





Direct-acting 2-way standard solenoid control valve

- Excellent range
- Very good response
- Compact valve design
- Orifice sizes 2...9.5 mm
- Optional: Explosion-protected coil



Product variants described in the data sheet may differ from the product presentation and description.

Can be combined with

- | | | |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---|
|  | Type 8605
PWM control electronics for electromagnetic proportional valves | ▶ |
|  | Type 2518
Cable plug, form A according to DIN EN 175301 - 803 | ▶ |
|  | Type 8611
eCONTROL - Universal controller | ▶ |

Type description

The direct-acting solenoid control valve Type 2875 is used as the regulating unit in control loops. Due to an elastomeric seat seal the valve closes tight (integrated shut-off function), up to the DN specific nominal pressure. The plunger of the valve is assembled frictionless, which leads to an extraordinary adjustment characteristic. This valve is particularly suitable for demanding control tasks (high control range, dry gases, etc.).

DTS 1000173855 EN Version: L Status: RL (released | freigegeben | validé) printed: 25.10.2023

Table of contents

1. General technical data	3
2. Circuit functions	3
3. Approvals and conformities	4
3.1. General notes	4
3.2. Conformity	4
3.3. Standards	4
3.4. Explosion protection	4
3.5. North America (USA/Canada)	4
3.6. Foods and beverages/Hygiene	4
4. Materials	5
4.1. Bürkert resistApp	5
5. Dimensions	6
5.1. Standard version	6
Threaded body	6
Sub-base body	7
5.2. ATEX/IECEx version	8
Threaded body	8
Sub-base body	9
6. Performance specifications	9
6.1. Flow characteristic	9
Determination of the K_v value	9
6.2. Exemplary characteristic curve of a proportional valve	10
7. Product operation	10
7.1. Control unit	10
8. Ordering information	11
8.1. Bürkert eShop	11
8.2. Recommendation regarding product selection	11
8.3. Bürkert product filter	11
8.4. Bürkert Product Enquiry Form	11
8.5. Ordering chart	12
Standard version	12
Version with approvals	13
Version for higher differential pressures	14
8.6. Ordering chart accessories	15
Cable plug Type 2518, form A according to DIN EN 175301 - 803	15
Control electronics Type 8605 for proportional valves	15

1. General technical data

Product properties	
Dimensions	Further information can be found in chapter "5. Dimensions" on page 6.
Material	
Body	Brass, stainless steel
Seal	FKM, EPDM
Performance data	
Typical values of positioning behaviour ^{1.)}	
Hysteresis	< 5 %
Repeat accuracy	< 0.5 % of end value ^{2.)}
Response sensitivity	< 0.25 % of end value ^{2.)}
Setting range	1:200
Actuating time (10...90 %)	< 25 ms
Pressure range ^{3.)}	0...25 bar
Nominal operating mode	100 % continuous operation
Electrical data	
Operating voltage	24 V DC (12 V on request)
Power consumption	16 W
Maximum coil current ^{4.)}	750 mA (at 16 W and 24 V coil)
PWM frequency ^{5.)}	900 Hz
Medium data	
Operating medium	Neutral gases, liquids on request
Medium temperature	- 10 °C...+ 90 °C (with FKM) - 30 °C...+ 90 °C (with EPDM)
Viscosity	Max. 21 mm ² /s (21 cSt)
Process/Port connection & communication	
Port connection size	Sub-base, G 3/8, G 1/2, NPT 3/8, NPT 1/2
Electrical connection	Cable plug Type 2518, form A according to DIN EN 175301 - 803 Further information can be found in chapter "Cable plug Type 2518, form A according to DIN EN 175301 - 803" on page 15.
Approvals and conformities	
Degree of protection	IP65
Environment and installation	
Installation position	As required, preferably with actuator upright
Ambient temperature	Max. + 55 °C

- 1.) Characteristic data of control behaviour depends on process conditions.
- 2.) By flow measurement
- 3.) Pressure data: overpressure to atmospheric pressure, depending on nominal diameter, tightness seal or nominal pressure
- 4.) Maximum value: value depends on operating pressure
- 5.) PWM: pulse width modulation

2. Circuit functions

Symbol	Description
	Circuit function A (CF A) 2/2-way solenoid proportional control valve Direct-acting Normally closed

DTS 1000173855 EN Version: L Status: RL (released | freigegeben | valide) printed: 25.10.2023

3. Approvals and conformities

3.1. General notes

- The approvals and conformities listed below must be stated when making enquiries. This is the only way to ensure that the product complies with all required specifications.
- Not all available versions can be supplied with the below mentioned approvals or conformities.

3.2. Conformity

In accordance with the Declaration of conformity, the product is compliant with the EU Directives.


3.3. Standards

The applied standards which are used to demonstrate compliance with the EU Directives are listed in the EU-Type Examination Certificate and/or the EU Declaration of Conformity.


3.4. Explosion protection

Approval	Description
 	Optional: Explosion protection ATEX: II 2 G Ex mb IIC T4 Gb II 2 D Ex mb IIIC T130 °C Db IECEx: Ex mb IIC T4 Gb Ex mb IIIC T130 °C Db

3.5. North America (USA/Canada)

Approval	Description
	Optional: UL Recognized for the USA The products are UL Recognized for the USA according to: <ul style="list-style-type: none"> • UL 429 (Electrically operated valves)

3.6. Foods and beverages/Hygiene

Conformity	Description
USP	United States Pharmacopeial Convention (USP) (valid for the variable code PL04) All wetted materials are biocompatible according to the manufacturer's declaration.
FDA	FDA – Code of Federal Regulations (valid for the variable code PL02, PL03) All wetted materials are compliant with the Code of Federal Regulations published by the FDA (Food and Drug Administration, USA) according to the manufacturer's declaration.
	EC Regulation 1935/2004 of the European Parliament and of the Council (valid for the variable code PL01, PL02) All wetted materials are compliant with EC Regulation 1935/2004/EC according to the manufacturer's declaration.

DTS 1000173855 EN Version: L Status: RL (released | freigegeben | validé) printed: 25.10.2023

4. Materials

4.1. Bürkert resistApp



Bürkert resistApp – Chemical resistance chart

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](#)

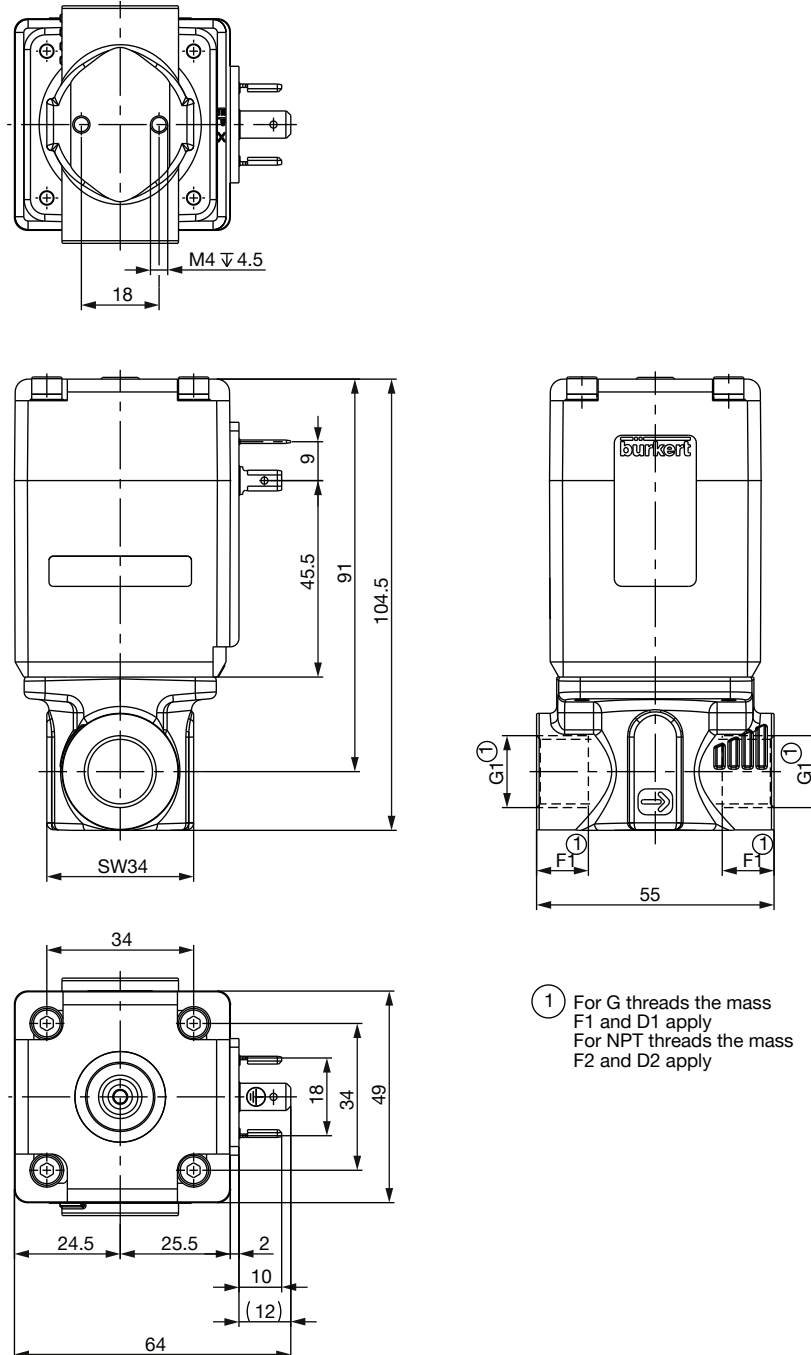
5. Dimensions

5.1. Standard version

Threaded version

Note:

Dimensions in mm

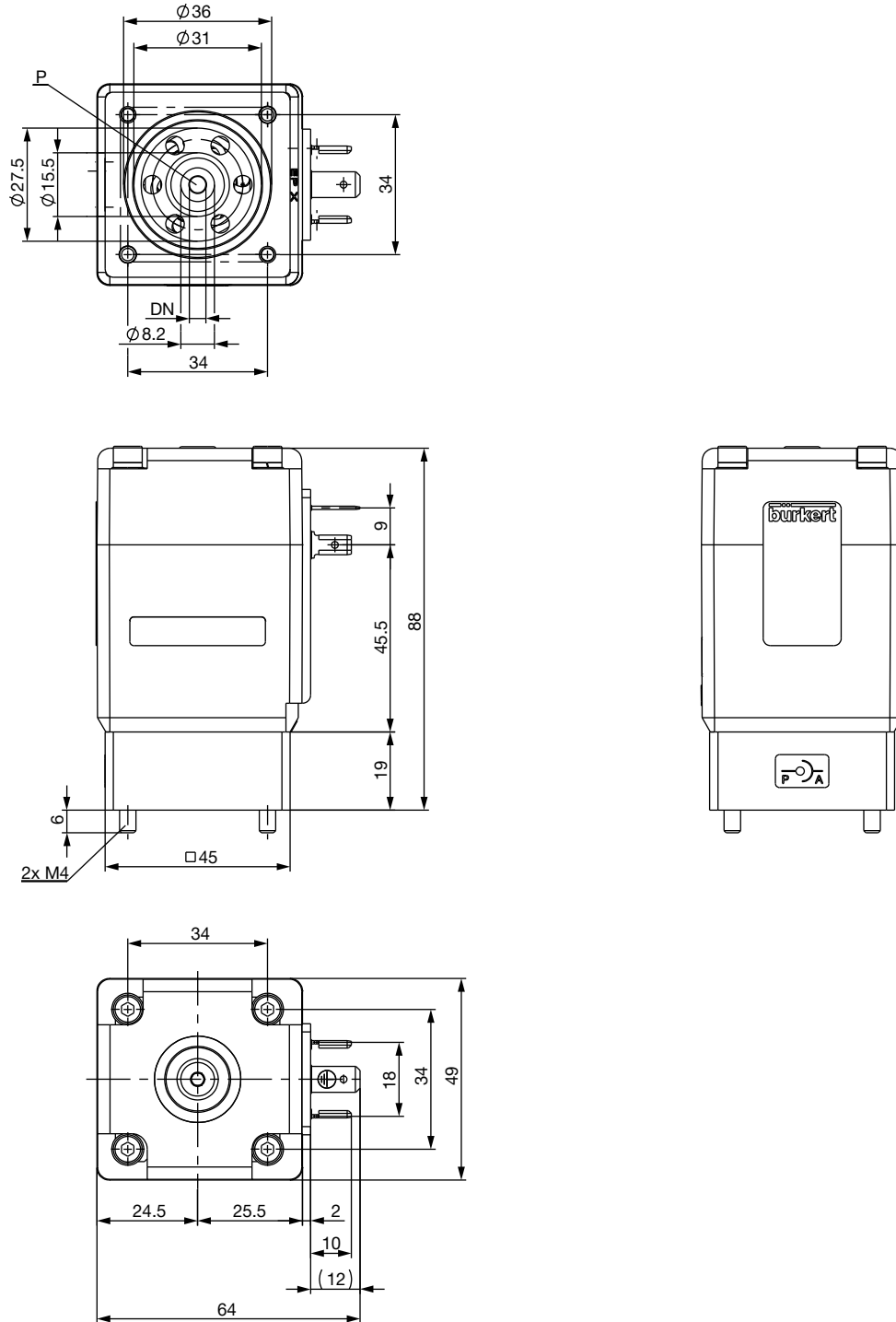


Port connection	F1	G1	F2	G2
Thread	12	G 3/8	10.3	NPT 3/8
	14	G 1/2	13.7	NPT 1/2

DTS 1000173855 EN Version: L Status: RL (released | freigegeben | validé) printed: 25.10.2023

Sub-base version

Note:
Dimensions in mm



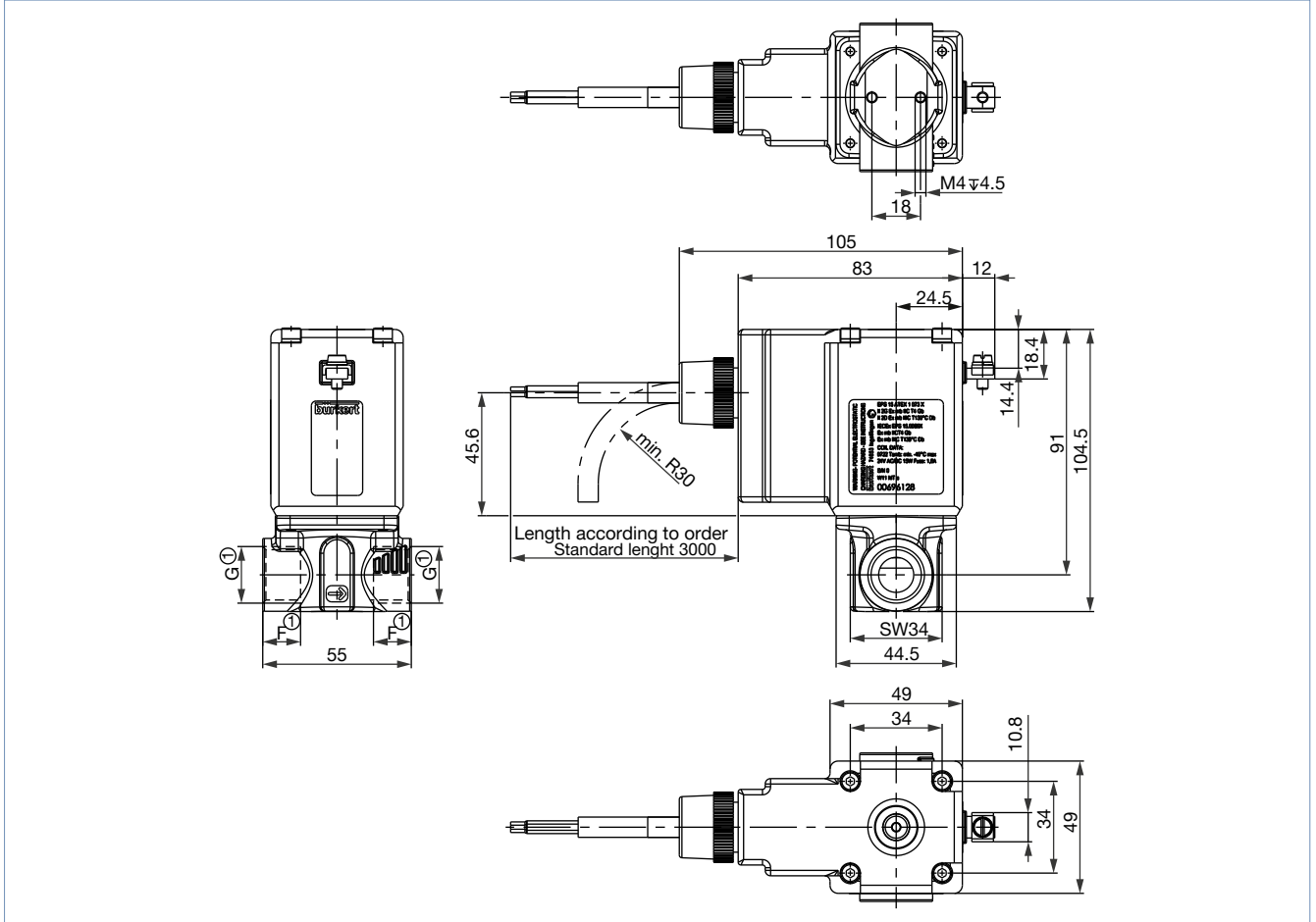
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5.2. ATEX/IECEX version

Threaded version

Note:

Dimensions in mm

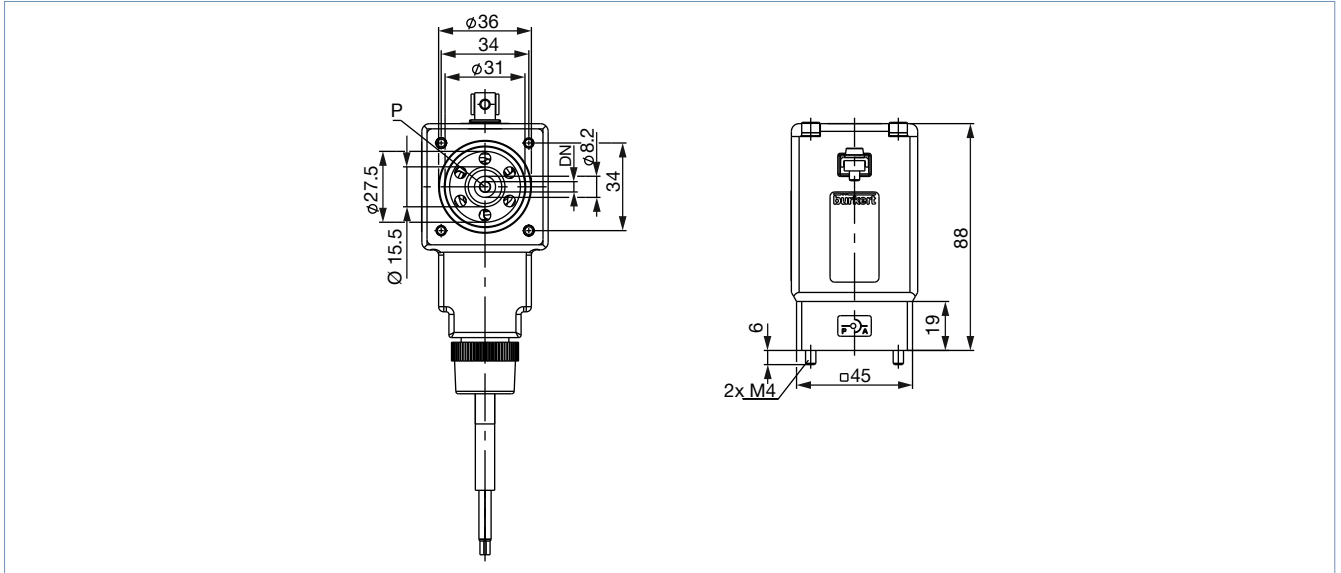


Port connection	F1	G1	F2	G2
Thread	12	G 3/8	10.3	NPT 3/8
	14	G 1/2	13.7	NPT 1/2

Sub-base version

Note:

Dimensions in mm



6. Performance specifications

6.1. Flow characteristic

Determination of the K_v value

Pressure drop	K_v value for liquids	K_v value for gases
	[m ³ /h]	[m ³ /h]
Sub-critical $p_2 > \frac{p_1}{2}$	$= Q \sqrt{\frac{\rho}{1000 \Delta p}}$	$= \frac{Q_N}{514} \sqrt{\frac{T_1 \rho_N}{p_2 \Delta p}}$
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]^{1,3}
- Q_N Standard flow rate [m³/h]^{2,3}
- p_1 Inlet pressure [bar]^{3,3}
- p_2 Outlet pressure [bar]^{3,3}
- Δp Differential pressure p_1, \dots, p_2 [bar]
- ρ Density [kg/m³]
- ρ_N Standard density [kg/m³]
- T_1 Medium temperature [(273+t)K]

- 1.) Measured for water, $\Delta p = 1$ bar, over the value
- 2.) At reference conditions 1.013 bar and 0 °C (273 K)
- 3.) Absolute pressure

DTS 1000173855 EN Version: L Status: RL (released | freigegeben | valide) printed: 25.10.2023

6.2. Exemplary characteristic curve of a proportional valve

Note:

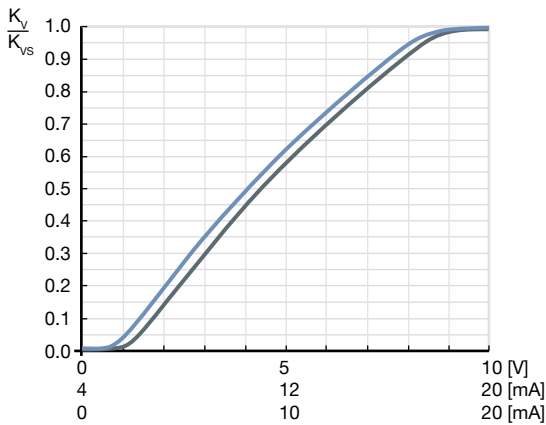
In continuous flow applications, the choice of an appropriate valve size is much more important than with on/off valves. The optimum size should be selected such that the resulting flow in the system is not unnecessarily reduced by the valve. However, a sufficient part of the pressure drop should be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

Reference value: $\Delta p_{\text{valve}} > 25\%$ of the total pressure drop

Otherwise, an ideal, linear valve characteristic is deformed into a curved system characteristic.

If the differential pressure (difference between inlet and outlet pressure) exceeds half the value of the nominal pressure discontinuities may occur.

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



7. Product operation

7.1. Control unit

Valve control takes place through a PWM signal (pulse-width modulation). The duty cycle of the PWM signal determines the coil current and hence the position of the plunger.

The Bürkert control electronics Type 8605 (see data sheet **Type 8605** ▶) converts an analogue signal to a reference value corresponding to the valve type PWM signal and provides additional functions such as temperature compensation (coil heating), ramp function and the adjustment of min. and max. duty cycle/coil current for the control range.

Please note the sizing comments for such a control valve in chapter **“6.2. Exemplary characteristic curve of a proportional valve”** on [page 10](#).

8. Ordering information

8.1. Bürkert eShop



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](#)

8.2. Recommendation regarding product selection

Note:

- Use the product enquiry form (see “8.4. Bürkert Product Enquiry Form” on page 11) for information about the device layout and send it to us after completion.
- Please note the chapter “6.2. Exemplary characteristic curve of a proportional valve” on page 10 on product selection.

8.3. Bürkert product filter

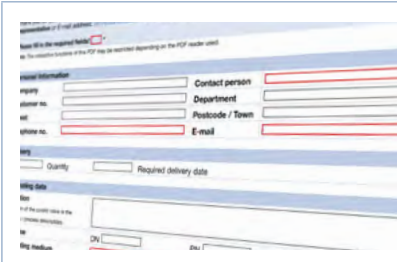


Bürkert product filter – Get quickly to the right product

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](#)

8.4. Bürkert Product Enquiry Form



Bürkert Product Enquiry Form – Your enquiry quickly and compactly

Would you like to make a specific product enquiry based on your technical requirements? Use our Product Enquiry Form for this purpose. There you will find all the relevant information for your Bürkert contact. This will enable us to provide you with the best possible advice.

[Fill out the form now](#)

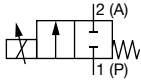
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8.5. Ordering chart

Standard version

Note:

- All valves with FKM seal
- Please note that the cable plug must be ordered separately, see “Cable plug Type 2518, form A according to DIN EN 175301 - 803” on page 15 or separate data sheet for Type 2518 ▶.

Circuit function	Port connection ^{1.)}	Orifice	K _{vs} value water ^{2.)}	Nominal pressure ^{3.)}	Maximum differential pressure	Article no. Brass body	Article no. Stainless steel body
		[mm]	[m ³ /h]	[bar]	[bar]		
CF A 2/2-way solenoid proportional control valve Direct-acting Normally closed 	G 3/8	2.0	0.12	25	12.5	236897	236899
	NPT 3/8		0.12	25	12.5	236898	236900
	G 3/8	3.0	0.25	10	5	236901	236903
	NPT 3/8		0.25	10	5	236902	236904
	G 3/8	4.0	0.45	8	4	236905	236910
	NPT 3/8		0.45	8	4	236908	236912
	G 1/2		0.45	8	4	236906	236911
	NPT 1/2		0.45	8	4	236909	236913
	G 1/2	6.0	0.80	4	2	236915	236919
	NPT 1/2		0.80	4	2	236917	236921
	G 1/2	8.0	1.10	2	1	236922	236924
	NPT 1/2		1.10	2	1	236923	236925
	G 1/2	9.5	1.40	0.7	0.35	273004	314557
	NPT 1/2		1.40	0.7	0.35	314555	314559

1.) Port connection: others on request

2.) Measurement at +20 °C, 1 bar pressure differential over a fully opened valve.

3.) Pressure data: overpressure to atmospheric pressure. If the differential pressure between the inlet and outlet pressure of the valve is greater than half of the nominal pressure, discontinuities in the valve characteristic curve are possible.

DTS 1000173855 EN Version: L Status: RL (released | freigegeben | validé) printed: 25.10.2023

Version with approvals

Note:

- All valves with FKM seal and ATEX version with 3 m connection cable.
- Please note that the cable plug must be ordered separately, see “Cable plug Type 2518, form A according to DIN EN 175301 - 803” on page 15 or separate data sheet for Type 2518 ▶.
- Refer to chapter “3. Approvals and conformities” on page 4 for more information about the approvals.

Circuit function	Port connection ^{1.)}	Orifice	Approvals	K _{vs} -value water ^{2.)}	Nominal pressure	Maximum differential pressure	Article no. Brass body	Article no. Stainless steel body	
		[mm]		[m ³ /h]	[bar]	[bar]			
CF A 2/2-way solenoid proportional control valve Direct-acting Normally closed 	G 3/8	2.0	UR	0.12	25	12.5	274976	274988	
	NPT 3/8			0.12	25	12.5	274977	274989	
	G 3/8	3.0	ATEX/IECEX	0.12	20	10	291483	o. r.	
	G 3/8			UR	0.25	10	5	274978	274990
	NPT 3/8		ATEX/IECEX	0.25	10	5	274979	274991	
	G 3/8		UR	0.25	9	4.5	291485	o. r.	
	G 3/8		4.0	UR	0.45	8	4	274980	274992
	NPT 3/8				0.45	8	4	274981	274993
	G 3/8	ATEX/IECEX		0.45	7	3.5	291486	o. r.	
	G 1/2	UR		0.45	8	4	274982	274994	
	NPT 1/2	6.0	UR	0.45	8	4	274983	274995	
	G 1/2			0.80	4	2	274984	274996	
	NPT 1/2		ATEX/IECEX	0.80	4	2	274985	274997	
	G 1/2		UR	0.80	3.5	1.75	291487	o. r.	
	G 1/2	8.0	UR	1.10	2	1	274986	274998	
	NPT 1/2			1.10	2	1	274987	274999	
G 1/2	ATEX/IECEX		1.10	1.5	0.75	291488	o. r.		

o. r. = on request

1.) Port connection: others on request

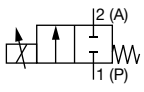
2.) Measurement at +20 °C, 1 bar pressure differential over a fully opened valve.

DTS 1000173855 EN Version: L Status: RL (released | freigegeben | validé) printed: 25.10.2023





Version for higher differential pressures

Note:

- All valves with FKM seal
- Other connection variants (Sub-base, NPT) on request
- PWM frequency: 500 Hz
- Span: 1:100
- For $\Delta p > 10$ bar it is possible to get inconsistencies in the characteristic curve because of flow conditions in the application.
- Please note that the cable plug must be ordered separately, see [“Cable plug Type 2518, form A according to DIN EN 175301 - 803” on page 15](#) or separate data sheet for **Type 2518** ▶.
- Refer to chapter [“3. Approvals and conformities” on page 4](#) for more information about the approvals.

Circuit function	Port connection ^{1.)}	Orifice	Approvals	K _{vs} -value	Nominal pressure	Article no. Brass body	Article no. Stainless steel body
		[mm]		water ^{2.)}			
CF A 2/2-way solenoid proportional control valve Direct-acting Normally closed 	G 3/8	2.0	–	0.12	25	239040	239085
	G 3/8		UR	0.12	25	275000	275005
	G 3/8		ATEX/IECEX	0.12	20	291468	o. r.
	G 3/8	3.0	–	0.25	10	239086	239087
	G 3/8		UR	0.25	10	275001	275006
	G 3/8		ATEX/IECEX	0.25	9	291470	o. r.
	G 3/8	4.0	–	0.45	8	239088	239089
	G 3/8		UR	0.45	8	274090	274091
	G 3/8		ATEX/IECEX	0.45	7	291474	o. r.
	G 1/2	6.0	–	0.80	4	239090	239091
	G 1/2		UR	0.80	4	275002	275007
	G 1/2		ATEX/IECEX	0.80	3.5	291476	o. r.
	G 1/2	8.0	–	1.10	2	239092	239093
	G 1/2		UR	1.10	2	275004	275008
	G 1/2		ATEX/IECEX	1.10	1.5	291477	o. r.
G 1/2	9.5	–	1.40	0.7	291586	314558	

o. r. = on request
 1.) Port connection: others on request
 2.) Measurement at +20 °C, 1 bar pressure differential over a fully opened valve.

Further versions on request	
 Material EPDM	 Analytical Oxygen version, parts oil-, fat- and silicon free
 Approval UR (UL recognized) ATEX/IECEX	 Process connection Sub-base version


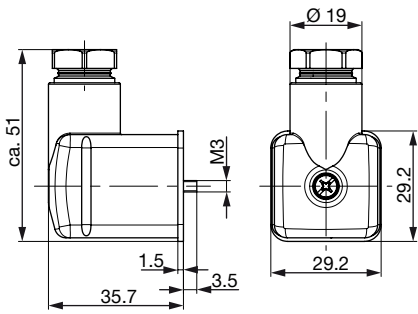

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8.6. Ordering chart accessories

Cable plug Type 2518, form A according to DIN EN 175301 - 803

Note:














For further versions see data sheet **Type 2518** ▶.

Cable plug	Dimensions	Version	Voltage	Article no.
		Without circuitry (AC/DC)	0...250 V AC/DC	314802 

Control electronics Type 8605 for proportional valves

Note:

Refer to data sheet **Type 8605** ▶ for more information about the control electronics.

Control electronics	Version	Max. coil current range [mA]	Voltage		Article no.
			24 V DC	12 V DC	
	Cable plug with PG cable gland	200...1000	o. r.	o. r.	316530 
	Cable plug with M12 connection	200...1000	o. r.	o. r.	316528 
	Cable plug with PG cable gland	500...2000	–	o. r.	316529 
	Cable plug with M12 connection	500...2000	–	o. r.	316526 
	Cable plug with PG cable gland without operating element	200...1000	o. r.	o. r.	316521 
	Cable plug with M12 connection without operating element	200...1000	o. r.	o. r.	316522 
	Cable plug with PG cable gland without operating element	500...2000	–	o. r.	316523 
	Cable plug with M12 connection without operating element	500...2000	–	o. r.	316525 
	Standard rail	200...1000	o. r.	o. r.	316532 
	Standard rail	500...2000	–	o. r.	316533 

o. r. = on request
 – = not available

DTS 1000173855 EN Version: L Status: RL (released | freigegeben | valide) printed: 25.10.2023

