



2/2-way proportional valve

- High sensitivity
- 0 to 25 bar
- DN 2 to 8 mm
- G 3/8 and G 1/2

Type 2835 can be combined with...



Type 8605

Digital control electronics
Cable plug version



Type 8605

Digital control electronics
DIN-rail version



Type 2508

Cable plug

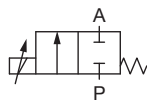


Type 8611

Universal controller

The direct-acting proportional valve Type 2835 can be used as a control valve for process control and is suitable for technical vacuum. Low hysteresis, high repeatability and high sensitivity ensure superior regulation behaviour. Thanks to an elastomeric sealing, the valve closes tightly and securely.

Circuit function A



Direct acting 2-way
proportional valve,
normally closed

Valve control takes place through the control electronics of Type 8605, which converts an analogue input signal into a PWM signal¹⁾.

Further, functional features of the Type 8605 electronic control unit:

- Temperature compensation for coil heating by internal current regulation
- Simple zero and span settings
- Ramp function to dampen fast status changes

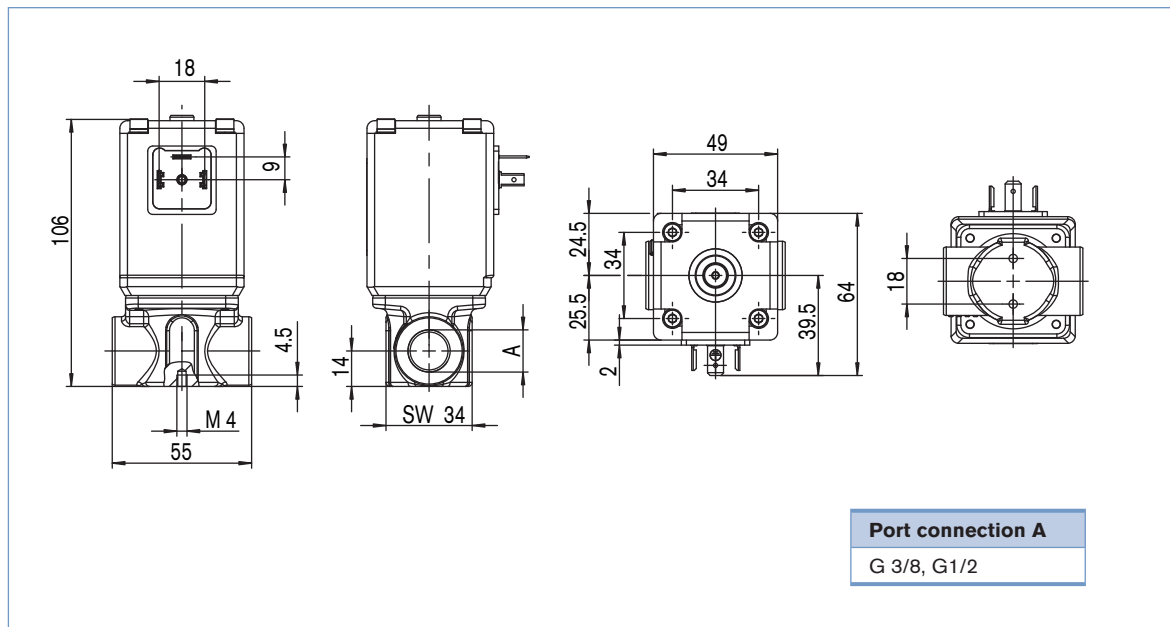
Technical Data - valve

| | |
|--|---|
| Body material | Brass, Stainless steel |
| Seal material | FKM, EPDM on request |
| Media | Neutral gases, liquids |
| Medium temperature | -10 ... +90 °C |
| Ambient temperature | max. +55 °C |
| Viscosity | max. 21 mm ² /s |
| Operating voltage | 24 V DC |
| Power consumption | 16 W |
| Duty cycle | 100 % continuously rated |
| Port connection | G 3/8, G 1/2, NPT 3/8, NPT 1/2 |
| Electric connection | Cable plug (DIN EN 175301-803 Form A) |
| Installation | As required, preferably with actuator in upright position |
| Typical control data²⁾ | |
| Hysteresis | < 5 % |
| Repeatability | < 0,25 % of F.S. |
| Sensitivity | < 0,25 % of F.S. |
| Turn-down ratio | 1:100 |
| Protection class - valve | IP65 |

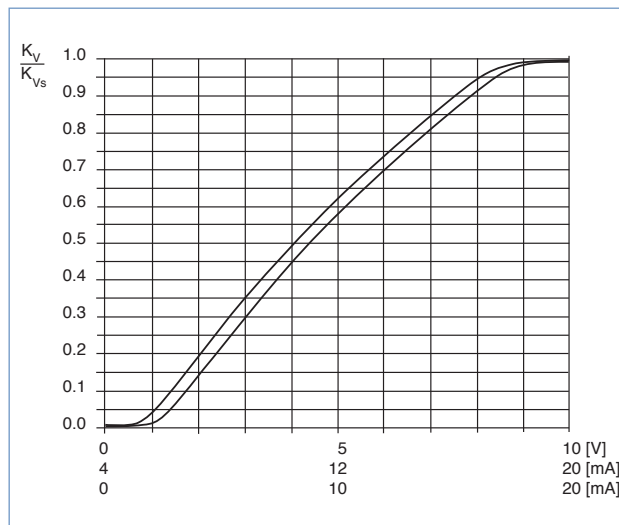
¹⁾ PWM pulse-width modulation

²⁾ Characteristic data of control behaviour depends on process conditions

Dimensions [mm]



Characteristics of a proportional valve



Advice for valve sizing

In continuous flow applications, the choice of appropriate valve size is much more important than with on/off valves. The optimum size should be selected such that the resulting flow in the system is not unnecessarily reduced by the valve. However, a sufficient part of the pressure drop should be taken across the valve even when it is fully opened.

recommended value: $\Delta p_{\text{valve}} > 30\%$ of total pressure drop within the system

For that reason take advantage of Bürkert competent engineering services during the planning phase!

Determination of the kv value

| Pressure drop | kv value for liquids [m³/h] | kv value for gases [m³/h] |
|--|---|--|
| Subcritical $p_2 > \frac{p_1}{2}$ | $= Q \sqrt{\frac{\rho}{1000 \Delta p}}$ | $= \frac{Q_N}{514} \sqrt{\frac{T_1 \rho_N}{p_2 \Delta p}}$ |
| Supercritical $p_2 < \frac{p_1}{2}$ | $= Q \sqrt{\frac{\rho}{1000 \Delta p}}$ | $= \frac{Q_N}{257 p_1} \sqrt{T_1 \rho_N}$ |

| | | |
|------------|-----------------------------------|------------------------|
| k_v | Flow coefficient | [m³/h] ¹⁾ |
| Q_N | Standard flow rate | [m_N³/h] ²⁾ |
| p_1 | Inlet pressure | [bar] ³⁾ |
| p_2 | Outlet pressure | [bar] ³⁾ |
| Δp | Differential pressure $p_1 - p_2$ | [bar] |
| ρ | Density | [kg/m³] |
| ρ_N | Standard density | [kg/m³] |
| T_1 | Temperature if fluid medium | [(273+t)K] |

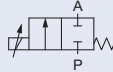
¹⁾ measured for water, $\Delta p = 1$ bar, via the device

²⁾ Standard conditions at 1.013 bar³⁾ and 0 °C (273K)

³⁾ Absolute pressure

Ordering chart for valves

All valves with FKM sealing

| Circuit function | Orifice [mm] | Port connection | k _v value water [m ³ /h] ¹⁾ | Q _N value [l/min] ²⁾ | Maximum pressure [bar] ³⁾ | Coil power consumption [W] | Maximum coil current [mA] | Item no. Brass body | Item no. Stainless steel body |
|---|-----------------|-----------------|--|--|--------------------------------------|----------------------------|---------------------------|---------------------|-------------------------------|
| A 2/2-way normally closed (NC)  | 2 ⁴⁾ | G 3/8 | 0.12 | 129 | 25 | 16 | 750 | 175980 | 175996 |
| | | NPT 3/8 | 0.12 | 129 | 25 | 16 | 750 | 175997 | 175998 |
| | 3 | G 3/8 | 0.25 | 270 | 10 | 16 | 750 | 175999 | 176000 |
| | | NPT 3/8 | 0.25 | 270 | 10 | 16 | 750 | 176001 | 176002 |
| | 4 | G 3/8 | 0.45 | 485 | 8 | 16 | 750 | 176003 | 176004 |
| | | NPT 3/8 | 0.45 | 485 | 8 | 16 | 750 | 175995 | 175984 |
| | | G 1/2 | 0.45 | 485 | 8 | 16 | 750 | 176005 | 176006 |
| | | NPT 1/2 | 0.45 | 485 | 8 | 16 | 750 | 175985 | 175986 |
| | 6 | G 1/2 | 0.80 | 862 | 4 | 16 | 750 | 175989 | 175990 |
| | | NPT 1/2 | 0.80 | 862 | 4 | 16 | 750 | 175993 | 175994 |
| | 8 | G 1/2 | 1.10 | 1186 | 2 | 16 | 750 | 178794 | 179412 |
| | | NPT 1/2 | 1.10 | 1186 | 2 | 16 | 750 | 179305 | 179306 |

¹⁾ kVs value: Flow rate value for water, measured at +20 °C and 1 bar pressure differential over a fully opened valve.

²⁾ QN value: Flow rate value for air with inlet pressure of 6 bar¹⁾, 1 bar pressure differential and +20 °C.

³⁾ Pressure data [bar]: Overpressure with respect to atmospheric pressure

⁴⁾ for Δp>10bar it is possible to get discontinuities in the characteristic curve because of flow conditions in the application

Please note that the valves are delivered without control electronics unit and cable plug (see accessories below).

Further versions on request



Materials

Seal: FFKM (resistant to aggressive media), EPDM



Analytical

Oxygen version
Part oil-, fat- and silicon free



Electrical connection

12 V coil



Approvals

UL recognised, CSA

Ordering chart for accessories

Cable plug Type 2508 according to DIN EN 175301-803 Form A

The delivery of a cable plug includes the flat seal and fixing screw

| Circuitry | Voltage / frequency | Item no. |
|----------------------|---------------------|----------|
| None | 0 - 250 V AC/DC | 008376 |
| None, with 3 m cable | 0 - 250 V AC/DC | 783573 |

Electronic Control Type 8605

Please see Datasheet

Note

You can fill out the fields directly in the PDF file before printing out the form.

Design data for proportional valves

► Please fill out this form and send to your local Bürkert Sales Centre* with your inquiry or order

| | |
|-----------------|----------------|
| Company | Contact person |
| Customer no. | Dept. |
| Address | Tel./Fax |
| Town / Postcode | E-Mail |

| | | |
|---|-----------------------------------|--|
| <input type="checkbox"/> = Mandatory fields | <input type="text"/> Quantity | <input type="text"/> Desired delivery date |
| Process data | | |
| <input type="checkbox"/> Medium | <input type="text"/> | |
| <input type="checkbox"/> State of medium | <input type="checkbox"/> liquid | <input type="checkbox"/> gaseous <input type="checkbox"/> vaporous |
| Medium temperature | <input type="text"/> °C | |
| <input type="checkbox"/> Maximum flow rate | $Q_{nom} =$ <input type="text"/> | Unit: <input type="text"/> |
| <input type="checkbox"/> Minimum flow rate | $Q_{min} =$ <input type="text"/> | Unit: <input type="text"/> |
| <input type="checkbox"/> Inlet pressure at nominal operation | $p_1 =$ <input type="text"/> | barg |
| <input type="checkbox"/> Outlet pressure at nominal operation | $p_2 =$ <input type="text"/> | barg |
| Maximum inlet pressure | $p_{1max} =$ <input type="text"/> | barg |
| Ambient temperature | <input type="text"/> °C | |
| Additional specifications | | |
| Body material | <input type="checkbox"/> Brass | <input type="checkbox"/> Stainless steel |
| Seal material | <input type="checkbox"/> FKM | <input type="checkbox"/> other <input type="text"/> |

Note Please state all pressure values as **overpressures with** respect to atmospheric [barg].