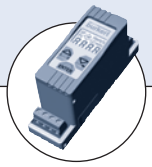
bürkert
FLUID CONTROL SYSTEMS

2/2-way proportional valve

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

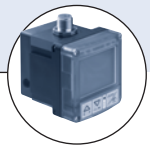
Type 2835 can be combined with…

Type 8605
Digital control electronics
Cable plug version



Type 8605
Digital control electronics
DIN-rail version

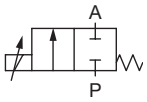
Type 2508
Cable plug



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 behavior. 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 signal[1].

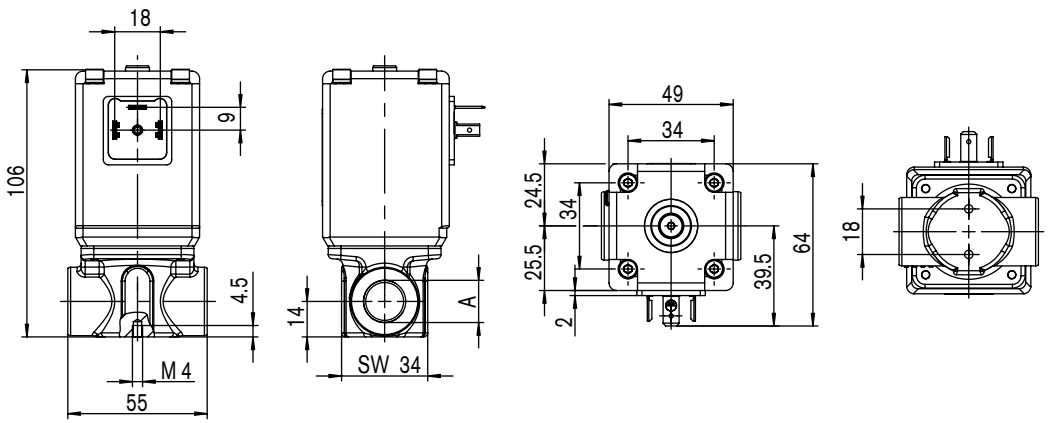
Further, functional features of the Type 8605 electronic control unit:

- 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 mm2/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 data[2]	
Hysteresis	< 5 %
Repeatability	< 0,25 % v. F.S.
Sensitivity	< 0,25 % v. F.S.
Turn-down ratio	1:100
Protection class - valve	IP65

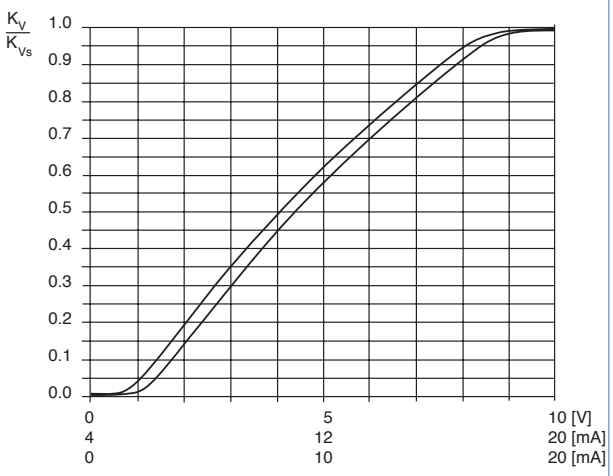
[1] PWM pulse-width modulation
[2] Characteristic data of control behaviour depends on process conditions

Dimensions [mm]



Port connection A
G 3/8, G1/2

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 unnecessariy reduced by the valve. However, a suifficient part of the pressure drop should be taken across the valve even when it is fully opened.

recommended value: Δp_{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_N^3/h] [2]
p_1	Inlet pressure	[bar] [3]
p_2	Outlet pressure	[bar] [3]
Δp	Differential presure p_1-p_2	[bar]
ρ	Density	[kg/m³]
ρ_N	Standard density	[kg/m³]
T_1	Temperature if fluid medium	[(273+t)K]

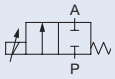
[1] measured for water, Δp = 1 bar, via the device

[2] Standard conditions at 1.013 bar [3] and 0 °C (273K)

[3] Absolute pressure

Ordering chart for valves

All valves with FKM sealing

Circuit function	Orifice [mm]	Port connection	K_{VS} value water [m³/h] [1]	Q_{NN} 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	175 980	175 996
		NPT 3/8	0.12	129	25	16	750	175 997	175 998
	3	G 3/8	0.25	270	10	16	750	175 999	176 000
		NPT 3/8	0.25	270	10	16	750	176 001	176 002
	4	G 3/8	0.45	485	8	16	750	176 003	176 004
		NPT 3/8	0.45	485	8	16	750	175 995	175 984
		G 1/2	0.45	485	8	16	750	176 005	175 006
		NPT 1/2	0.45	485	8	16	750	175 985	175 986
	6	G 1/2	0.80	862	4	16	750	175 989	175 990
		NPT 1/2	0.80	862	4	16	750	175 993	175 994
	8	G 1/2	1.10	1186	2	16	750	178 794	179 412
		NPT 1/2	1.10	1186	2	16	750	179 305	179 306

[1] kVs value: Flow rate value for water, measured at +20 °C and 1 bar pressure differential over a fully opened valve.
[2] QNn value: Flow rate value for air with inlet pressure of 6 bar[1], 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, Ex version - II 2G EEx m IIC T4, PTB No. 02 ATEX 2094X with or without terminal box

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

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

= Manditory 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].

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