Protect your system
Hammer your costs

Solenoid, angle seat and thermostatic valves - a fluid control product overview

17% better water hammer damping than industry standards
Three ways of efficiently controlling fluids

**Solenoid valves**

Solenoid valves are an easy way to control and regulate fluids and gasses. Our programme consists of direct-operated, servo-operated and assisted lift versions. Solenoid valves are the right choice when you have media with limited dirt content and small to high flow volume.

Our solenoid valve programme consists of two ranges:
- **The compact A range**
  - offering small physical dimensions for control of flow where space is limited.
- **The high performance B range**
  - a sturdy and universal broad programme for control of flow in industrial applications and within heating and sanitary systems.

**Angle seat valves**

Pneumatically activated angle seat valves are designed for specialised and demanding applications. These robust valves are the right choice for media with high dirt content, high viscosity, high ambient and media temperatures and large flow volumes. They are also suitable for humid environments, explosion hazard environments and for applications with low or unknown pressure conditions.

**Thermostatic valves**

Thermostatic self-acting valves are a simple and reliable way to control the temperature of water-cooled equipment. They do not require control air or electricity and they are insensitive to dirt and water pressure, making them a highly robust choice.
Benefit from outstanding features

1. **Clip-on coil**
The customer-friendly clip-on coil system ensures simple and safe assembly and disassembly without any tools. Furthermore, a hermetic seal against moisture penetration is available if required.

2. **Coil range up to IP67**
The coil range goes from IP00 to IP67, offering optimum solutions for a variety of applications.

3. **Best water hammer damping**
Controlled damping in the very late closing stage, an optimised shape of the diaphragm assembly and the equalizing orifice minimise water hammering in all Danfoss valves, down to 1.5 bar (acc. to EN 60730-2-8, 6 bar test pressure).

4. **Long lifetime and high performance**
The lifetime of the valve is significantly extended because of the specially shaped diaphragm that reduces the stress level of the rubber. This special shape also ensures optimal flow.

5. **Insensitive to dirt**
The coaxial filter, protecting the valve pilot, is self cleaning. If the equalizing orifice is blocked by dirt, it is easily cleaned.

**Broad range**
Danfoss valves are available in brass, DZR brass and stainless steel versions. The standard brass version is suitable for applications with limited risk of corrosion while the other two are ideal for more aggressive media.

**Customised solutions**
By working with Danfoss, you can get precisely the valve needed for your application. We can also modify our products to your specifications, giving you a valve optimised for your application. And where the specifications don’t yet exist, we will help you define them – building quality into your product from the start.
Three ways of efficiently controlling fluids

### Solenoid valves
Solenoid valves are an easy way to control and regulate fluids and gasses. Our solenoid valve range consists of direct-operated, servo-operated and assisted lift versions. Solenoid valves are the right choice when you have media with limited dirt content and small to high flow volume.

### Angle seat valves
Pneumatically actuated angle seat valves are designed for specialist and demanding applications. These robust valves are the right choice for media with high dirt content, high viscosity, high ambient and media temperatures and large flow volumes. They are also suitable for humid environments, explosion hazard environments and for applications with low or unknown pressure conditions.

### Thermostatic valves
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<table>
<thead>
<tr>
<th>Media Characteristics</th>
<th>Fluid control overview</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type</strong></td>
<td><strong>Water</strong></td>
</tr>
<tr>
<td><strong>Pressure range, bar</strong></td>
<td>0 - 30</td>
</tr>
<tr>
<td><strong>Medium temperature max.</strong></td>
<td>140 °C</td>
</tr>
<tr>
<td><strong>Kv value m³/h</strong></td>
<td>0.08 - 8</td>
</tr>
</tbody>
</table>

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| Approvals* | GL, WRAS, VA and DNV GL | GL, WRAS, VA and DNV GL | GL, WRAS | WRAS, VA and DNV | WRAS and VA | WRAS, VA and DNV | WRAS and VA | WRAS and VA | WRAS and VA | WRAS and VA | WRAS and VA |

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<table>
<thead>
<tr>
<th>Valve body</th>
<th>Brass or stainless steel</th>
<th>Brass or stainless steel</th>
<th>Brass or stainless steel</th>
<th>Brass, DZR brass or stainless steel</th>
<th>Brass or stainless steel</th>
<th>Brass, DZR brass or stainless steel</th>
<th>Brass or stainless steel</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Seal material</strong></td>
<td>EPDM or FKM</td>
<td>FKM</td>
<td>EPDM or FKM</td>
<td>EPDM, FKM or NBR</td>
<td>EPDM or NBR</td>
<td>FKM</td>
<td>NBR, PTFE and AFLAS</td>
</tr>
</tbody>
</table>

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* Only EPDM versions are WRAS approved. GL = Germanischer Lloyd. WRAS = Water Regulations Advisory Scheme. VA = Water supply and drainage of ETA Denmark. DNV = Det Norske Veritas.

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Choose the right solution from our extensive range
Danfoss is a leading global player within the development and production of mechanical and electronic products and controls. Since 1933, our extensive know-how has made modern life easier and we continue to break new ground within our core business areas.

Every day, more than 250,000 items are produced at 70 factories in 25 countries. Impressive as these figures are, we are most proud of the way our dedicated employees apply the high-quality components in customer solutions, adding value to the end products. Building strong partnerships is of great importance to us, because it is purely by understanding our customers’ needs that we can meet the expectations of tomorrow.

This is also true in Industrial Automation, a Danfoss entity dedicated to focusing on the industrial world of today. Through us, you gain access to the entire Danfoss pool of technologies, with special emphasis on sensors and controls. We offer safer, more reliable and more efficient solutions in a close cooperation based on firm values.