

Preliminary 28.11.14, Index 1



2/2-way Solenoid Control Valve

- Direct-acting, normally closed
- DN 3 to 12 mm
- Port Connection 1/2" or 3/4"

Type 2836 can be combined with...



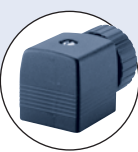
Type 8605

Control electronics
Cable plug version



Type 8605

Digital control electronics
DIN-rail version

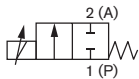


Type 2508

Cable plug

The direct-acting solenoid control 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 solenoid control
valve, normally closed

Valve control takes place through the control electronics of Type 8605, which converts an analogue input signal into a PWM²⁾ (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

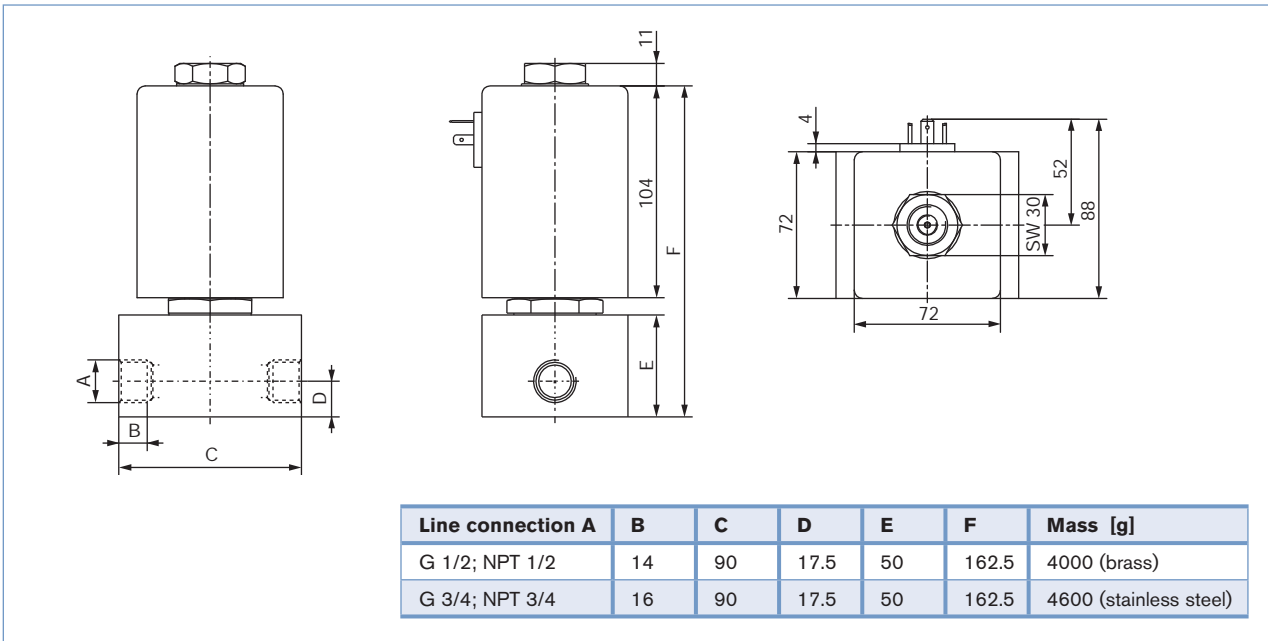
¹⁾ Pressure data [bar]: Overpressure with respect to atmospheric pressure

²⁾ PWM pulse-width modulation

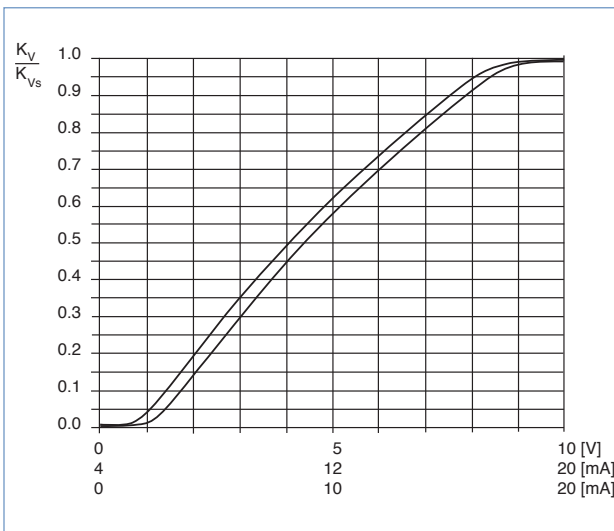
³⁾ Characteristic data of control behaviour depends on process conditions

Technical data - valve	
Body material	Brass, stainless steel
Seal material	FKM, others on request
Fluids	Neutral gases and liquids
Pressure range	0 to 25 bar ¹⁾
Fluid temperature	-10 to +90 °C (14 °F to 194 °F)
Ambient temperature	max. +55 °C (max. 131 °F)
Viscosity	max. 21 mm ² /s (max. 21 cSt)
Power supply	24 V DC
PWM frequency	150-180 Hz
Power consumption	max. 24 W
Max. coil current	1100 mA
Duty cycle	100 % continuously rated
Port connection	G 1/2, G 3/4, NPT 1/2, NPT 3/4, others on request
Electrical connection	Cable plug Type 2508 acc. to DIN EN 175301-803 form A
Installation	As required, preferably with actuator in upright position
Typical control data³⁾	
Hysteresis	< 5 %
Repeatability	< 1 % of F.S.
Sensitivity	< 0.5 % of F.S.
Span	1:25
Protection class - valve	IP65

Dimensions [mm]



Characteristics of a proportional valve



Advice for valve sizing

In continuous flow applications, the choice of an 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: $\Delta p_{\text{valve}} > 25\%$ of total pressure drop within the system

Otherwise, the ideal, linear valve curve characteristic is changed.

If the differential pressure (difference between inlet and outlet pressure) exceeds half the value of the nominal pressure, the characteristics may change.

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

Determination of the k_v value

Pressure drop	k_v value for liquids [m³/h]	k_v 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]⁴⁾
- Q_N Standard flow rate [m³/h]⁵⁾
- p_1 Inlet pressure [bar]⁶⁾
- p_2 Outlet pressure [bar]⁶⁾
- 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]

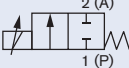
⁴⁾ Measured with water, $\Delta p = 1$ bar, differential pressure over the valve

⁵⁾ Standard conditions at 1,013 bar³⁾ and 0 °C (273K)

⁶⁾ Absolute pressure

Characteristic values with ordering chart (other versions on request)

All valves with FKM seal

Valve operation	Orifice [mm]	Port connection	k_{vs} value water [m ³ /h] ⁷⁾	Q_{N_2} value [l/min] ⁸⁾	Maximum operating pressure [bar] ⁹⁾	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	-

⁷⁾ k_{vs} value: Flow rate value for water, measured at +20 °C and 1 bar pressure differential over a fully opened valve.

⁸⁾ Q_{N_2} value: Flow rate value for air with inlet pressure of 6 bar¹⁾, 1 bar pressure differential and +20 °C.

⁹⁾ 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

Control Electronics, Type 8605 - please see datasheet

For product inquiries, use the specification sheet for solenoid control valves!

Note

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

Design data for solenoid control 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"/> Requested delivery date
Process data		
Fluid	<input type="text"/>	
State of fluid	<input type="checkbox"/> liquid	<input type="checkbox"/> gaseous
Fluid temperature	<input type="text"/> °C	
Maximum flow rate	$Q_{nom} =$ <input type="text"/>	Unit: <input type="text"/>
Minimum flow rate	$Q_{min} =$ <input type="text"/>	Unit: <input type="text"/>
Inlet pressure at nominal operation	$p_1 =$ <input type="text"/>	barg
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].

* 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.

1411 /5_EU-en_00891885