Relief Reducing Valve (Balancing Valve)

Features

- These balancing valves integrate a reducing valve, relief valve, and check valve into one unit.
- The limited pressure change in response to the change in the load flow rate improves the control accuracy.
- The pressure can be regulated with just one handle.
- The external drain configuration eliminates the influence of the back pressure in the return line.

Nomenclature

<table>
<thead>
<tr>
<th>SGR - G</th>
<th>X</th>
<th>X</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>SGR - G</td>
<td>02</td>
<td>2</td>
<td>10</td>
</tr>
</tbody>
</table>

1) **Model No.**
   - SGR: S series relief reducing valve

2) **Connections**
   - G: Gasket mount type

3) **Nominal diameter**
   - 02: ¼
   - 03: ⅜
   - 06: ¾

4) **Pressure adjustment range**
   - 1: 0.7 to 7 MPa {7 to 70 kgf/cm²}
   - 2: 1.2 to 16 MPa {12 to 160 kgf/cm²}

5) **Design No.**
   (The design No. is subject to change)

6) **Management code**

Specifications

<table>
<thead>
<tr>
<th>Model code</th>
<th>Nominal diameter</th>
<th>Maximum operating pressure MPa (kgf/cm²)</th>
<th>Pressure adjustment range MPa (kgf/cm²)</th>
<th>Maximum flow rate L/min</th>
<th>Drainage rate L/min</th>
<th>Mass kg</th>
<th>Pressure change MPa (kgf/cm²) per handle revolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>SGR-G02-1-10</td>
<td>⅛</td>
<td>10.5 (105)</td>
<td>0.7 to 7 {7 to 70}</td>
<td>20</td>
<td>0.6 to 0.7</td>
<td>2.2</td>
<td>2 (20)/revolution</td>
</tr>
<tr>
<td>SGR-G02-2-10-46</td>
<td>⅛</td>
<td>17.5 (175)</td>
<td>1.2 to 16 {12 to 160}</td>
<td>40</td>
<td>0.9 to 1.3</td>
<td>3.3</td>
<td>2.3 (23)/revolution</td>
</tr>
<tr>
<td>SGR-G03-1-10</td>
<td>⅛</td>
<td>10.5 (105)</td>
<td>0.7 to 7 {7 to 70}</td>
<td>100</td>
<td>1.1 to 1.6</td>
<td>6.5</td>
<td>2.9 (29)/revolution</td>
</tr>
<tr>
<td>SGR-G06-1-10</td>
<td>⅛</td>
<td>17.5 (175)</td>
<td>1.2 to 16 {12 to 160}</td>
<td>6.5</td>
<td>1.1 to 1.6</td>
<td>5.2 (52)/revolution</td>
<td></td>
</tr>
</tbody>
</table>

Sub-plate model code

- The sub-plate is not provided with the valve. Order it separately as required by specifying the model code given in the table below.

<table>
<thead>
<tr>
<th>Model code</th>
<th>Nominal diameter</th>
<th>Connection port diameter</th>
<th>Mass: kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>JS-01M02</td>
<td>⅛</td>
<td>Rc¼</td>
<td>0.6</td>
</tr>
<tr>
<td>BT-0X02</td>
<td>⅛</td>
<td>Rc¼</td>
<td>-</td>
</tr>
<tr>
<td>SGR-03M</td>
<td>⅛</td>
<td>Rc¼</td>
<td>1.6</td>
</tr>
<tr>
<td>SGR-06M</td>
<td>⅛</td>
<td>Rc¼</td>
<td>6</td>
</tr>
</tbody>
</table>

Refer to Page S-6 and S-8 for the dimensions of the sub-plate.
Before using the product, please check the guide pages at the front of this catalog.

Internet
http://www.daikinpmc.com/en/
For latest information, PDF catalogs and operation manuals

Handling

- Directly connect the drain piping to the tank without merging it with other tank piping.
- To ensure good pressure reducing performance, set the primary side main circuit pressure and the secondary pressure reducing circuit pressure such that there is a minimum difference of 0.5 MPa (5 kgf/cm²) for the nominal diameter codes 02 and 03, or 1 MPa (10 kgf/cm²) for the nominal diameter code 06.
- When using the valve in combination with a direct operated relief valve for remote control, connect the remote control valve to the vent port.
  Since excessive internal volume of the vent piping may lead to vibration, use steel pipes with an inner diameter of 4 mm maximum and thick walls for piping.
- The products are supplied as the external drain type as standard but it is possible to use products with the nominal diameter code 03 or 06 as the internal drain type if the back pressure at the tank port is no greater than 0.5 MPa (5 kgf/cm²). Change the drain type setting as necessary by referring to the setting guide provided with the product.

Performance curves (viscosity: 32 mm²/s {cSt})

- Flow rate - Pressure characteristics

<table>
<thead>
<tr>
<th>SGR-02</th>
<th>SGR-03</th>
<th>SGR-G06-1</th>
<th>SGR-G06-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary pressure&lt;br&gt;10.5 MPa (105 kgf/cm²)</td>
<td>Primary pressure&lt;br&gt;10.5 MPa (105 kgf/cm²)</td>
<td>Primary pressure&lt;br&gt;17.5 MPa (175 kgf/cm²)</td>
<td>Primary pressure&lt;br&gt;17.5 MPa (175 kgf/cm²)</td>
</tr>
</tbody>
</table>

- Pressure drop characteristics

<table>
<thead>
<tr>
<th>SGR-G02</th>
<th>SGR-G03</th>
<th>SGR-G06</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure drop (MPa) {×10 kgf/cm²}</td>
<td>Pressure drop (MPa) {×10 kgf/cm²}</td>
<td>Pressure drop (MPa) {×10 kgf/cm²}</td>
</tr>
</tbody>
</table>
External dimension diagram

SGR-G02-1
Pressure gauge connecting port Rc ¼
(Secondary side, plugged at shipment)

Secondary side port (OUT)
Primary side port (IN)
Drain port (Dr)

Tank port (R)

Pressure gauge connection port Rc ¼
(Secondary side, plugged at shipment)

Drain port: Rc ¼ (Plugged at factory)
Pressure adjusting screw
(clockwise: pressure increase)
(Socket for hex key: 5)
Hexagonal flat lock nut: 14

External drain port (Dr)

SGR-G03-1

Pressure gauge connecting port Rc ¼
(Secondary side, plugged at shipment)

Secondary side port (OUT)
Primary side port (IN)

Tank port (R)

Pressure adjusting handle
(clockwise: pressure increase)

(Socket for hex key: 5)
Hexagonal flat lock nut: 14

SGR-G06-X

Pressure gauge connecting port Rc ¼
(Secondary side, plugged at shipment)

Secondary side port (OUT)
Tank port (R)
Primary side port (IN)

Pressure adjusting handle
(clockwise: pressure increase)
Hexagonal flat lock nut: 13

Vent port Rc ¼ (plugged at factory)
Remove the plug when connecting the vent piping.

External dimension diagram
SGR-G02-1
Maximum 146.5

Drain port: Rc ¼ (Plugged at factory)
Pressure adjusting screw
(clockwise: pressure increase)
(Socket for hex key: 5)
Hexagonal flat lock nut: 14

Secondary side port (OUT)
Primary side port (IN)
Drain port (Dr)

Tank port (R)

Pressure gauge connection port Rc ¼
(Secondary side, plugged at shipment)

External drain port (Dr)

SGR-G03-1

Pressure gauge connecting port Rc ¼
(Secondary side, plugged at shipment)

Secondary side port (OUT)
Primary side port (IN)

Tank port (R)

Pressure adjusting handle
(clockwise: pressure increase)

(Socket for hex key: 5)
Hexagonal flat lock nut: 14

SGR-G06-X

Pressure gauge connecting port Rc ¼
(Secondary side, plugged at shipment)

Secondary side port (OUT)
Tank port (R)
Primary side port (IN)

Pressure adjusting handle
(clockwise: pressure increase)
Hexagonal flat lock nut: 13

Vent port Rc ¼ (plugged at factory)
Remove the plug when connecting the vent piping.
Before using the product, please check the guide pages at the front of this catalog.

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Sectional structural diagram

SGR-G02-X

Sealing part table

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Name</th>
<th>Quantity</th>
<th>Part specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>O-ring</td>
<td>2</td>
<td>JIS B 2401 1A P14</td>
</tr>
<tr>
<td>20</td>
<td>O-ring</td>
<td>2</td>
<td>JIS B 2401 1A P16</td>
</tr>
<tr>
<td>21</td>
<td>O-ring</td>
<td>1</td>
<td>JIS B 2401 1A P20</td>
</tr>
<tr>
<td>22</td>
<td>O-ring</td>
<td>1</td>
<td>JIS B 2401 1A P10</td>
</tr>
<tr>
<td>23</td>
<td>O-ring</td>
<td>4</td>
<td>JIS B 2401 1B P9</td>
</tr>
</tbody>
</table>

SGR-G03-1

Sealing part table

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Name</th>
<th>Quantity</th>
<th>Part specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>O-ring</td>
<td>3</td>
<td>JIS B 2401 1B P16</td>
</tr>
<tr>
<td>25</td>
<td>O-ring</td>
<td>1</td>
<td>JIS B 2401 1A P18</td>
</tr>
<tr>
<td>26</td>
<td>O-ring</td>
<td>1</td>
<td>JIS B 2401 1A P7</td>
</tr>
<tr>
<td>27</td>
<td>O-ring</td>
<td>1</td>
<td>JIS B 2401 1A P22</td>
</tr>
<tr>
<td>28</td>
<td>O-ring</td>
<td>1</td>
<td>JIS B 2401 1A P20</td>
</tr>
<tr>
<td>29</td>
<td>O-ring</td>
<td>1</td>
<td>JIS B 2401 1A G30</td>
</tr>
<tr>
<td>30</td>
<td>O-ring</td>
<td>1</td>
<td>JIS B 2401 1A P5</td>
</tr>
<tr>
<td>31</td>
<td>O-ring</td>
<td>1</td>
<td>JIS B 2401 1A P11</td>
</tr>
</tbody>
</table>

SGR-G06-X

Sealing part table

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Name</th>
<th>Quantity</th>
<th>Part specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>29</td>
<td>O-ring</td>
<td>3</td>
<td>JIS B 2401 1B G25</td>
</tr>
<tr>
<td>30</td>
<td>O-ring</td>
<td>1</td>
<td>JIS B 2401 1B P24</td>
</tr>
<tr>
<td>31</td>
<td>O-ring</td>
<td>1</td>
<td>JIS B 2401 1B P26</td>
</tr>
<tr>
<td>32</td>
<td>O-ring</td>
<td>1</td>
<td>JIS B 2401 1B P30</td>
</tr>
<tr>
<td>33</td>
<td>O-ring</td>
<td>1</td>
<td>JIS B 2401 1B G40</td>
</tr>
<tr>
<td>34</td>
<td>O-ring</td>
<td>1</td>
<td>JIS B 2401 1B P6</td>
</tr>
<tr>
<td>35</td>
<td>O-ring</td>
<td>1</td>
<td>JIS B 2401 1B P11</td>
</tr>
<tr>
<td>36</td>
<td>O-ring</td>
<td>1</td>
<td>JIS B 2401 1B P7</td>
</tr>
</tbody>
</table>