

2/2-way Proportional Valve

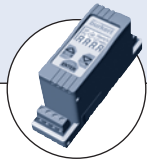


Type 2836 can be combined with...



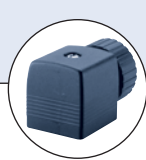
Type 8605

Control electronics
Cable plug version



Type 8605

Digital control electronics
DIN-rail version



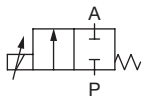
Type 2508

Cable plug

- For high flow rates
- Direct-acting, normally closed
- 0 ... 25 bar¹⁾
- DN 3.0 ... 12 mm
- 1/2" and 3/4"

The direct-acting proportional valve Type 2836 works as an electromagnetically actuated control valve in applications with relatively high flow rates. The valve is normally closed.

Valve operation 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 (pulse-width modulation) signal.

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

¹⁾ Pressure data [bar]: Overpressure with respect to atmospheric pressure

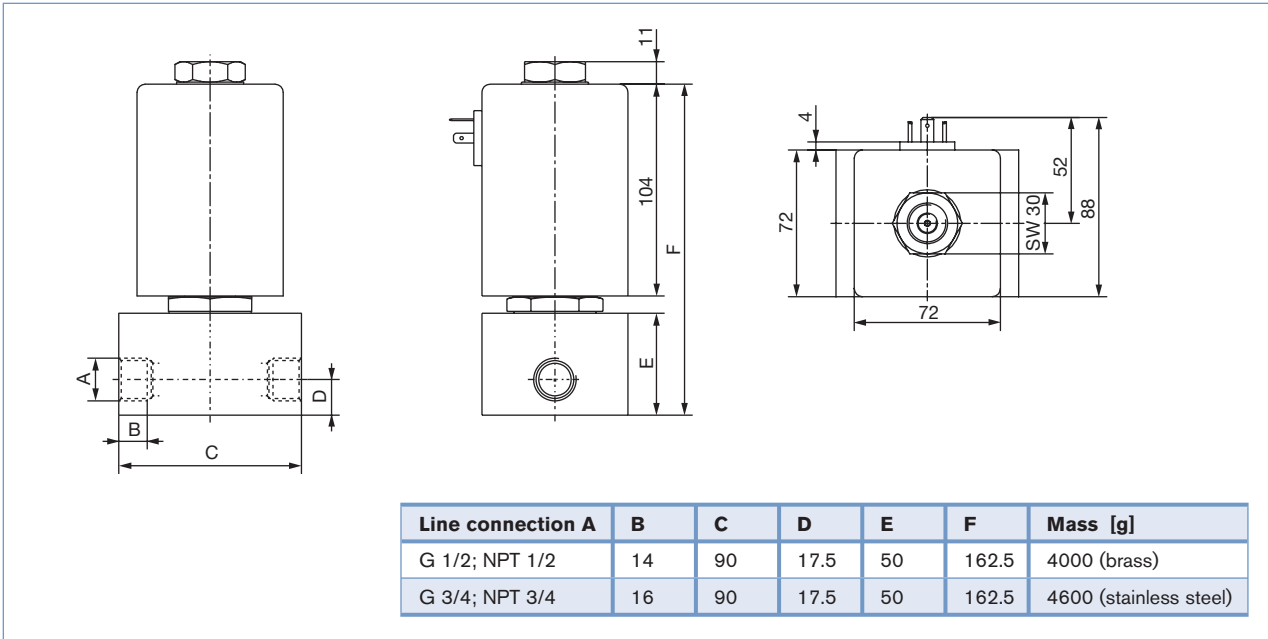
²⁾ PWM pulse-width modulation

³⁾ Characteristic data of control behaviour depends on process conditions

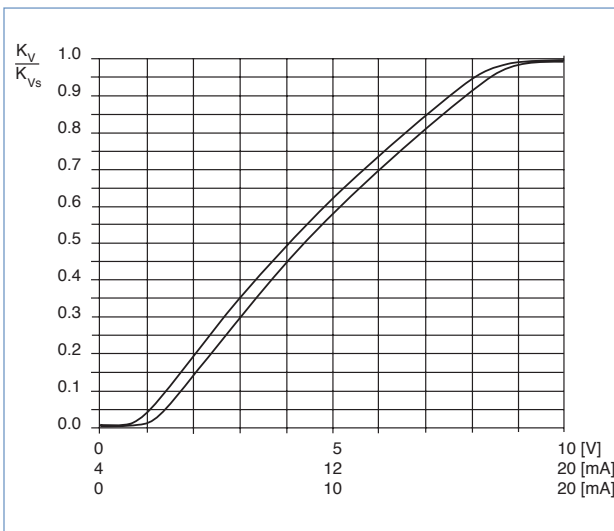
Technical data - valve	
Body material	Brass, stainless steel
Sealing material	FKM, others available on request
Media	neutral gases, liquids, steam on request
Medium temperature	-10 ... +90 °C (14 °F to 194 °F); steam to +140 °C
Ambient temperature	max. +55 °C (max. 131 °F)
Viscosity	max. 21 mm ² /s (max. 21 cSt)
Operating voltage	24 V DC
Power consumption	max. 30 W
Duty cycle	100 % continuously rated
Port connection	G 1/2, G 3/4, NPT 1/2 and NPT 3/4, others on request
Electrical connection	Cable plug Type 2508 acc. to DIN EN 175301-803* form A
Mounting position	any, preferably with drive at top
Typical control data³⁾	
Hysteresis	< 5 %
Repeatability	< 1 % of F.S.
Sensitivity	< 0.5 % of F.S.
Turn-down ratio	1:25
Protection class - valve	IP65

Technical data - Control electronics unit Type 8605 (see separate datasheet)

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!

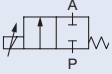
Determination of the kv value

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 [m³/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]

Characteristic Values with Ordering chart (other versions on request)

All valves with FKM seal

Valve operation	Orifice [mm]	Port connection	K_v value water [m ³ /h] ¹⁾	Q_{Nn} value [l/min] ²⁾	Maximum operating pressure [bar] ³⁾	Item no. brass body	Item no. stainless steel body
	3	G 1/2	0.25	270	25	154 541	154 542
		NPT 1/2	0.25	270	25	164 592	-
	4	G 1/2	0.40	430	16	154 543	154 544
		NPT 1/2	0.40	430	16	164 593	-
	6	G 1/2	0.90	970	8	145 654	154 545
		NPT 1/2	0.90	970	8	164 594	-
		G 3/4	0.90	970	8	154 546	154 547
	8	NPT 3/4	0.90	970	8	164 595	-
		G 1/2	1.5	1615	5	154 548	154 549
		NPT 1/2	1.5	1615	5	164 596	-
	10	G 3/4	1.5	1615	5	154 550	154 551
		NPT 3/4	1.5	1615	5	164 597	-
		G 3/4	2.0	2150	3	154 552	154 553
	12	NPT 3/4	2.0	2150	3	164 598	-
G 3/4		2.5	2700	2	154 554	154 555	
		NPT 3/4	2.5	2700	2	164 599	-

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

2) Q_{Nn} 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

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

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	008 376
None, with 3 m cable	0 - 250 V AC/DC	783 573

Electronic Control Type 8605

Please see datasheet

For product inquiries, use the specification sheet for proportional valves!

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

= Mandatory fields Quantity Desired delivery date

Process data

Medium

State of medium liquid gaseous vaporous

Medium temperature °C

Maximum flow rate $Q_{nom} =$ Unit:

Minimum flow rate $Q_{min} =$ Unit:

Inlet pressure at nominal operation $p_1 =$ barg

Outlet pressure at nominal operation $p_2 =$ barg

Maximum inlet pressure $p_{1max} =$ barg

Ambient temperature °C

Additional specifications

Body material Brass Stainless steel

Seal material FKM other

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

* To find your nearest Bürkert facility, click on the orange box → www.burkert.com

In case of special application conditions, please consult for advice.

We reserve the right to make technical changes without notice.

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