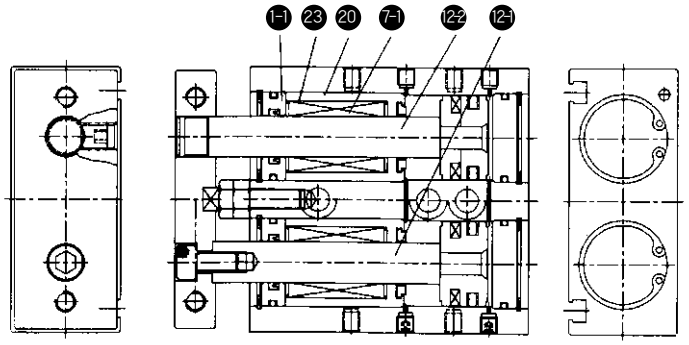
②. Please contact us for the method of dissembly or reassembly, or refer to the manual for disassembly.

Construction/Parts List, Packing List

ADRM(Slide Bearing)



ADRL(Ball Bush Bearing)



Slide Bush Type

No.	Description	Material
❶	Rod Cover	-
❷	Head Cover	-
❸	Cylinder Tube	-
❹	Piston	-
❻	Magnet	Ba-Ferrite+NBR
❼	Slide Bush	NBR
❽	Piston Packing	NBR
❾	Rod Packing	NBR
❿	Tube Gasket	NBR
⓫	Plate	-

No.	Description	Material
⓬	Piston Rod	-
⓭	Bumper-A	Urethane
⓮	Bumper-B	Urethane
⓯	Snap Ring	-
⓰	Plate Bolt	-
⓱	Stroke Control Bolt	-
⓲	Stroke Control Nut	-
⓳	Plug	-
㉑	Piston Rod-A	-
㉒	Detent Screw	-

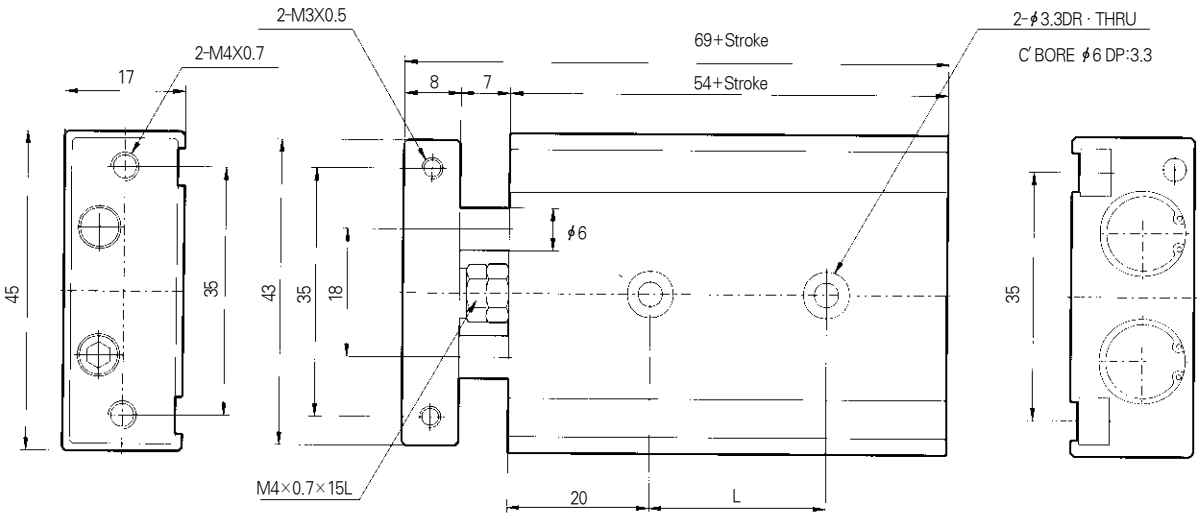
Ball Bush Type

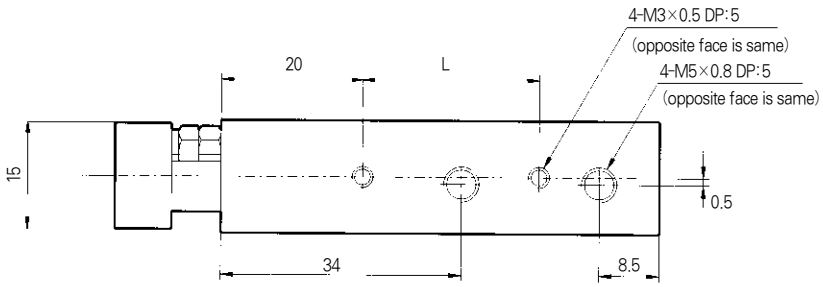
No.	Description	Material
1-1	Rod Cover	-
7-1	Ball Bearing	-
12-1	Piston Rod	SUJ2

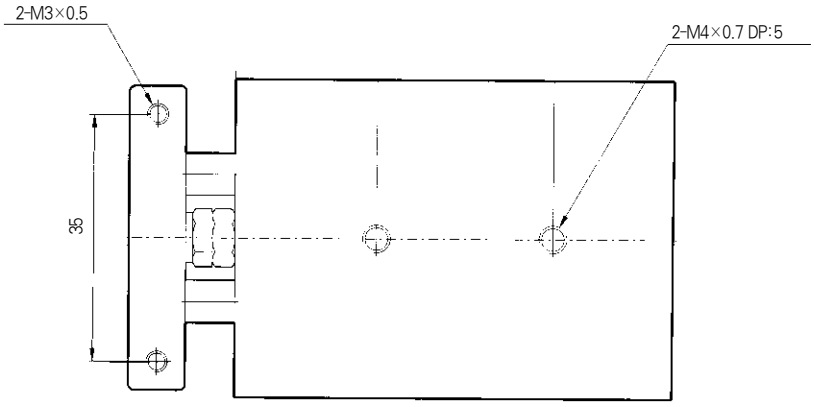
No.	Description	Material
12-2	Piston Rod-A	SUJ2
⑳	Bearing Stopper	-
㉓	Gasket	NBR

Dimensions

ADR ϕ10





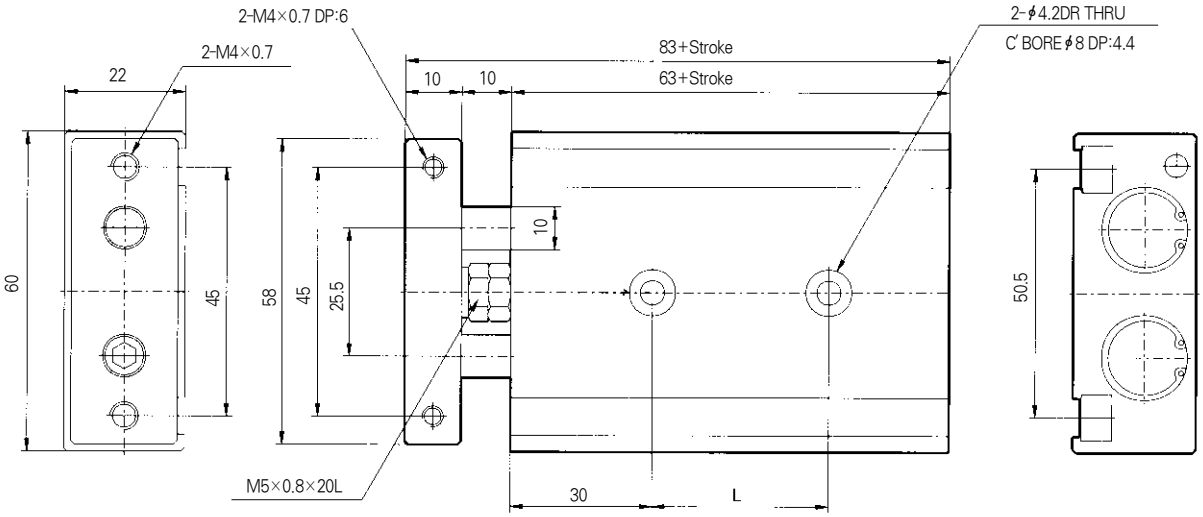


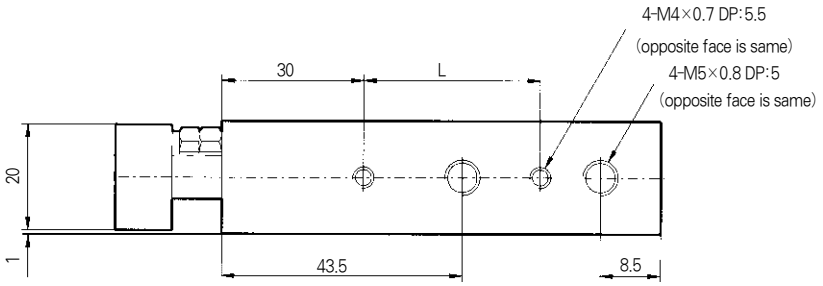
(mm)

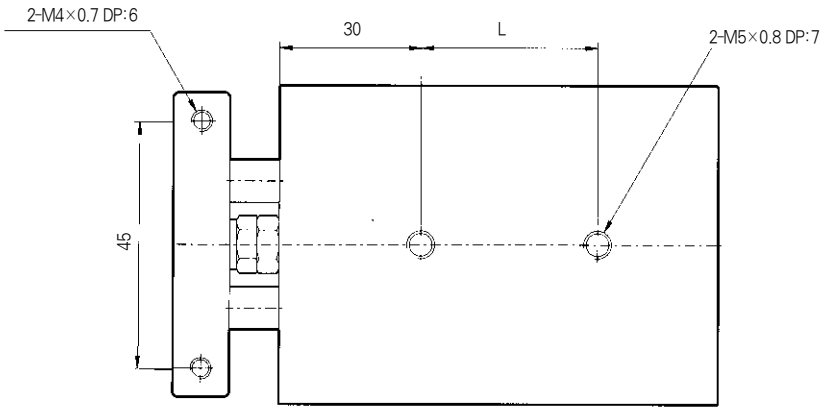
Stroke (mm)	10	15	20	25	30
L	25	30	30	30	40

Dimensions

ADR ϕ16





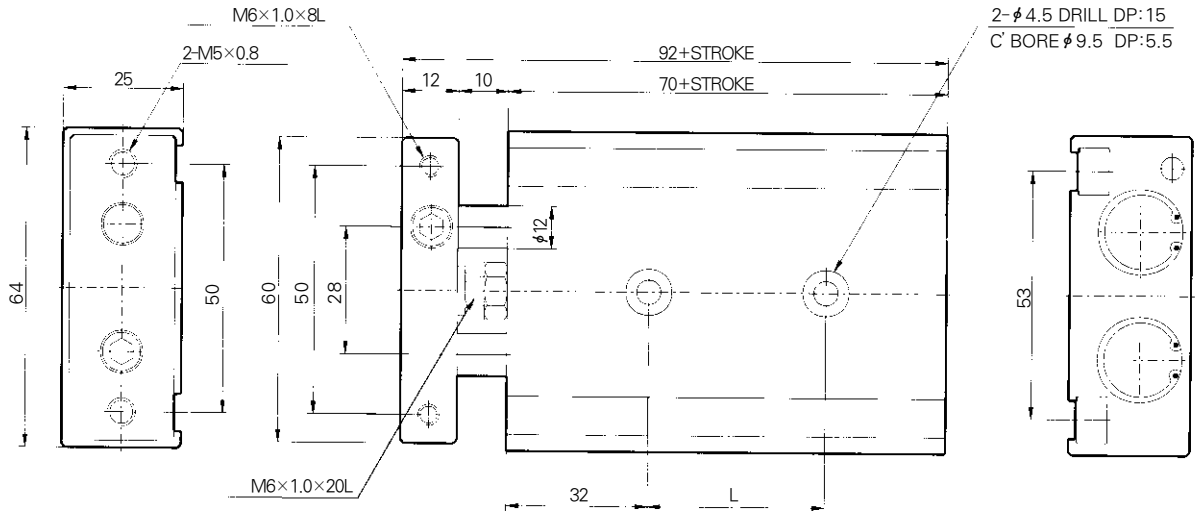


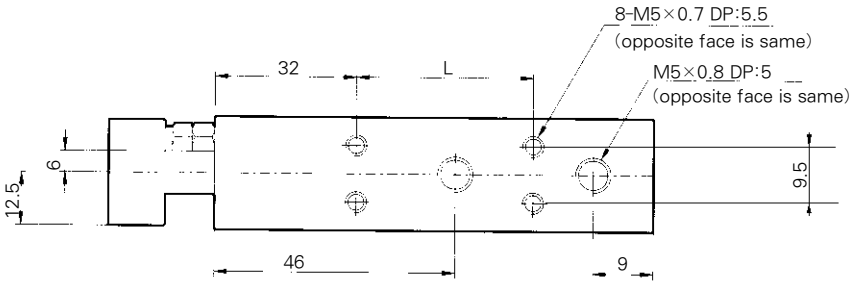
(mm)

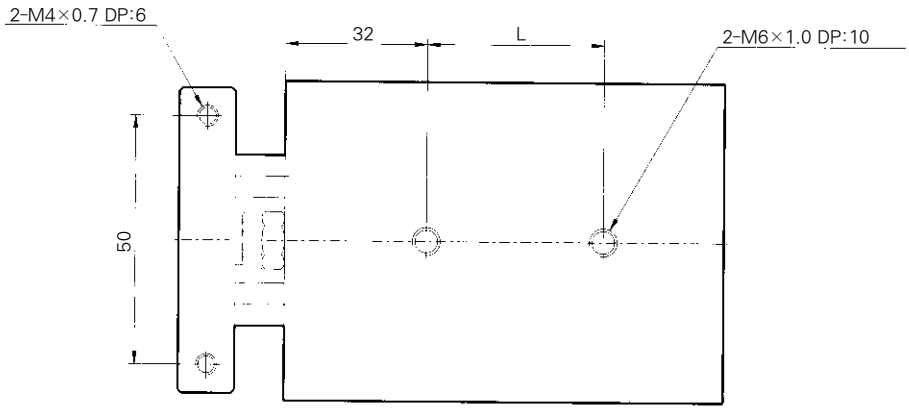
Stroke (mm)	10	15	20	25	30	35	40	45	50
L	25	25	25	25	40	40	40	40	40

Dimensions

ADR φ20



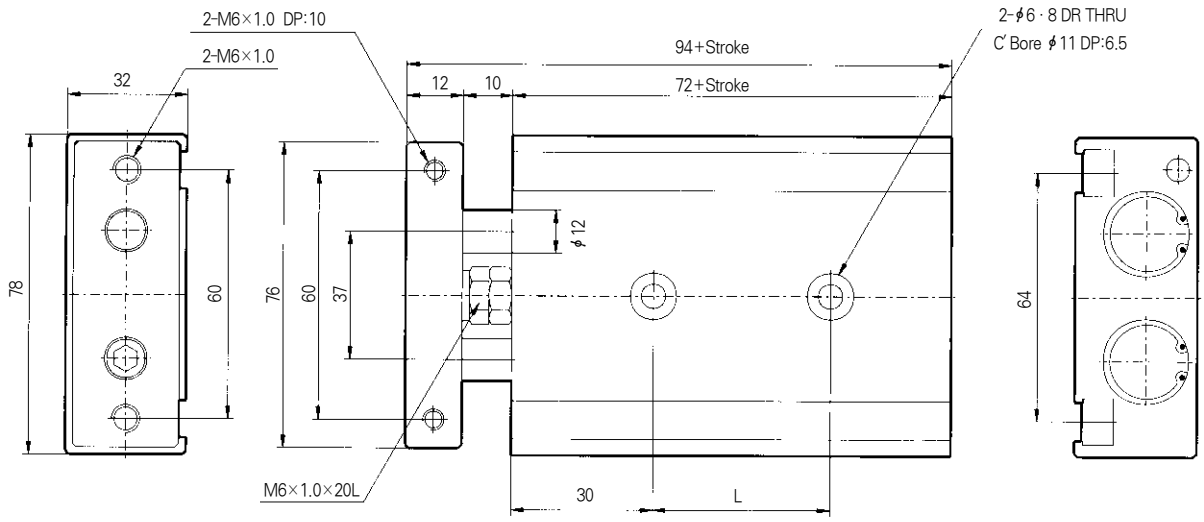


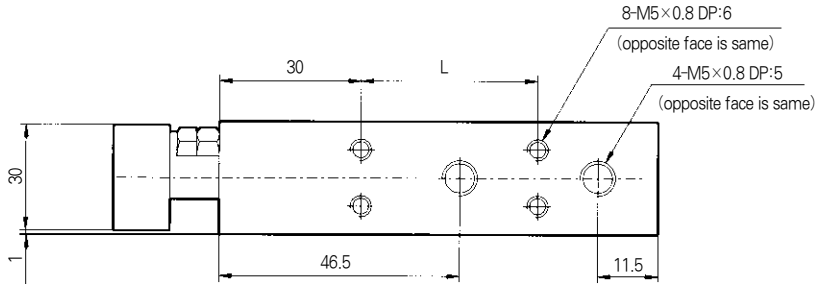


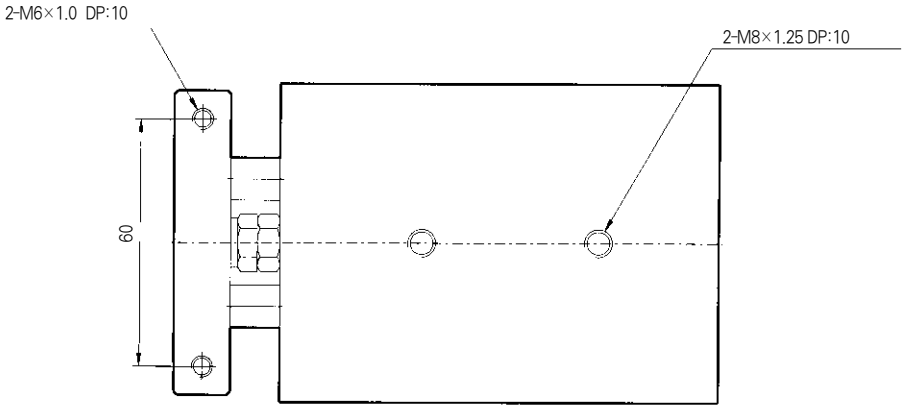
Stroke	10	15	20	25	30	35	40	45	50
L	30	30	30	30	40	40	40	40	40

Dimensions

ADR ϕ25







(mm)

Stroke (mm)	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80
L	30	30	30	30	40	40	40	40	40	60	60	60	60	60	80

Auto Switch Specifications

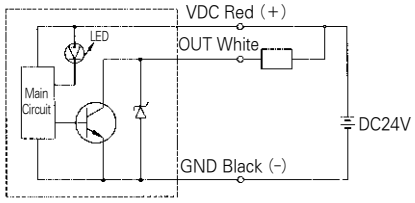
Auto Switch No.	W1H□	W13□
Type	Solid State Switch	Reed Switch
Application	Relay, Sequence Control	
Wiring Method	3 Wire System	2 Wire System
Power Source	DC10~28V	–
Load Voltage	DC28V Less	DC24V, AC110V
Current Consumption	100mA Less	DC24V : 5~40mA AC110V : 5~20mA
Internal Voltage Drop	100mA~0.5V Less	40mA~2.4V Less
Leakage Current	DC24V~10μA Less	
Load Current	OFF: 5mA or Less ON : 35mA or Less	–

- Operating Time : Max. 1ms
- Lead Wire : Oil resistant vinyl cord. φ0.13, 0.2mm², 3 cores(red white, black), cores(red, black), 0.5m long
- Shock Resistance : 1000m/S² (102G)
- Insulation Resistance : 50MΩ or more under the test voltage 500V DC between case and cable.
- Withstand Voltage : 1000VAC for 1min.(between lead wire and the case)
- Ambient Temperature : -10~60℃
- Protection Structure : IEC Standard, water-tight and oil resistant structure

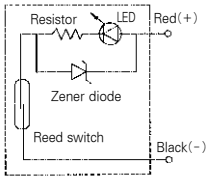
※ "L" is added to the end when the lead is 3m long.
(ex) W1□L

Auto Switch Internal Circuit

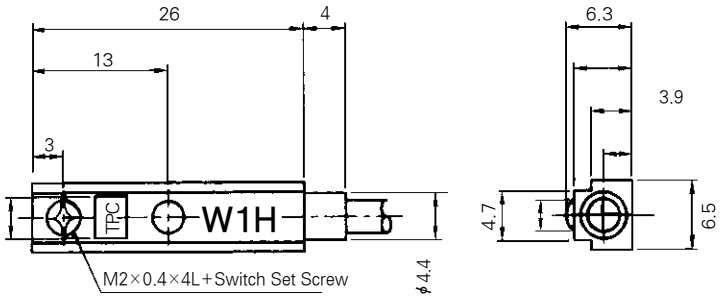
W1H□

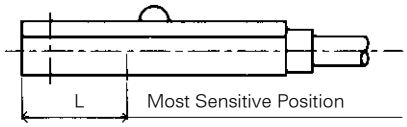


W13□



Auto Switch Dimensions (mm)





(mm)

Stations	W1H□	W13□
L	10	15
Operating Range	4~10	4~10