VPR PRESSURE CONTROL VALVE

- Valve blade has very small hysteresis
- Excellent repeatability for fine pressure control
- External Air Tight to DIN 24194 Part 4
- Shut off Air Tight to DIN 1946 Part 4
- Heavy duty Blade Seal
- 12 mm Ø solid drive shaft for fast speed
- Max. speed 0..90° rotation is 1s
- Shaft bearing bushes for low rotation torque
- Body lip seals for easy site installation
- CMR fast actuators also for outdoor IP65
- DPC controller can be factory fitted
- 24 month warranty
- 30 Years field application experience

Valve Body Construction
The CMR VPR Pressure Control Valve is manufactured to the highest engineering precision with CNC machines.

The valve is nudge out as a flat sheet from galvanised senzimir sheet metal with all cut outs for the damper and the blade axle. The flat plate is then formed into a precision round body and the edges are butt laser welded with a CNC Laser, which provides a perfect seal without the need for anti corrosion paint.

The damper blade consists of two metal round plates which sandwich a silicone disc seal.

A 12mmØ axle is fitted with heavy duty clamps onto the blade and is then embedded into air tight bearing bushes on both sides of the valve to provide smooth action with very low torque.

The blade and axle are designed for very fast motor rotation i.e. 1 second from open to closed position.

With such high speeds, the axle will withstand the enormous torque which develops on the shaft when turning from open to close in small steps to provide high accuracy control without a fluctuating Hysteresis.
VPR CONTROL VALVE SPECIFICATIONS

Selection of Pressure Control Damper
It is essential to determine the air volume during the design stage. Normally there is a minimum and a maximum volume which has to be controlled.

The duct area should be calculated so that the velocity is approximately 2.5m/s at the minimum volume and preferably 5m/s at the operating point if possible. If the velocity is more than 5m/s at the maximum volume then the noise level criteria needs to be considered. The maximum velocity should not exceed 9m/s as the duct resistance shall increase and the overall energy consumption shall go up. Use selection Table on page 3.

The VPR Pressure Valve is equipped with the ‘A’ bracket making it a VPR-A. It has double damper blades with an embedded silicone seal. Other materials are available on request.

The heavy duty drive shaft which is bolted firmly to the valve blade is designed to withstand the very high momentary torque developed by the fast actuator. The shaft is guided by sealed bearing bushes on either side of the valve body.

Installation
The VPR Pressure Valve works in any position provided it is used in non condensing conditions. It is best if the blades and actuator are positioned horizontally rather than having the actuator hanging down. This way, the weight is reduced on the side seals and provides a long term efficient operation. It is also easier for the maintenance engineers to replace an actuator. When the damper is installed, care must be taken to leave sufficient space for the engineers to inspect and replace the motor. A minimum of 500mm should be kept free.

Hysteresis
The VPR Control Valves have a very low hysteresis due to the sturdy single blade construction and therefore the damper can be moved very accurately to a control position.

Maintenance
The VPR Pressure Control Valve is maintenance free.

Materials
VPR Valve Body - Galvanised Sheet Metal
Blade/Seal - Galvanised Sheet Metal/Silicone
Drive Shaft - Zinc Plated Steel
Drive Shaft Seal - ‘O’Rings
Bearing Bushes - Brass
Outer Duct Seals - Pressed in Rubber
Actuator Brackets ‘A’ - Galvanised Sheet Metal

Valve sizes see table on right.
Valve diameters are sized to fit into standard round spiral duct.
The Part No. starting with VPR-A has a DPC/Actuator bracket. Alternative Brackets on request.

Specifications
Recommended minimum air velocity is 2.5 m/s
Recommended operating air velocity is 5 m/s
Maximum recommended air velocity is 9 m/s
Humidity 10% to 90% non condensing.
Operating Temperature (dry condition) -20 to 80°C
### VPR SELECTIONS AND NOISE LEVELS

#### Part Number Selection Table 1

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>DN (mm)</th>
<th>L3 (mm)</th>
<th>Area (m2)</th>
<th>Volume at 3m/s (m3/h)</th>
<th>Volume at 5m/s (m3/h)</th>
<th>Volume at 9 m/s (m3/h)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VPR-A-100</td>
<td>Pressure Valve with DPC Bracket</td>
<td>630</td>
<td>952</td>
<td>0.31176</td>
<td>0.952</td>
<td>1.559</td>
<td>2.806</td>
</tr>
<tr>
<td>VPR-A-560</td>
<td>Pressure Valve with DPC Bracket</td>
<td>560</td>
<td>892</td>
<td>0.24633</td>
<td>0.792</td>
<td>1.232</td>
<td>2.217</td>
</tr>
<tr>
<td>VPR-A-500</td>
<td>Pressure Valve with DPC Bracket</td>
<td>500</td>
<td>852</td>
<td>0.19638</td>
<td>0.592</td>
<td>0.982</td>
<td>1.767</td>
</tr>
<tr>
<td>VPR-A-400</td>
<td>Pressure Valve with DPC Bracket</td>
<td>400</td>
<td>665</td>
<td>0.12568</td>
<td>0.396</td>
<td>0.628</td>
<td>1.131</td>
</tr>
<tr>
<td>VPR-A-315</td>
<td>Pressure Valve with DPC Bracket</td>
<td>315</td>
<td>535</td>
<td>0.07794</td>
<td>0.234</td>
<td>0.390</td>
<td>0.701</td>
</tr>
<tr>
<td>VPR-A-280</td>
<td>Pressure Valve with DPC Bracket</td>
<td>280</td>
<td>505</td>
<td>0.06158</td>
<td>0.197</td>
<td>0.308</td>
<td>0.554</td>
</tr>
<tr>
<td>VPR-A-250</td>
<td>Pressure Valve with DPC Bracket</td>
<td>250</td>
<td>435</td>
<td>0.04919</td>
<td>0.174</td>
<td>0.245</td>
<td>0.442</td>
</tr>
<tr>
<td>VPR-A-224</td>
<td>Pressure Valve with DPC Bracket</td>
<td>224</td>
<td>425</td>
<td>0.03941</td>
<td>0.124</td>
<td>0.197</td>
<td>0.377</td>
</tr>
<tr>
<td>VPR-A-200</td>
<td>Pressure Valve with DPC Bracket</td>
<td>200</td>
<td>400</td>
<td>0.03142</td>
<td>0.107</td>
<td>0.174</td>
<td>0.339</td>
</tr>
<tr>
<td>VPR-A-180</td>
<td>Pressure Valve with DPC Bracket</td>
<td>180</td>
<td>390</td>
<td>0.02545</td>
<td>0.091</td>
<td>0.152</td>
<td>0.295</td>
</tr>
<tr>
<td>VPR-A-150</td>
<td>Pressure Valve with DPC Bracket</td>
<td>150</td>
<td>370</td>
<td>0.02011</td>
<td>0.060</td>
<td>0.101</td>
<td>0.181</td>
</tr>
<tr>
<td>VPR-A-140</td>
<td>Pressure Valve with DPC Bracket</td>
<td>140</td>
<td>370</td>
<td>0.01540</td>
<td>0.046</td>
<td>0.077</td>
<td>0.139</td>
</tr>
<tr>
<td>VPR-A-125</td>
<td>Pressure Valve with DPC Bracket</td>
<td>125</td>
<td>370</td>
<td>0.01227</td>
<td>0.037</td>
<td>0.061</td>
<td>0.110</td>
</tr>
<tr>
<td>VPR-A-100</td>
<td>Pressure Valve with DPC Bracket</td>
<td>100</td>
<td>370</td>
<td>0.00786</td>
<td>0.024</td>
<td>0.039</td>
<td>0.071</td>
</tr>
</tbody>
</table>

#### Noise Levels

<table>
<thead>
<tr>
<th>Valve Velocity</th>
<th>Volume Size Ø m/s</th>
<th>Static Pressure at Venturi in Pa</th>
<th>Power level (LW)</th>
<th>Static Pressure at Venturi in Pa</th>
<th>Power level (LW)</th>
<th>Static Pressure at Venturi in Pa</th>
<th>Power level (LW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>125</td>
<td>60</td>
<td>54</td>
<td>42</td>
<td>38</td>
<td>19</td>
<td>17</td>
</tr>
<tr>
<td>5</td>
<td>100</td>
<td>60</td>
<td>54</td>
<td>42</td>
<td>38</td>
<td>19</td>
<td>17</td>
</tr>
</tbody>
</table>

Noise Levels on larger sizes are available on request.