Type 8763

Pressure controller for precise time-pressure dosing

- Repeatable and accurate dosing of liquids in µl range
- Response time in milliseconds and active pressure relief for best control performance
- Digital communication for easy integration into your fieldbus network
- Extended functionality through additional sensor input + actuator output e.g. for pump or additional sensor
- Active vent valve to minimize consumption of costly carrier gas

Can be combined with

- **Type 6712**
  2/2 way Whisper Valve with media separation

- **Type 6724**
  2/2 or 3/2 way Whisper Valve with media separation

- **Type ME43**
  Fieldbus gateway

- **Type 6650**
  2/2 or 3/2 way Flipper-Solenoid Valve with separating diaphragm

Type description

Time-pressure dosing is a very common method for the reliable dosing of liquids in many fields of application. However, if the dosing quantities are very small and the pressure differences between dosing cycles are minimal, pressure control becomes a challenge. Type 8763, the pressure regulator specially developed for low flow rates and thus small dosing quantities, meets precisely this challenge. Short reaction times and the precise regulation of the pressure characterize this device. There are no down times or rejects at the beginning of dosing cycles. The digital interface makes it possible to access various parameters at any time, change settings and read out data. Whether it is a filling system or state-of-the-art machines for genetic analysis and synthesis, a good valve alone is not enough, precise pressure control is also essential for accuracy in time-pressure dosing.
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1. General technical data

### Product properties

| Dimensions | Detailed information can be found in chapter “3. Dimensions” on page 5. |

### Performance data

<table>
<thead>
<tr>
<th>Medium</th>
<th>Air Non-flammable, neutral gases (nitrogen, argon); oil-free</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas control volume</td>
<td>30...250 ml (other volumes on request)</td>
</tr>
<tr>
<td>Supply pressure $p_1$</td>
<td>0.2...3 bar / 2.9...43.5 Psi (supply pressure &gt; target pressure)</td>
</tr>
</tbody>
</table>
| Control range/Control accuracy in steady state | 0.006...0.35 bar / 0.087...5.07 Psi (± 1.225 mbar / 0.0177 Psi)\(^1\) 
0.02...1.0 bar / 0.29...14.5 Psi (± 3.5 mbar / 0.05 Psi)\(^1\) 
0.04...2.0 bar / 0.058...29 Psi (± 7 mbar / 0.01 Psi)\(^1\) |
| Reproducibility + Control accuracy | < ± 0.35 % FS according to Bürkert standard measurement setup |
| Temperature compensation | Yes |
| Reaction time | < 25 ms (sensor captures + adjustment of the control valve) 
Target pressure change 0...1 bar (0...14.5 Psi): 600 ms typical (supply pressure 3 bar (43.5 Psi) at 30 ml) |

### Product connections

| Input | G ¼ |
| Output controlled | UNF ¼" - 28 |
| Output switched (pressure relief) | Ventilation hole |

### Electrical data

| Operating voltage | 18...35 V DC |
| Power consumption (max.) | < 6 W (typically 2.4 W with connected additional loads <12 W) |
| Connections | See “3. Dimensions” on page 5 |

### Medium data

| Medium temperature | +15...+40 °C |

### Approvals and certificates

| Protection class | IP20 |
| Certified materials | On request |

### Environment and installation

| Ambient temperature | +15...+40 °C (maximum) |
| Extension on request | Filter | 36 µm input filter |

\(^1\) In steady state means constant flow of medium
2. Materials

2.1. Chemical Resistance Chart – Bürkert resistApp

You want to ensure the reliability and durability of the materials in your individual application case? Verify your combination of media and materials on our website or in our resistApp.

Start Chemical Resistance Check

2.2. Materials in the fluid channel

The materials at the pressure inlet and at the pressure outlet are specified. In the case of venting, the materials of the pressure outlet are in direct contact with the media that may be degassing, i.e. PPS and FFKM.

The control is designed in such a way that when venting takes place through the core hole, out-gassed media are not in contact with the materials of the pressure input side, these are FKM, PTFE, brass and stainless steel.

Note:
Other materials are available on request.

<table>
<thead>
<tr>
<th>No.</th>
<th>Element</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pressure outlet</td>
<td>PPS and FFKM</td>
</tr>
<tr>
<td>2</td>
<td>Pressure sensor</td>
<td>Silicon, FKM</td>
</tr>
<tr>
<td>3</td>
<td>Pressure input</td>
<td>FKM, PTFE, brass and stainless steel</td>
</tr>
</tbody>
</table>
3. Dimensions

3.1. Digital version
4. Device/Process connections

4.1. Electrical connection

Digital

<table>
<thead>
<tr>
<th>No.</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>GND</td>
</tr>
<tr>
<td>B</td>
<td>CAN low</td>
</tr>
<tr>
<td>C</td>
<td>CAN high</td>
</tr>
<tr>
<td>D</td>
<td>18...35 V DC</td>
</tr>
<tr>
<td>1</td>
<td>DO1 12 V DC switchable e.g. pump</td>
</tr>
<tr>
<td>2</td>
<td>GND</td>
</tr>
<tr>
<td>3</td>
<td>Output voltage 12 V DC sensor supply</td>
</tr>
<tr>
<td>4</td>
<td>GND</td>
</tr>
<tr>
<td>5</td>
<td>AI1 (external sensor input)</td>
</tr>
<tr>
<td>6</td>
<td>GND</td>
</tr>
</tbody>
</table>

Analogue

<table>
<thead>
<tr>
<th>No.</th>
<th>Value</th>
<th>No.</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>CAN high (Service büS)</td>
<td>6</td>
<td>GND</td>
</tr>
<tr>
<td>B</td>
<td>CAN low (Service büS)</td>
<td>7</td>
<td>Output voltage 12 V DC sensor supply</td>
</tr>
<tr>
<td>1</td>
<td>18...35 V DC</td>
<td>8</td>
<td>GND</td>
</tr>
<tr>
<td>2</td>
<td>GND</td>
<td>9</td>
<td>AI1 Analogue In for sensor e.g. pump control</td>
</tr>
<tr>
<td>3</td>
<td>DO2 (Binary output)</td>
<td>10</td>
<td>GND</td>
</tr>
<tr>
<td>4</td>
<td>GND</td>
<td>11</td>
<td>AI2 Analogue In for set pressure specification</td>
</tr>
<tr>
<td>5</td>
<td>DO1 12 V DC switchable e.g. pump</td>
<td>12</td>
<td>GND</td>
</tr>
</tbody>
</table>
5. Performance specifications

5.1. Dosing examples

General structure

Dosing example for dosing time 50 ms

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type 8763 (Article no.: 328290)</td>
<td></td>
</tr>
<tr>
<td>Supply pressure</td>
<td>2 bar (29 Psi)</td>
</tr>
<tr>
<td>Container air volume</td>
<td>50 ml</td>
</tr>
<tr>
<td>Dosing valve</td>
<td>Article no.: 273203</td>
</tr>
<tr>
<td>Dosing time/valve switching time</td>
<td>50 ms</td>
</tr>
<tr>
<td>Dosing medium</td>
<td>Water</td>
</tr>
<tr>
<td>Length of tank hose</td>
<td>500 mm</td>
</tr>
<tr>
<td>Cross-section of tank hose</td>
<td>2.36 mm</td>
</tr>
<tr>
<td>Hose length of tank dosing valve</td>
<td>350 + 200 mm</td>
</tr>
<tr>
<td>Hose cross-section of tank dosing valve</td>
<td>1.58 mm</td>
</tr>
<tr>
<td>Target pressure</td>
<td>138 mbar (2 Psi)</td>
</tr>
<tr>
<td>Dead band</td>
<td>0.05 %</td>
</tr>
</tbody>
</table>

Deviation from target pressure
Dosing example for dosing time 500 ms

<table>
<thead>
<tr>
<th>Type 8763 (Article no.: 328290)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Parameter</strong></td>
</tr>
<tr>
<td>Supply pressure</td>
</tr>
<tr>
<td>Container air volume</td>
</tr>
<tr>
<td>Dosing valve</td>
</tr>
<tr>
<td>Dosing time/valve switching time</td>
</tr>
<tr>
<td>Dosing medium</td>
</tr>
<tr>
<td>Length of tank hose</td>
</tr>
<tr>
<td>Cross-section of tank hose</td>
</tr>
<tr>
<td>Hose length of tank dosing valve</td>
</tr>
<tr>
<td>Hose cross-section of tank dosing valve</td>
</tr>
<tr>
<td>Target pressure</td>
</tr>
<tr>
<td>Dead band</td>
</tr>
</tbody>
</table>

**Dosing example for varying target pressure**

- **Dosing valve on**
- **Deviation from target pressure**

- **Target pressure**
- **Actual pressure**
5.2. Flow characteristic

Flow rate of versions with atmosphere at the outlet

Conditions:
- Proportional valve is fully open
- No back pressure, only the atmosphere at the outlet

### Nominal size control valve 0.1 mm

<table>
<thead>
<tr>
<th>Q [NL/min]</th>
<th>Upstream pressure [bar]</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>0.050</td>
<td>2.500</td>
</tr>
<tr>
<td>0.100</td>
<td>1.500</td>
</tr>
<tr>
<td>0.150</td>
<td>1.000</td>
</tr>
<tr>
<td>0.200</td>
<td>0.500</td>
</tr>
<tr>
<td>0.250</td>
<td>0.000</td>
</tr>
</tbody>
</table>

### Nominal size control valve 0.3 mm

<table>
<thead>
<tr>
<th>Q [NL/min]</th>
<th>Upstream pressure [bar]</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>0.050</td>
<td>2.500</td>
</tr>
<tr>
<td>0.100</td>
<td>1.500</td>
</tr>
<tr>
<td>0.150</td>
<td>1.000</td>
</tr>
<tr>
<td>0.200</td>
<td>0.500</td>
</tr>
<tr>
<td>0.250</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Flow rate of versions with pressure ratio “target pressure to supply pressure”

### Nominal size control valve 0.1 mm

<table>
<thead>
<tr>
<th>Q [NL/min]</th>
<th>p2/p1</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.300</td>
<td>1.0</td>
</tr>
<tr>
<td>0.250</td>
<td>0.8</td>
</tr>
<tr>
<td>0.200</td>
<td>0.6</td>
</tr>
<tr>
<td>0.150</td>
<td>0.4</td>
</tr>
<tr>
<td>0.100</td>
<td>0.2</td>
</tr>
<tr>
<td>0.050</td>
<td>0.1</td>
</tr>
</tbody>
</table>

### Nominal size control valve 0.3 mm

<table>
<thead>
<tr>
<th>Q [NL/min]</th>
<th>p2/p1</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.500</td>
<td>1.0</td>
</tr>
<tr>
<td>3.000</td>
<td>0.8</td>
</tr>
<tr>
<td>2.500</td>
<td>0.6</td>
</tr>
<tr>
<td>2.000</td>
<td>0.4</td>
</tr>
<tr>
<td>1.500</td>
<td>0.2</td>
</tr>
<tr>
<td>1.000</td>
<td>0.1</td>
</tr>
</tbody>
</table>

1.) p2 = target pressure; p1 = supply pressure
6. Ordering information

6.1. Bürkert eShop – Easy ordering and quick delivery

You want to find your desired Bürkert product or spare part quickly and order directly? Our online shop is available for you 24/7. Sign up and enjoy all the benefits.

Order online now

6.2. Bürkert product filter

You want to select products comfortably based on your technical requirements? Use the Bürkert product filter and find suitable articles for your application quickly and easily.

Try out our product filter

6.3. Ordering chart

Note:
All electrical plugs are included in the scope of delivery.

<table>
<thead>
<tr>
<th>Pressure range</th>
<th>Nominal size control valve</th>
<th>Electrical connection</th>
<th>Article no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>[bar (psi)]</td>
<td>[mm]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0…0.35 (0…5)</td>
<td>0.1</td>
<td>Analogue</td>
<td>318289</td>
</tr>
<tr>
<td>0…0.35 (0…5)</td>
<td>0.1</td>
<td>Digital</td>
<td>318288</td>
</tr>
<tr>
<td>0…1 (0…14.5)</td>
<td>0.3</td>
<td>Analogue</td>
<td>318292</td>
</tr>
<tr>
<td>0…1 (0…14.5)</td>
<td>0.3</td>
<td>Digital</td>
<td>318290</td>
</tr>
<tr>
<td>0…2 (0…29)</td>
<td>0.3</td>
<td>Analogue</td>
<td>318293</td>
</tr>
<tr>
<td>0…2 (0…29)</td>
<td>0.3</td>
<td>Digital</td>
<td>318291</td>
</tr>
</tbody>
</table>

1.) Other versions on request

6.4. Ordering chart accessories

<table>
<thead>
<tr>
<th>Description</th>
<th>Article no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>bÜS starter kit</td>
<td>772426</td>
</tr>
<tr>
<td>Connector, digital version (bÜS)</td>
<td>920299</td>
</tr>
<tr>
<td>Connector, digital version (sensor supply/actuator)</td>
<td>920245</td>
</tr>
<tr>
<td>Plug, analogue version</td>
<td>920225</td>
</tr>
<tr>
<td>Gas/air pump SP 570 EC 24 V DC (150 mA) ≥ 2 l/min; ≥ 1000 mbar (14.5 Psi)</td>
<td>98135278</td>
</tr>
<tr>
<td>Gas/air pump SP 600 EC-DV 12 V DC (400 mA) ≥ 3 l/min; ≥ 1300 mbar (18.85 Psi)</td>
<td>98135379</td>
</tr>
<tr>
<td>Gas/air pump SP 622 EC-BL 24 V DC (350 mA) ≥ 5.5 l/min; ≥ 1600 mbar (23.50 Psi); brushless</td>
<td>98135359</td>
</tr>
</tbody>
</table>

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Bürkert – Close to You

For up-to-date addresses please visit us at
www.burkert.com