CAT.E404-A

SMC

RECEIVED AUG - 6 1997

Clean Regulator

Series SRH

Contamination controlled stainless steel regulator

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Series SRH

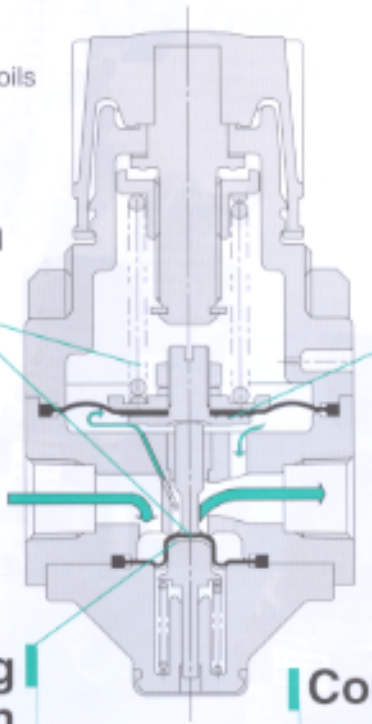
Contamination controlled stainless steel regulator

Outstanding corrosion resistance

All metal parts in contact with fluid use stainless steel SUS316

Oil free

Parts assembled without any use of oils



2 types of diaphragm material available

Depending upon the application, PTFE (Grade A) or fluororubber (Grade B) can be selected for the diaphragm material

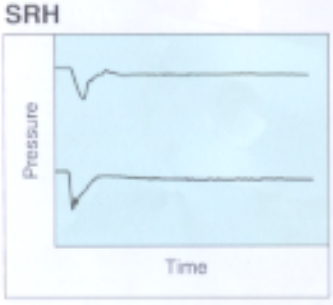
Designed to minimize residual fluid

- Design includes an intake/exhaust port in the diaphragm compartment which facilitates flow
- Valve springs are partitioned by the diaphragm

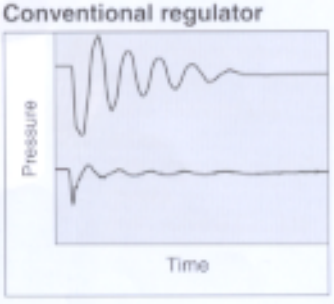
Pulsation suppressing design

Step response comparison

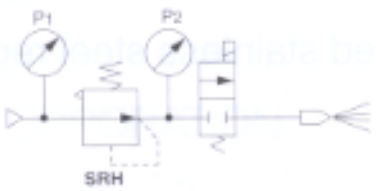
SRH



Conventional regulator



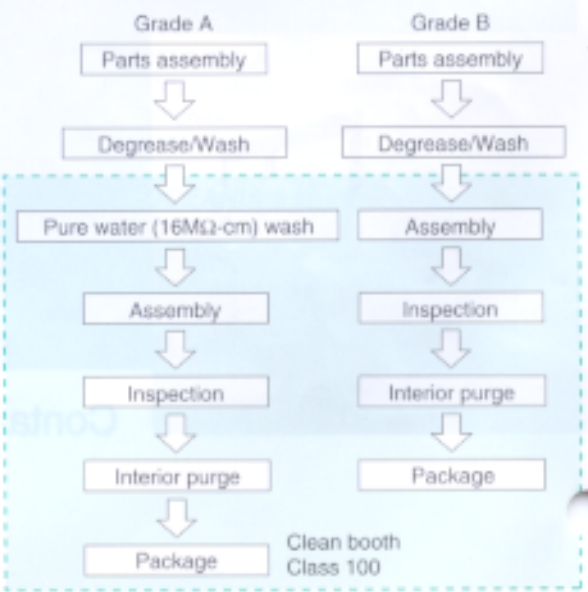
Circuit diagram



Consistent clean room production

Washed, assembled and inspected in a Class 10 environment, and sealed in double bags

Manufacturing process



Clean Regulator

Series SRH

How to Order

SRH 3 0 0 0 — 02 — R

Body size

3	1/4
4	3/8

Washing grade

0	Grade A
1	Grade B

Set pressure

0	0.01 to 0.2MPa {0.1 to 2.0kgf/cm²}
1	0.05 to 0.7MPa {0.5 to 7.1kgf/cm²}

Relief mechanism

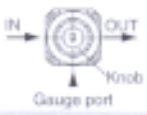
0	Non-relief
1	Relief

Port size

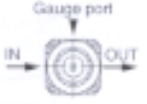
Symbol	Piping port size	SRH3000	SRH4000
01	Rc1/8	•	—
02	Rc1/4	•	•
03	Rc3/8	—	•
04	Rc1/2	—	•
A2	With metal gasket seal fitting	9/16-18UNF	—
A3	With metal gasket seal fitting	—	7/8-14UNF

Gauge port orientation

Nil: Standard



R: R Specification



*There is only one gauge port.

Note) The pressure gauge is optional. Refer to option specifications on page 6.

Specifications

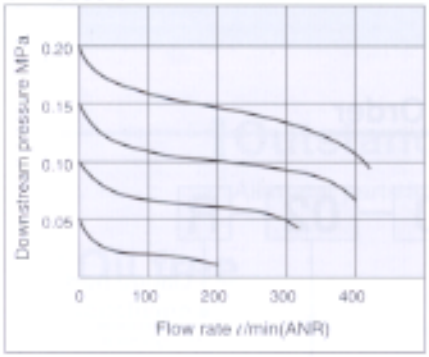
Model		SRH3□□0	SRH4□□0	SRH3□□1	SRH4□□1
Relief mechanism		Non-relief		Relief	
Port size		Rc(PT)1/8, 1/4 9/16-18UNF	Rc(PT)1/4, 3/8, 1/2 7/8-14UNF	Rc(PT)1/8, 1/4	Rc(PT)1/4, 3/8, 1/2
Fluid	Grade A	Clean air, N_2, Ar, CO_2, Pure water		Clean air, N_2	
	Grade B	Air, N_2, Ar, CO_2, Water		Air, N_2	
Proof pressure		1.5MPa {15.3kgf/cm²}			
Max. operating pressure		1MPa {10.2kgf/cm²}			
Set pressure	Low pressure type	0.01 to 0.2MPa {0.1 to 2kgf/cm²}			
	High pressure type	0.05 to 0.7MPa {0.5 to 7.1kgf/cm²}			
Ambient & fluid temperatures		0 to 60°C (With no condensation)			
Fluid-contact material (metal)		Stainless steel SUS316 (Body is SUS316L)			
Diaphragm material	Grade A	PTFE			
	Grade B	Fluororubber			
Weight		360g	730g	360g	730g

Flow Rate Characteristics

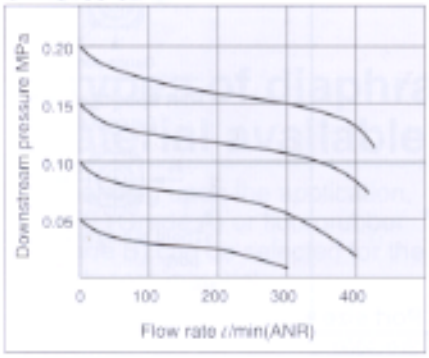
Fluid: Air

Conditions/Supply pressure: 0.5MPa {5.1kgf/cm²}

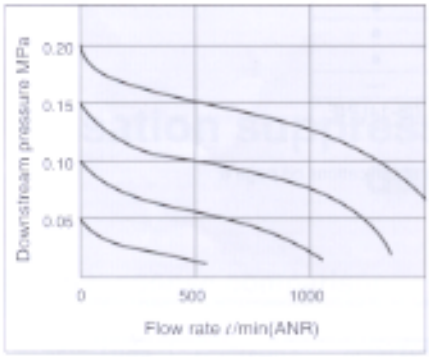
SRH3000-02



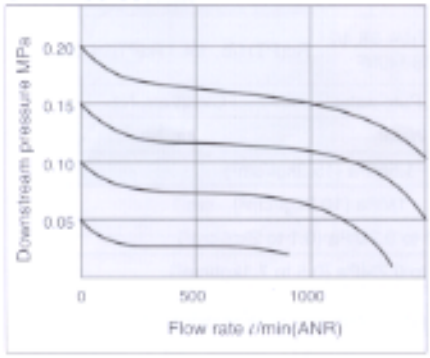
SRH3100-02



SRH4000-03

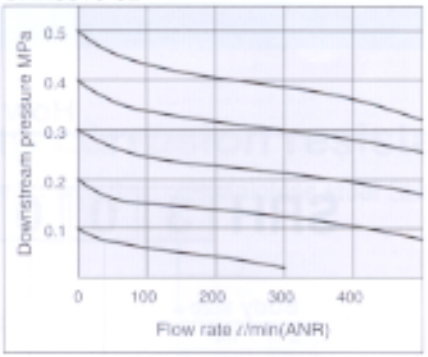


SRH4100-03

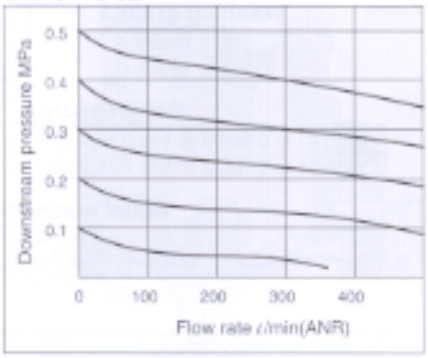


Conditions/Supply pressure: 0.7MPa {7.1kgf/cm²}

SRH3010-02



SRH3110-02



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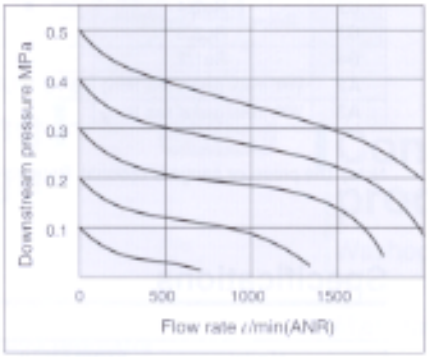

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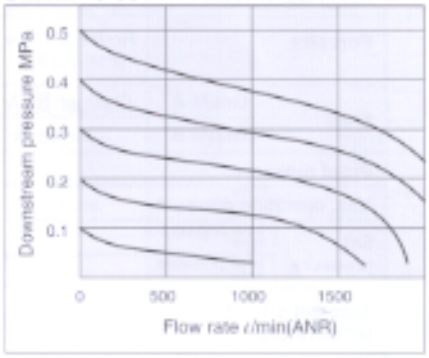
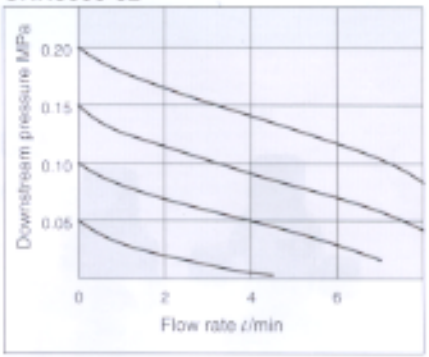


Fluid: Water

Conditions/Supply pressure: 0.5MPa {5.1kgf/cm²}

SRH3000-02



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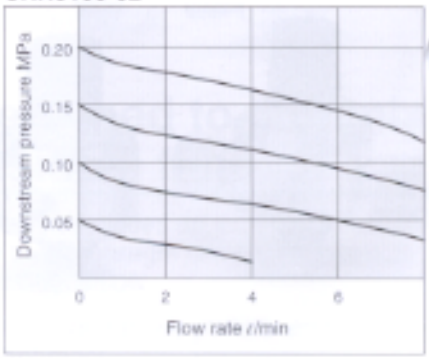

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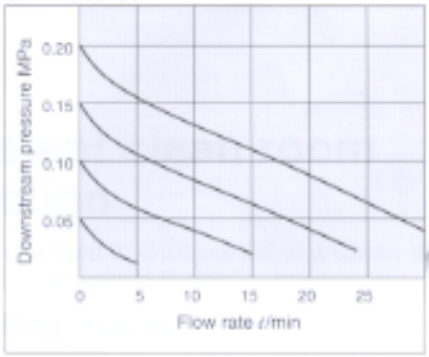

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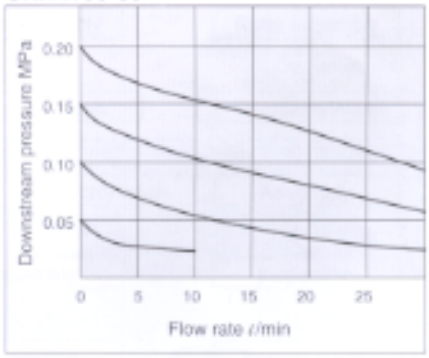
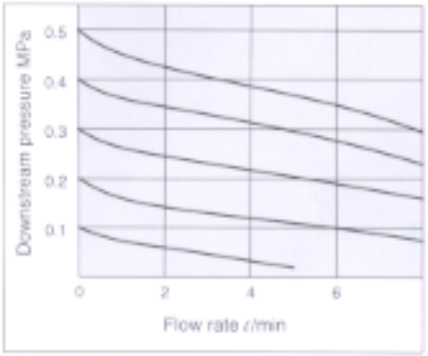


Pressure Characteristics

Fluid: Water/Air

Conditions/Supply pressure: 0.7MPa {7.1kgf/cm²}

SRH3010-02



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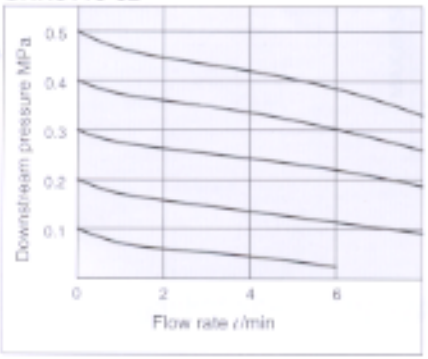

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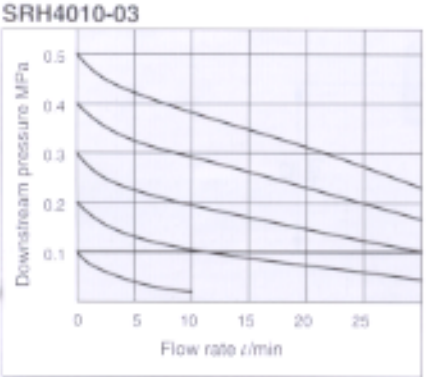

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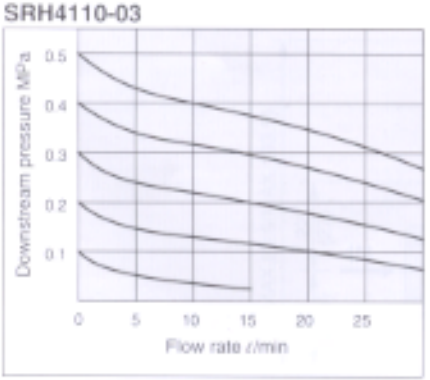
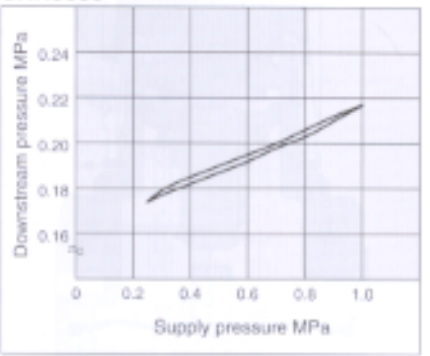
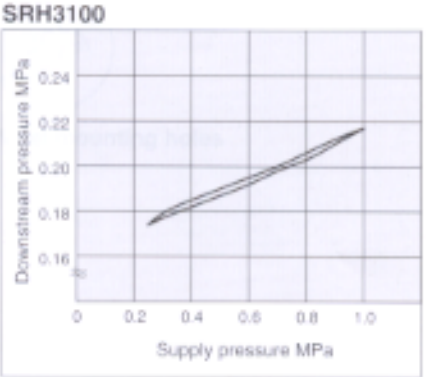


Conditions/Supply pressure: 0.7MPa {7.1kgf/cm²}, Downstream pressure: 0.2MPa {2.0kgf/cm²}, Flow rate 2 ℓ/min

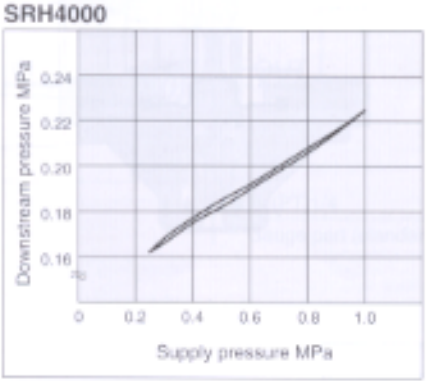
SRH3000



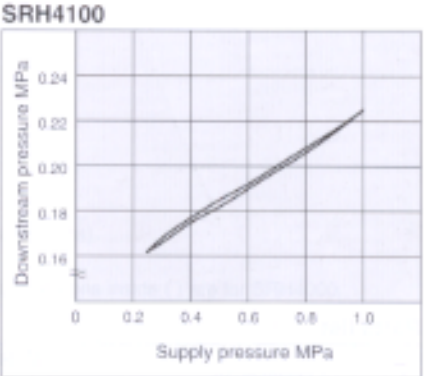
SRH3100



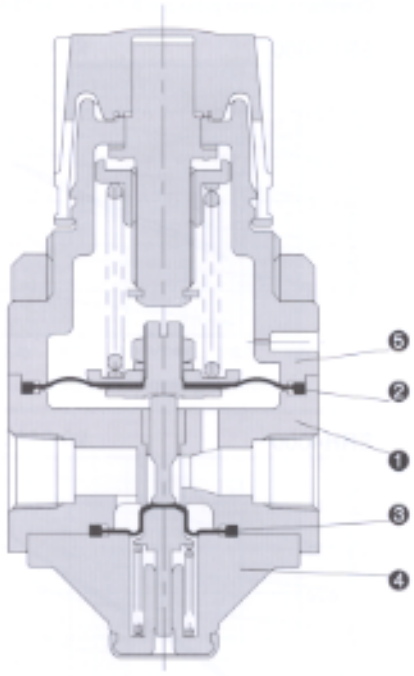
SRH4000



SRH4100



Construction

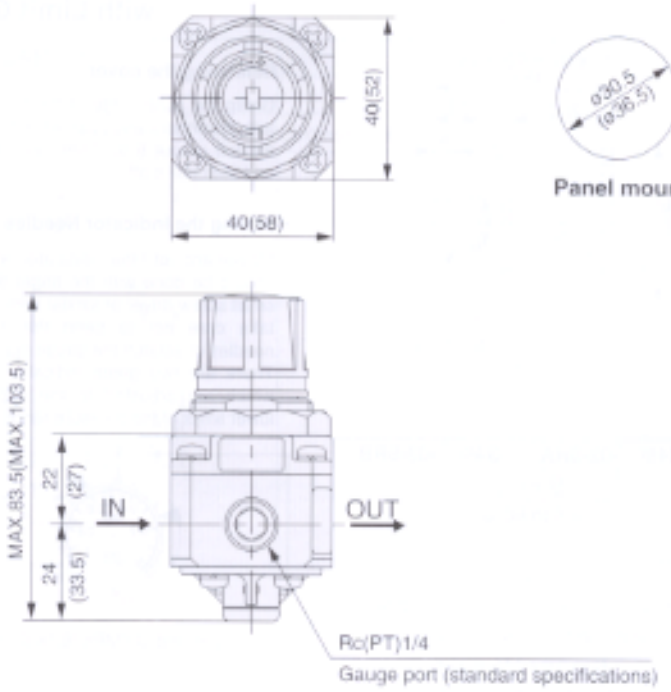


Parts list

No.	Description	Material	
		Grade A	Grade B
❶	Body	Stainless steel SUS316L	
❷	Diaphragm	PTFE	Fluororubber
❸	Diaphragm	PTFE	Fluororubber
❹	Valve guide	PPS	
❺	Bonnet	PPS	

Dimensions

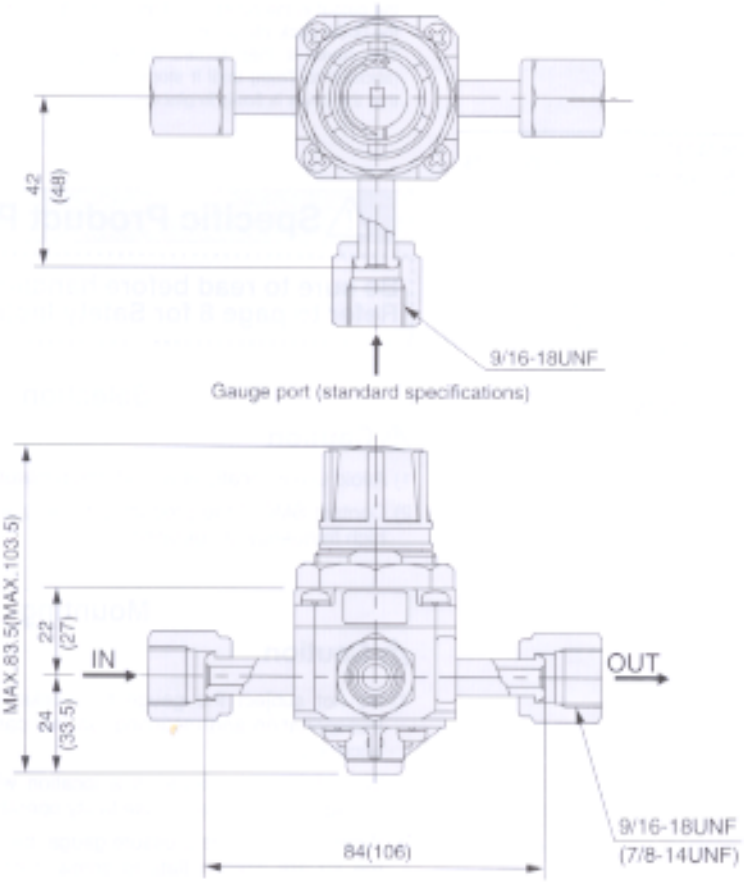
Rc(PT) thread type



Panel mounting holes

Dimensions inside ( ) are for SRH4000.

Metal gasket seal fitting type

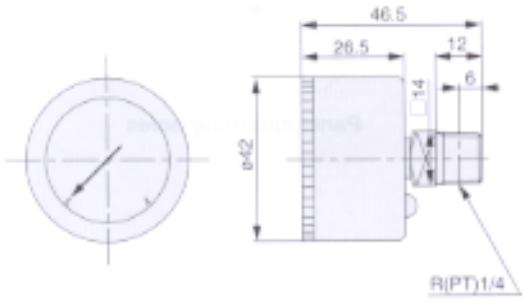


Dimensions inside ( ) are for SRH4000.

Options

Pressure Gauge

Dimensions



Specifications

Item \ Model		G46-□-02-SRA	G46-□-02-SRB
Port size		R(PT)1/4	
Operating temperature range		5 to 60°C	
Accuracy		±3%F.S.	
Scale range		270°	
Parts washing (fluid-contact parts)		Precision wash	General degrease
Assembly & adjustment environment		Clean room	General production line
Oil free / Water free		Non-lube / Non-wet	
Materials	Fluid-contact parts	Stainless steel SUS316	
	Case	Stainless steel SUS304 (Black melamine coating)	
	Clear cover	Polycarbonate	
	Internal parts	Brass	
Weight		80g	

Models

Model	Pressure range MPa	Pressure range kgf/cm²	Indicator units
G46-2-02-SRA	0 to 0.2	0 to 2	MPa kgf/cm² Combined
G46-2-02-SRB			
G46-4-02-SRA	0 to 0.4	0 to 4	
G46-4-02-SRB			
G46-7-02-SRA	0 to 0.7	0 to 7	
G46-7-02-SRB			
G46-10-02-SRA	0 to 1.0	0 to 10	
G46-10-02-SRB			

Handling Instructions for Pressure Gauge with Limit Gauge Indicators

• Removing the cover

Grasp the outer edge of the front cover with the fingers and push while turning to the left (about 6 to 7mm) until it stops, and then pull it off.

• Setting the Indicator Needles

Movement of the indicator needles should be done with the finger tips. If a small screw driver or similar item is used, take care not to bend the indicator needles or scratch the gauge dial.
There are two green indicator needles which are adjusted to the upper and lower limits of the pressure range.

Upper limit: 0.6MPa (6.1kgf/cm²)

• Installing the cover

After setting the indicator needles, the cover is replaced to its original position. This is accomplished by aligning the notch at the top of the black case with the cutout in the cover, and then pushing the cover back into position.
The cover is then turned to the right (about 6 to 7mm) until it stops. Confirm that the cover is firmly in place.

⚠ Specific Product Precautions

Be sure to read before handling.
Refer to page 8 for Safety Instructions.

Selection

⚠ Caution

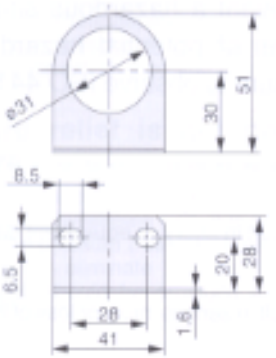
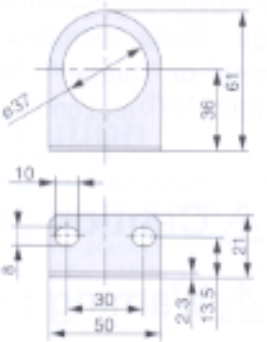
1) Avoid use in locations with strong pressure pulsation or vibration.
2) Contact SMC if the product is to be used in an application with a high frequency of operation.

Mounting

⚠ Caution

1) Do not subject the gauge to shocks, such as dropping during transportation and mounting, as this can cause loss of indication accuracy.
2) Do not use this gauge in a location with high temperature and humidity, as this may cause faulty operation.
3) When mounting the pressure gauge, be certain to use a wrench on the square wrench flats to screw it into place. If the wrench is applied on any other part, air leakage or other damage may occur.

Brackets

	For SRH3000	For SRH4000
Model	B21-1-T1	1350112-T1
Material	Rolled sheet steel (Electroless nickel plated)	
Dimensions		

Series SRH
Safety Instructions

These safety instructions are intended to prevent a hazardous situation and/or equipment damage. These instructions indicate the level of potential hazard by label of **"Caution", "Warning" or "Danger"**. To ensure safety, be sure to observe ISO 4414 Note 1), JIS B 8370 Note 2) and other safety practices.

⚠ Caution : Operator error could result in injury or equipment damage.

⚠ Warning : Operator error could result in serious injury or loss of life.

⚠ Danger : In extreme conditions, there is a possible result of serious injury or loss of life.

Note 1) ISO 4414 : Pneumatic fluid power – Recommendations for the application of equipment to transmission and control systems.

Note 2) JIS B 8370 : Pneumatic system axiom.

⚠ Warning

1 The compatibility of pneumatic equipment is the responsibility of the person who designs the pneumatic system or decides its specifications.

Since the products specified here are used in various operating conditions, their compatibility for the specific pneumatic system must be based on specifications or after analysis and/or tests to meet your specific requirements.

2 Only trained personnel should operate pneumatically operated machinery and equipment.

Compressed air can be dangerous if an operator is unfamiliar with it. Assembly, handling or repair of pneumatic systems should be performed by trained and experienced operators.

3 Do not service machinery/equipment or attempt to remove component until safety is confirmed.

1. Inspection and maintenance of machinery/equipment should only be performed after confirmation of safe locked-out control positions.
2. When equipment is to be removed, confirm the safety process as mentioned above. Cut the supply pressure for this equipment and exhaust all residual compressed air in the system.
3. Before machinery/equipment is re-started, take measures to prevent shooting/out of cylinder piston rod etc. (Bleed air into the system gradually to create back-pressure.)

4 Contact SMC if the product is to be used in any of the following conditions:

1. Conditions and environments beyond the given specifications, or if product is used outdoors.
2. Installation on equipment in conjuction with atomic energy, railway, air navigation, vehicles, medical equipment, food and beverage, recreation equipment, emergency stop circuits, press applications, or safety equipment.
3. An application which has the possibility of having negative effects on people, property, or animals, requiring special safety analysis.

Series SRH
Specific Product Precautions

Be sure to read before handling.
Refer to page 8 for Safety Instructions.

Design and Selection

⚠Warning

1.Confirm the fluid.

Because the fluid to be used differs depending on the product, be certain to confirm the specifications. If an incompatible fluid is used, special characteristics will change and this may cause improper operation.

2.Residual pressure relief is not possible without supply pressure.

In the SRH series, if the supply pressure is cut off while pressure still remains on the downstream side, it is not possible to eliminate the downstream pressure (residual pressure relief). If it will be necessary to eliminate pressure from the downstream side, a circuit should be provided for residual pressure relief.

Mounting

⚠Caution

1.Open the sealed package inside a clean room.

These products are packaged in sealed double packaging in a clean room. It is recommended that the inside packaging be opened in a clean room or other clean environment.

2.Ensure sufficient space for maintenance.

Ensure the necessary space for maintenance inspections. Maintenance inspections can be easily performed if a clearance of 60mm or more is provided on the valve guide side.

3.Flush out the piping.

Connect these products to piping only after it has been flushed and cleaned properly. If debris or scale etc. remains in the piping, this can cause faulty operation or failure.

4.Be certain that sealing material does not get inside the piping.

When screwing in pipes and joints etc., take care that cutting dust from the pipe threads, sealing material, and the like do not get inside the piping. If debris or scale etc. remain inside the piping, this may cause faulty operation or failure. Also, when thread tape is used, leave 1.5 or 2 threads exposed at the end of the pipe.

5.Confirm the mounted orientation of the product.

The side marked IN is the fluid supply port, and the side marked OUT is the fluid exhaust port. If mounted backwards, the device will not operate properly.

Pressure Adjustment

⚠Warning

1.Do not use tools when operating the pressure regulator knob.

If tools etc. are used to operate the pressure regulator knob, damage may occur. Operate this knob only by hand.

⚠Caution

1.Perform pressure adjustments only after releasing the lock.

When the pressure regulator knob will not turn, it is locked. Release the lock by pulling the pressure regulator knob out. If the knob is turned by force damage will occur.

Lock again after adjusting the pressure by pressing the knob back down.

2.Adjust pressure in an upward direction.

A correct pressure setting cannot be achieved by adjusting the pressure downward. The downstream pressure is increased by turning the pressure regulator knob to the right, and decreased by turning the knob to the left.

3.In the case of the non-relief type, the pressure cannot be reduced by turning the pressure regulator knob to the left.

In the case of the non-relief type regulator, the downstream pressure will not decrease even if the knob is turned to the left, when there is no downstream fluid consumption. The knob will be damaged if it is turned by force.

In case the pressure setting is too high, reduce the pressure on the downstream side to less than the desired setting pressure by consuming fluid on the downstream side, and then reset to the desired pressure.

4.Confirm the supply pressure.

Set the downstream pressure to no more than 85% of the supply pressure. If the supply pressure is too low, a correct setting pressure cannot be attained.

5.Do not use fluid containing solid matter.

This will cause faulty operation.

SMC

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