

6.0 MPa Direct Operated Regulator (Relieving Type)

Series *VCHR*

Service life: 10 million cycles

Uses **NSF-H1-certified grease** on the guide ring (sliding) part.

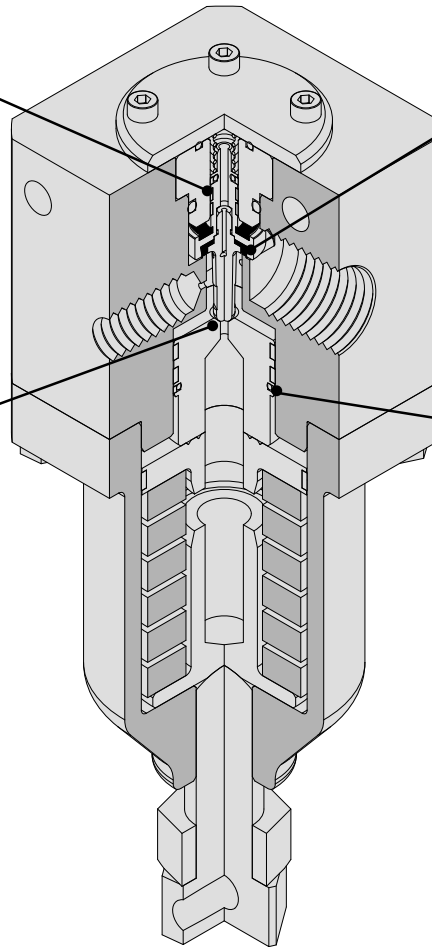
Improved durability under a high pressure environment is due to the **polyurethane elastomer** poppet.

Adopting a **metal-sealed relief valve** improves the durability.

A **special fluoro-resin seal** is adopted for the sliding part.



Stable responsiveness after extended inactivity.
Less likely to subject to a pressure changes.



How to Order

VCHR 30-06 G

Body size ●

30
40

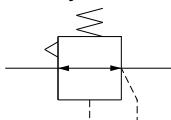
● Thread type

(G thread for hydraulics and pneumatics conforming to ISO1179-1)

● Port size

Symbol	Port size	VCHR30	VCHR40
06	3/4	●	
10	1	●	●
14	1-1/2		●

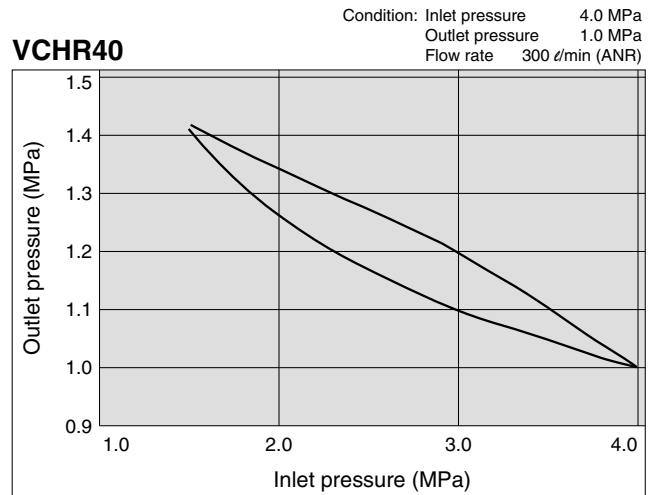
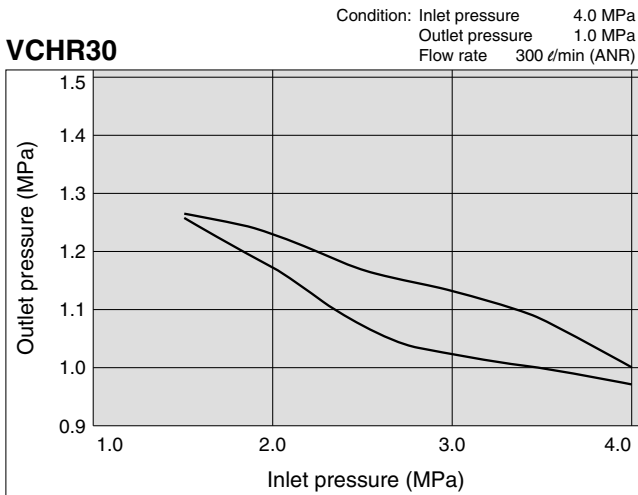
Symbol



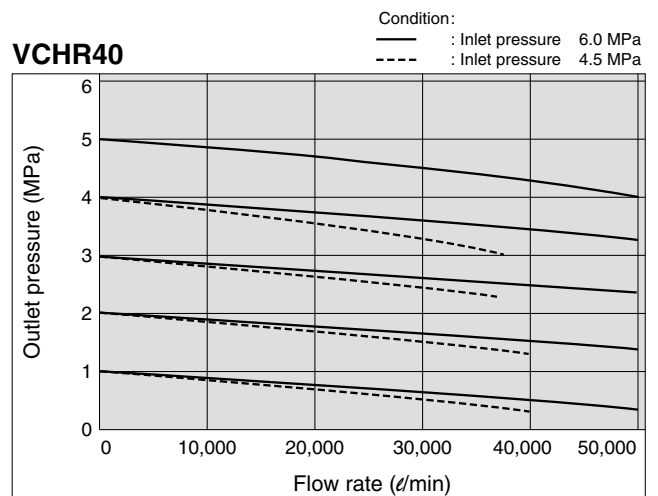
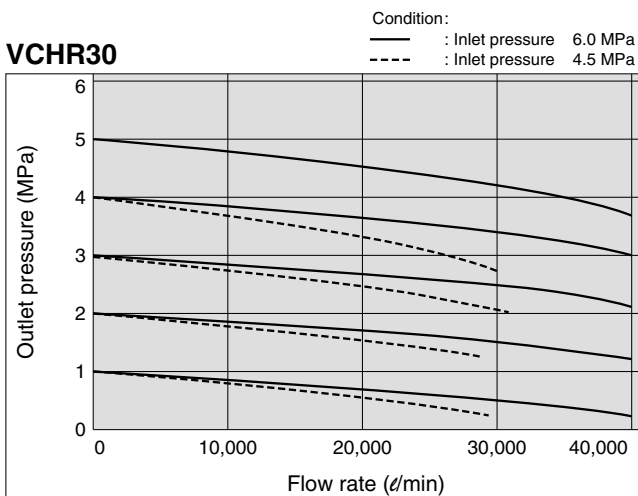
Specifications

Model	VCHR30	VCHR40
Valve construction	Piston type	
Valve material	Polyurethane elastomer	
Relief mechanism	Relieving type	
Port size	G3/4, G1	G1, G1•1/2
Thread type	G thread for hydraulics and pneumatics conforming to ISO1179-1	
Fluid	Air	
Max. operating pressure	6.0 MPa	
Set pressure range	0.5 to 5.0 MPa	
Fluid temperature	-5 to 60°C	
Ambient temperature	-5 to 60°C	
Weight	4.4 kg	6.2 kg

Pressure Characteristics

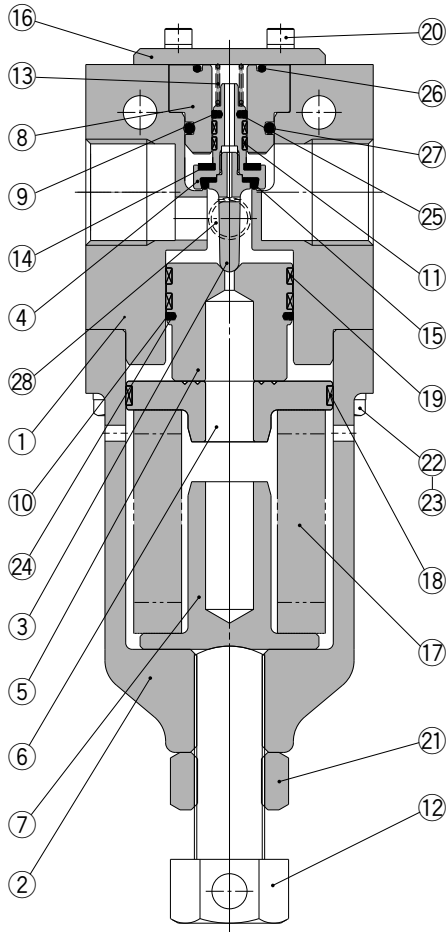


Flow Characteristics



Series VCHR

Construction

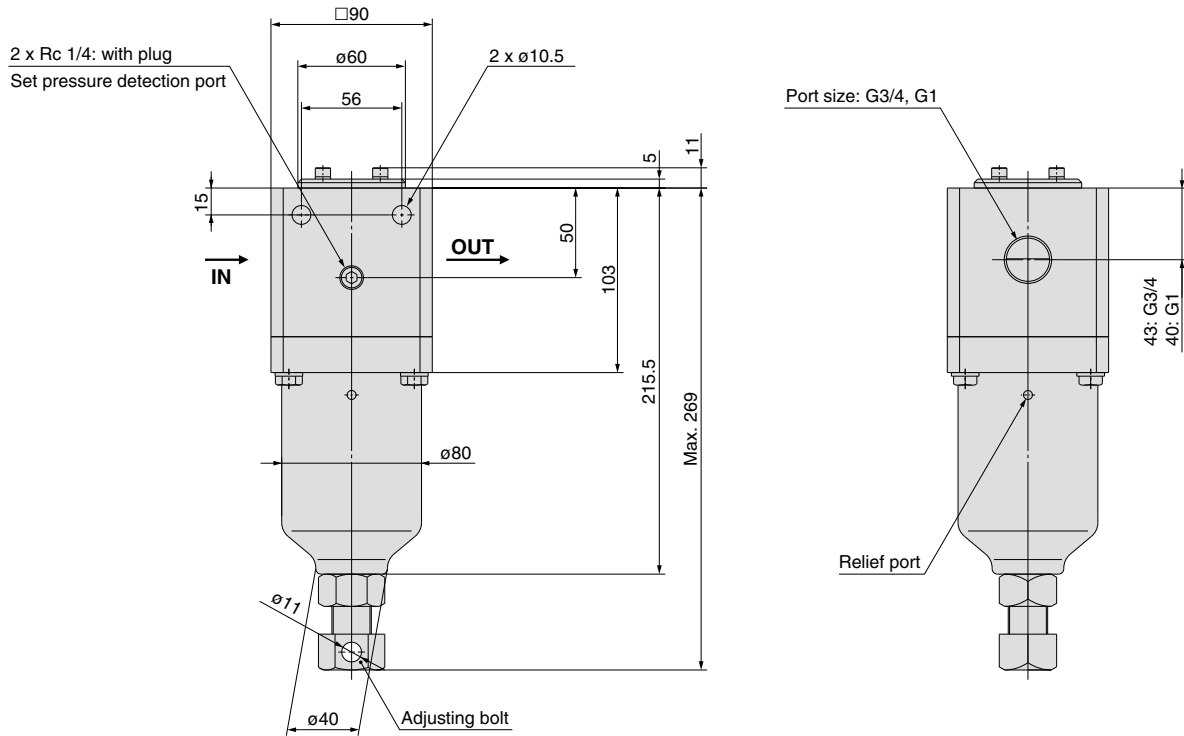


Component Parts

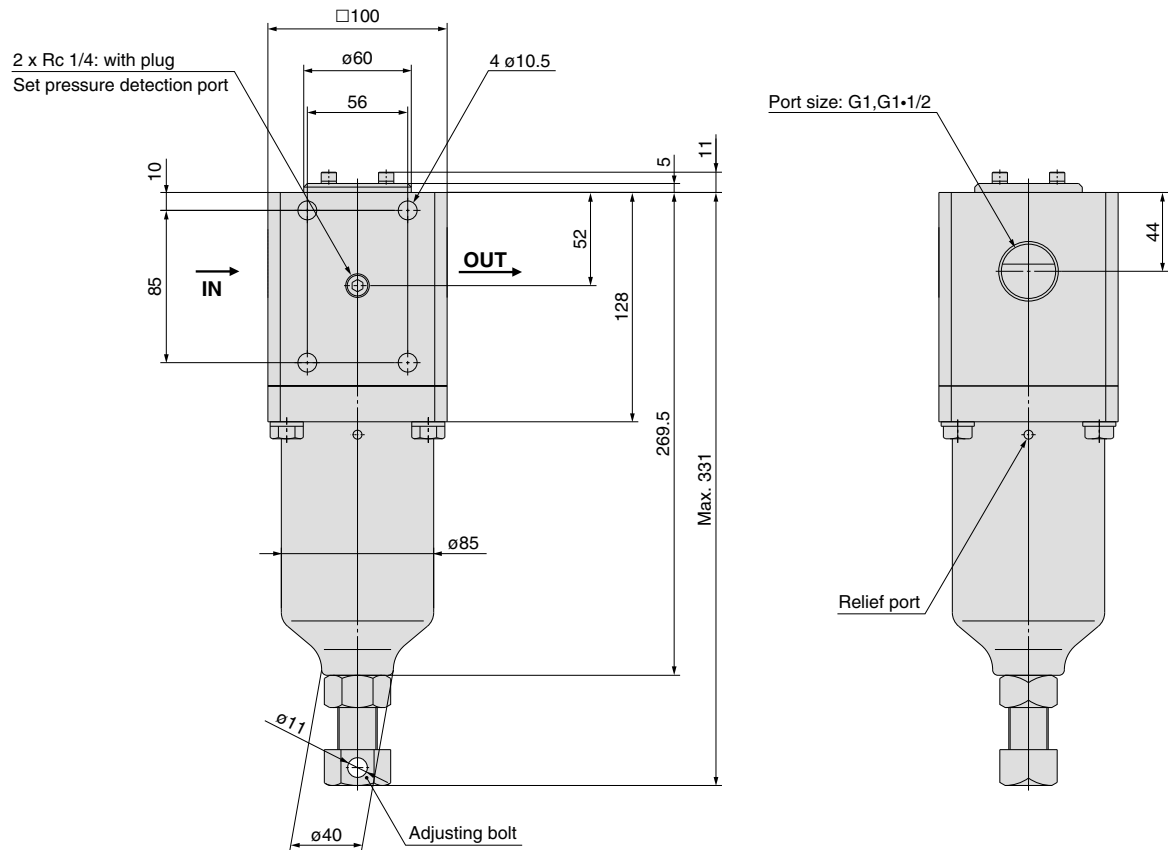
No.	Description	Material
1	Body	Aluminum + Hard anodized
2	Bonnet	Aluminum + Hard anodized
3	Valve	Stainless steel
4	Valve spool	Stainless steel
5	Piston	Steel + Electroless nickel plated
6	Spring guide	Steel + Electroless nickel plated
7	Spring seat	Steel + Electroless nickel plated
8	Spool guide	Aluminum + Hard anodized
9	Seal A	Resin
10	Seal B	Resin
11	Guide ring	Resin
12	Adjusting bolt	Stainless steel
13	Return spring	Stainless steel
14	Cushion	Polyurethane elastomer
15	Poppet	Polyurethane elastomer
16	Plate	Steel + Electroless nickel plated
17	Spring	Stainless steel
18	Guide ring	Resin
19	Guide ring	Resin
20	Hexagon socket head cap screw	Carbon steel
21	Hexagon nut	Carbon steel
22	Hexagon bolt	Carbon steel
23	Spring washer	Carbon steel
24	O-ring	NBR
25	O-ring	NBR
26	O-ring	NBR
27	O-ring	NBR
28	Hexagon socket head plug	Carbon steel

Dimensions

VCHR30



VCHR40





Regulator Precautions

Be sure to read this before handling.

Caution on Design

⚠ Warning

1. Consult with SMC when leakage is never permitted because of the operating environment, or if fluids other than air will be used.
2. Be sure to install a safety device as output pressure exceeding the set pressure value could cause equipment damage or malfunctions on the outlet side.

⚠ Caution

1. Using the product outside the specified range is not allowed. Consult with SMC when using the product outside the specified range of operating pressure, temperature, pressure, etc.

Selection

⚠ Warning

1. Grease may leak into the outlet side because it has been applied to the inner sliding parts and seals. Contact SMC when such cases should be avoided.
2. Contact SMC as the set pressure of the outlet side may fluctuate when air has not been consumed for a long period of time, or when the product is used in a shut-off or balancing circuit on the outlet side.
3. The set outlet side pressure range should be less than 85% of the inlet side pressure. Setting a pressure exceeding 85% may be subject to fluctuation of flow or pressure in the inlet side, resulting in unstable operation.
4. The maximum value in catalogue set pressure range has a tolerance. Therefore, the pressure setting may exceed this value.
5. Confirm with SMC when the product will be used in circuits, requiring highly precise relief sensitivity or setting precision.

Mounting

⚠ Caution

1. Confirm the “IN” and “OUT” showing the inlet/outlet of the air flow or arrow mark before connection. Reverse connections will result in malfunction.
2. Provide adequate space for maintenance or operation in the upper, lower and front of each product. Regarding this space, refer to the dimensions of each product.

Adjustment

⚠ Warning

1. Adjust while confirming the pressure gauge value in the inlet and outlet sides. Overrotating the handle will damage the inner components.

⚠ Caution

1. Adjust after carefully confirming the inlet pressure.
2. Setting the pressure with the handle should be conducted in the upper direction. Setting the pressure in the lower direction may result in the pressure to drop below the original set pressure. Turning the handle clockwise will increase the outlet side pressure. Meanwhile, turning counterclockwise will decrease the pressure.

Piping

⚠ Warning

1. When tightening a screw on the piping material, use the recommended torque, holding the female side.
Insufficient torque will cause looseness or inferior sealing. However, overtightening will cause damage to the thread. Also, tightening without holding the female side will put excessive direct stress on brackets, etc., resulting in damage, etc.
2. Use caution so twisting or bending other than the self-weight moment will not be applied to the product. Otherwise, it will result in damage. Support the external piping separately.
3. Inflexible piping such as steel piping is subject to excessive moment loads or transmission of vibrations from the piping side. Use flexible tubing, etc. between them to avoid it.



Series VCHR Specific Product Precautions

Be sure to read this before handling.

Adjustment

⚠ Caution

1. When adjusting the outlet side pressure, moment is applied to the adjusting bolt. Support it separately so that any moment is not applied to the external pipings.

Reference for Handle Moment

Unit: N·m

Set pressure	1 MPa	2 MPa	3 MPa	4 MPa	5 MPa
Torque	3	6	9	12	15

2. When adjusting the outlet side pressure, the adjusting bolt (32 mm width across flats) can be rotated with a wrench. A screwdriver of approximately 20 to 30 mm can also be used for easy adjustments, using the (ø11) hole on the width across flats.

Piping

⚠ Warning

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Insufficient torque will cause looseness or inferior sealing. However, overtightening will cause damage to the thread. Also, tightening without holding the female side will put excessive direct stress on brackets, etc., resulting in damage, etc.

Recommended Tightening Torque

Unit: N·m

Connecting thread	3/4	1	1-1/2
Torque	28 to 30	36 to 38	48 to 50

Disassembly

⚠ Caution

1. This product cannot be disassembled since it is made of precision components with specific tolerances.