



### 3/2 way pneumatic cartridge solenoid valve

- Compact design with 11 mm width per station
- Orifices from 0,5 mm (9 bar) to 1,2 mm (1,5 bar)
- High durability and reliability
- Low power consumption, as well as optional ATEX Ex ib version
- Design for optimum integration



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

#### Type description

Customer specific applications are becoming more complex. Size, fluidic performance, low power consumption and cost efficiency are critical criteria. Therefore the demands on the components used are increasing. Type 6164 was developed with the goal, to simplify pneumatic control with optimum integration of a pilot valve in block and plastic moulding parts. Thus, making a more compact design possible.

This valve sets new standards with its uncompromising reliability, above average life cycle span and excellent fluidic characteristics.

Various certifications and conformities make the use of the valve in medical applications such as media multiplexers in dental technology and oxygen control in respirators possible.

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## 1. General technical data

Product properties	
Dimensions	Detailed information can be found in chapter "4. Dimensions" on page 6.
Material	
Seal	FKM
Body	PEEK
Further materials in contact with the medium	PA, LCP, MS, Edelstahl... Detailed information can be found in chapter "3.2. Material specifications" on page 5.
Permissible leakage	Vac...10 bar (dependent on the version used) <sup>1)</sup>
Weight	6 g (standard version)
Nominal diameter	DN 0.5 / DN 0.8 / DN 1.0 / DN 1.2
Circuit function	Detailed information can be found in chapter "2. Circuit functions" on page 4.
Typical product service life	100.000,000 switching cycles (accordance to endurance tests) <sup>2)</sup>
Performance data	
Pressure range	DN 0.5 (Vac...9 bar) <sup>1)</sup> / DN 0.8 (Vac...7.5 bar) <sup>1)</sup> / DN 1.0 (Vac...5 bar) <sup>1)</sup> / DN 1.2 (Vac...1.5 bar) <sup>1)</sup>
Duty cycle	100 % ED continuous rating
Switching time <sup>3)</sup>	Opening: <5 ms (pressure rise 0...10 %) Closing: <5 ms (pressure drop 100...90 %)
Electrical data	
Operating voltage	12 or 24 V DC (other voltages on request)
Power consumption	0.7 W 2.8 W/0.3 W (with external electric power reduction) 0.3 W (for explosion proof version)
Switching frequency	16 Hz
Switching noise	42 dB <sup>4)</sup>
Voltage tolerance	± 10 %
Medium data	
Operating medium	Neutral gases
Medium temperature	- 10 °C...+55 °C
Process/Port connection & communication	
Electrical connection	Plug/Solder, flying leads
Port connection	Bürkert Cartridge Connection
Approvals and certificates	
Explosion proof (on request)	
Detailed information can be found in chapter "6.1. Electrical data ATEX/IECEx i version" on page 10.	
BVS 16 ATEX E 088 X	II 2G Ex ib IIC T6...T4 Gb II 2D Ex ib IIIB T155 °C Db
IECEx BVS 16.0053 X	Ex ib IIC T6...T4 Gb Ex ib IIIB T155 °C Db
Conformity (on request)	UL class 2 Oxygen compatible
Protection class	
Pins	IP00
Special plug	IP40
Flying leads	IP54
Environment and installation	
Installation position	As required
Ambient temperature <sup>5)</sup>	- 10 °C...+55 °C

1.) Technical vacuum (-0.8 bar)

2.) Life span is dependent on temperature, pressure, sealing material and operating conditions.

3.) Measurement at the valve outlet according to DIN ISO 12238:2001

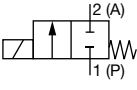
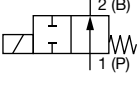
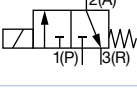
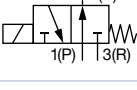
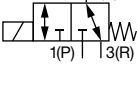
4.) According to ISO 3745, testing environment in brass manifold, free-hanging

5.) Depending on installation conditions (see manual), higher temperatures on request

## 2. Circuit functions

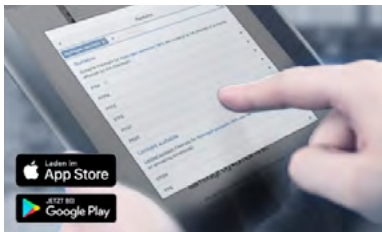
### Note:

See "5.1. Pin assignment standard version" on page 9

Circuit functions	Description
	<b>Type: A, solenoid valve</b> 2/2 way Direct-acting Normally closed
	<b>Type: B, solenoid valve</b> 2/2 way Direct-acting Normally open
	<b>Type: C, solenoid valve</b> 3/2 way Direct-acting Normally closed
	<b>Type: D, solenoid valve</b> 3/2 way Direct-acting Normally open
	<b>Type: T, solenoid valve</b> 3/2 way Direct-acting Flow direction optional Normally closed

### 3. Materials

#### 3.1. Chemical Resistance Chart – Bürkert resistApp

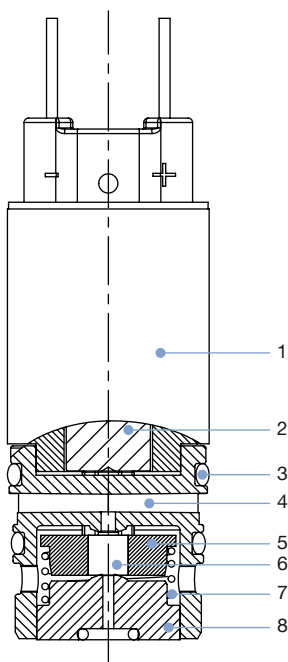


**Bürkert resistApp – Chemical Resistance Chart**

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](#)

#### 3.2. Material specifications



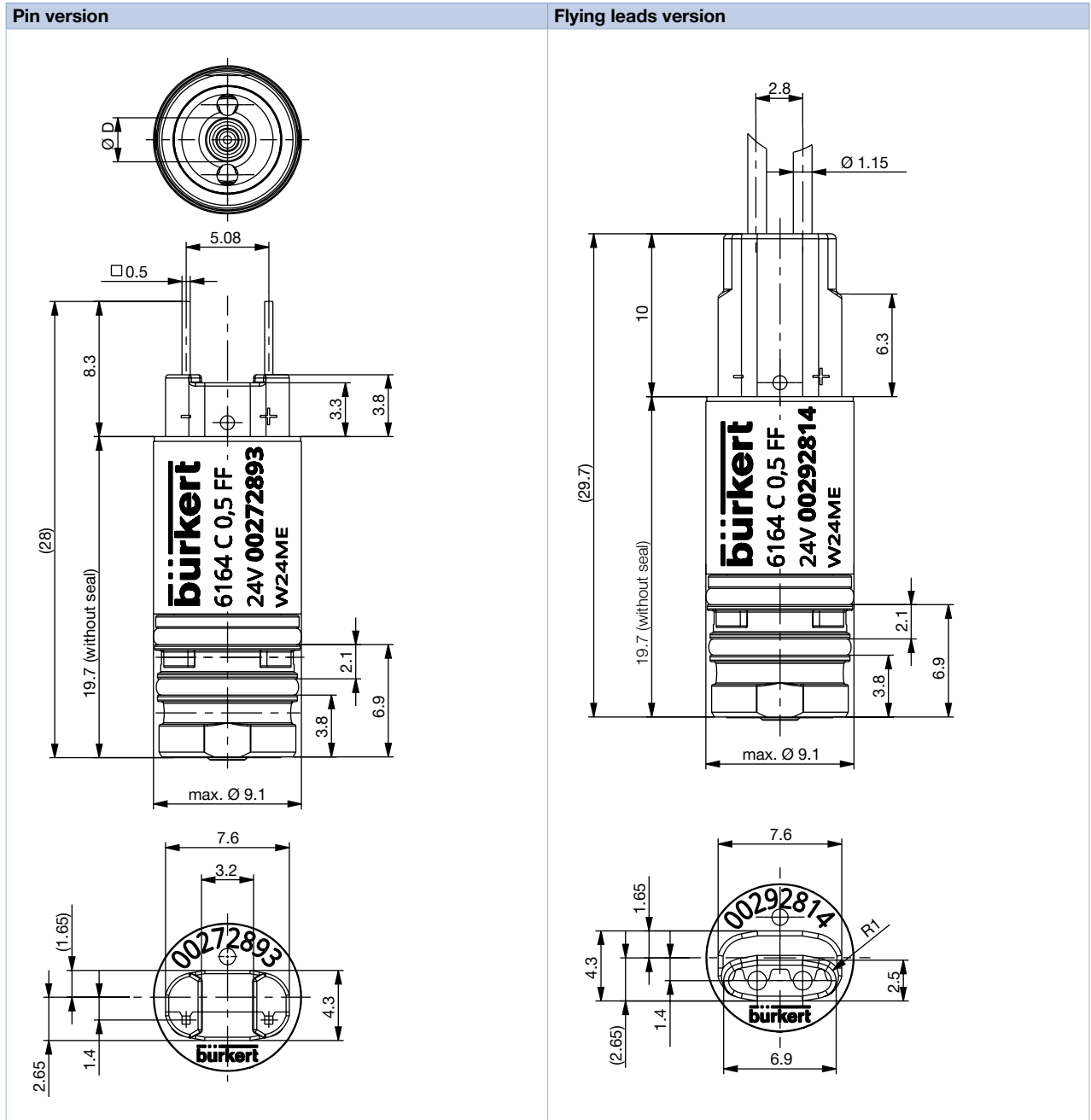
No.	Element	Material
1	Coil housing	1.4113
2	Core (wetted parts)	1.4113
3	O-Rings (wetted parts)	FKM
4	Body (wetted parts)	PEEK
5	Seal switch (wetted parts)	PA
6	Seal (wetted parts)	FKM
7	Spring (wetted parts)	1.4310
8	Fitting (wetted parts)	Brass
-	Coil body (wetted parts, not visible)	LCP

## 4. Dimensions

### 4.1. Pin and flying leads version

**Note:**

Dimensions in mm



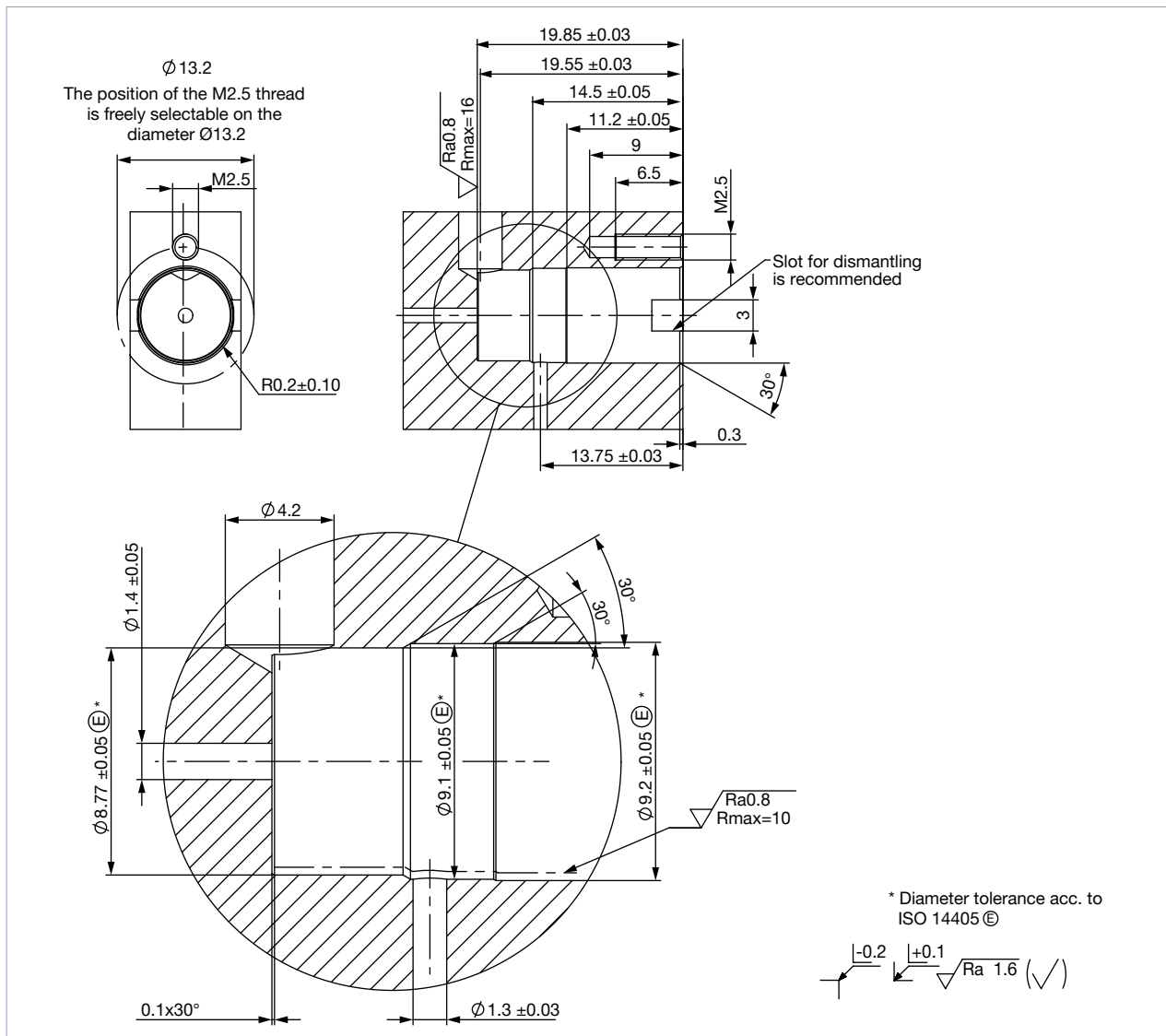
Version	Measurement D
DN < 0.65	Ø 2.7
DN > 0.65	Ø 3.3

## 4.2. Defining of the installation area

### Cartridge connection (fully sunken)

**Note:**

- For explanation see also “7. Product design and assembly” on page 11
- Observe max. tightening torque of the screw (see User Manual **Type 6164** ▶)
- Dimensions in mm

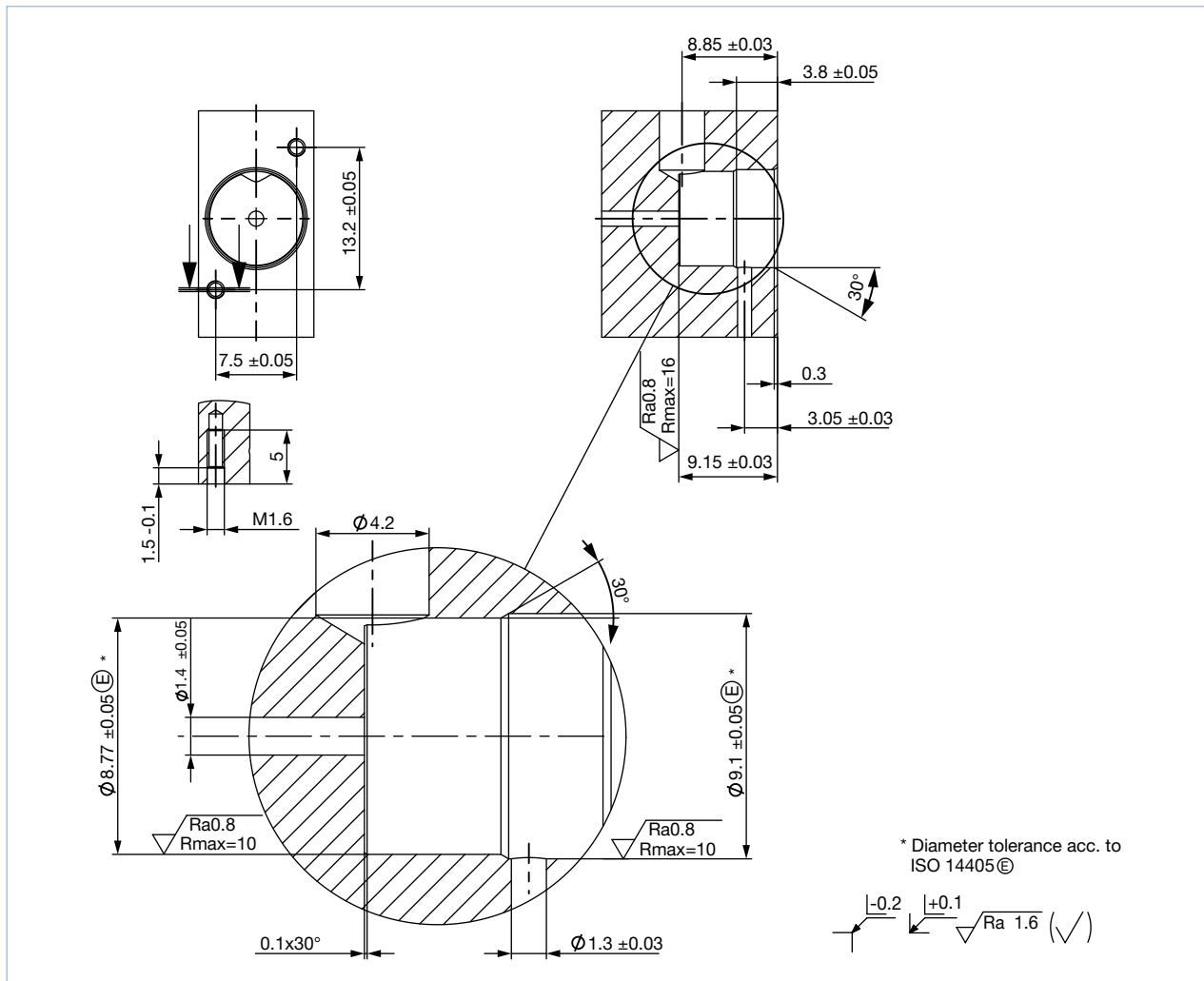


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**Cartridge connection (half sunken)**

**Note:**

- For explanation see also “7. Product design and assembly” on page 11
- A mounting bracket set is required for mounting, see “9.4. Ordering chart accessories” on page 15.
- Dimensions in mm





## 5. Device/Process connections

### 5.1. Pin assignment standard version

**Note:**

- The pin assignment (marked No. 1, 2 and 3 in the drawing) depends on the circuit function. In the table, compare the respective pin assignment with the corresponding circuit function.
- The polarity must be observed only in the Ex version.

Circuit functions	Port 1	Port 2	Port 3	3 way
<p><b>A, solenoid valve</b> 2/2 way Direct-acting Normally closed</p> <p>(same valve as for circuit function C by blind connection to 3)</p>	Pressure port	Working port	Blind	
<p><b>B, solenoid valve</b> 2/2 way Direct-acting Normally open</p> <p>(same valve as for circuit function D by blind connection to 3)</p>	Pressure port	Working port	Blind	
<p><b>C, solenoid valve</b> 3/2 way Direct-acting Normally closed</p> <p>(applicable to circuit function A by using blind connectors on 3)</p>	Pressure port	Working port	Ventilation	
<p><b>D, solenoid valve</b> 3/2 way Direct-acting Normally open</p> <p>(applicable to circuit function B by using blind connectors on 3)</p>	Pressure port	Working port	Ventilation	
<p><b>T, solenoid valve</b> 3/2 way Direct-acting Flow direction optional Normally closed</p>	Pressure port	Working port	Ventilation	

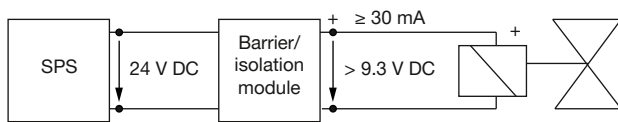
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## 6. Performance specifications

### 6.1. Electrical data ATEX/IECEx i version

**Note:**

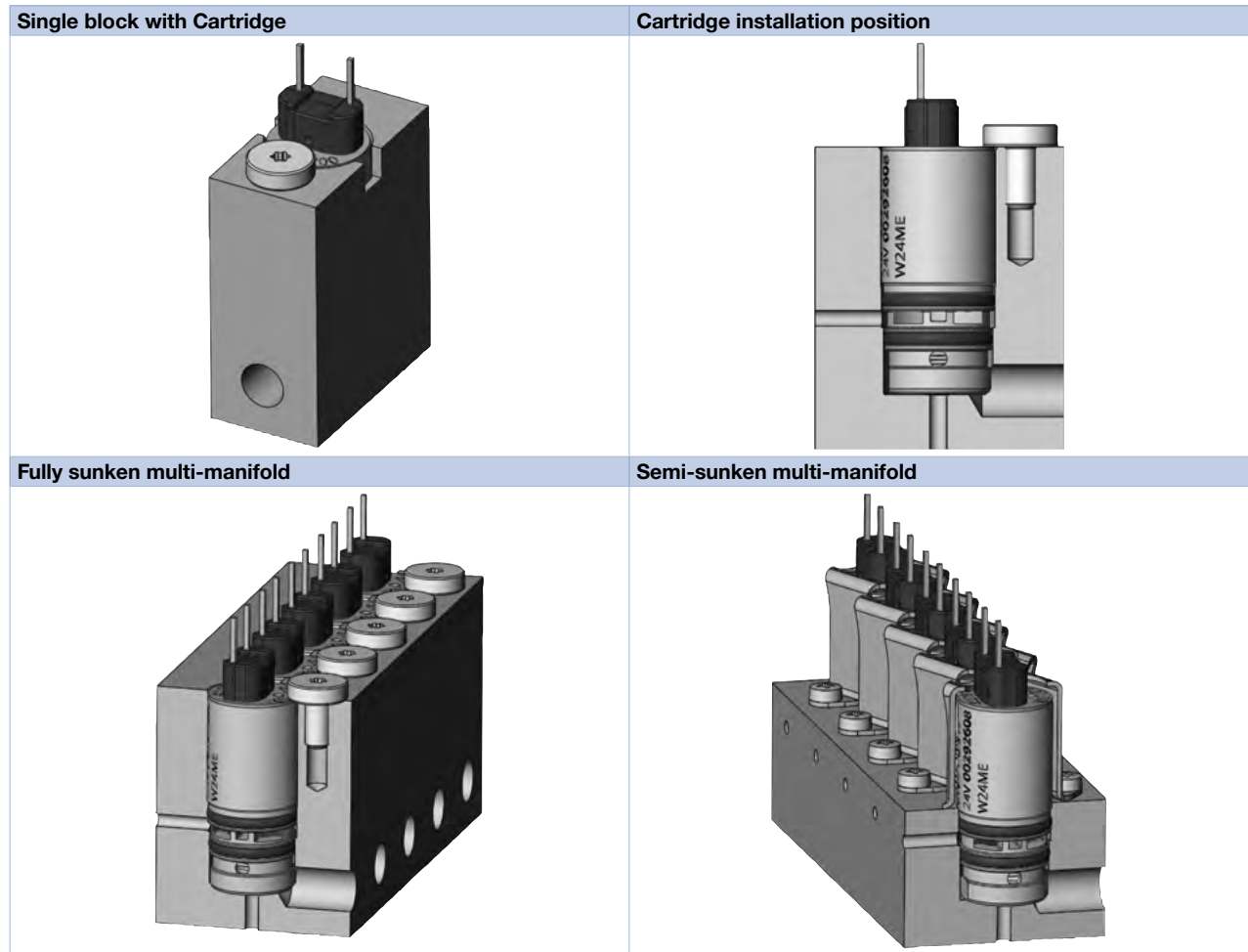
- The valve is designed to operate on 24 V DC outputs through an intermediary intrinsically safe apparatus (isolating block or barrier). Please refer to the **Type 6164** ▶ Instruction Manual for the permissible maximum values/value pairs.
- Type of protection:  
BVS 16 ATEX E 088 X: II 2G Ex ib IIC T6...T4 Gb & II 2D Ex ib IIIB T155 °C Db  
IECEx BVS 16.0053 X: Ex ib IIC T6...T4 Gb & Ex ib IIIB T155 °C Db



Version	Resistance at 20 °C ± 4 % [Ohm]	Minimum terminal voltage [V]	Minimum current [mA]
Version for use with 300 Ω supply module	320	9.3	29
High-resistance version	510	11.7	23

## 7. Product design and assembly

### 7.1. Application examples

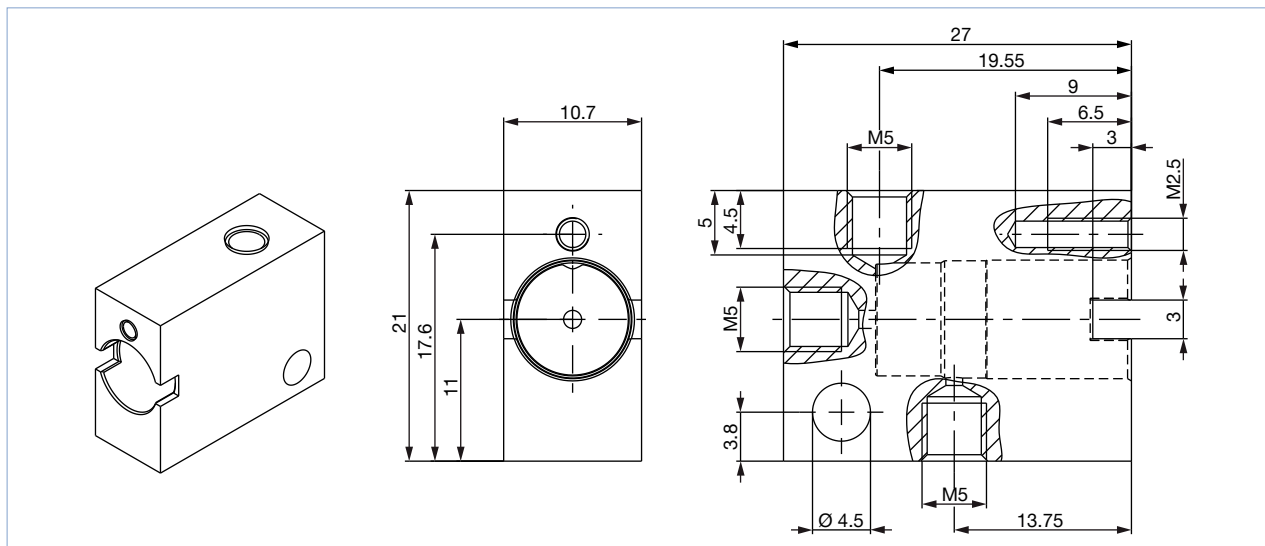


## 8. Product accessories

### 8.1. Single manifold fully sunken

**Note:**

- Dimensions in mm
- Max. tightening torque of the screw must be observed (see operating instructions **Type 6164** ▶)



Description	Article no.
Manifold 1 place, brass	695913

## 9. Ordering information

### 9.1. Bürkert eShop – Easy ordering and quick delivery



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### 9.2. Bürkert product filter



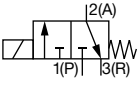
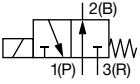
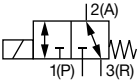
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### 9.3. Ordering chart

#### Standard version

Circuit functions	Port connection	Orifice ventilation 1 → 2	Orifice ventilation 2 → 3	Q <sub>Nn</sub> value air <sup>1.)</sup> 1 → 2	Q <sub>Nn</sub> value air <sup>1.)</sup> 2 → 3	Voltage/Frequency	Nominal power	Pressure range <sup>2.)</sup>	Article no. with connection pins
		[mm]	[mm]	[l/min]	[l/min]				
<b>C, solenoid valve</b> 3/2 way Direct-acting Normally closed 	Bürkert Cartridge connection	0.5	0.65	6	9.55	12/DC	0.7	Vac...9	273612
						24/DC		Vac...9	272893
						24/DC		2.5...10	281022
		0.8	1.1	16	20	24/DC	2.8/0.3 <sup>3.)</sup>	Vac...7.5	285701
		1.0	1.1	20	20			Vac...5	285700
1.2	1.1	25	22	Vac...1.5	272894				
<b>D, solenoid valve</b> 3/2 way Direct-acting Normally open 	Bürkert Cartridge connection	0.65	0.5	6.5	6	12/DC	0.7	Vac...6	273615
						24/DC	0.7		273614
<b>T, solenoid valve</b> 3/2 way Direct-acting Flow direction optional Normally closed 	Bürkert Cartridge connection	0.5	0.65	6	6	24/DC	0.7	Vac...4	292608

1.) Measurement at 6 bar and +20 °C at the valve inlet and 1 bar pressure difference

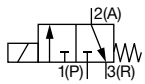
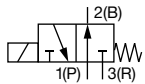
2.) Technical vacuum (-0.8 bar)

3.) External power reduction electronics necessary

**ATEX/IECEX i version**

**Note:**

- BVS 16 ATEX E 088 X  
II 2G Ex ib IIC T6...T4 Gb & II 2D Ex ib IIIB T155 °C Db
- IECEX BVS 16.0053 X  
Ex ib IIC T6...T4 Gb & Ex ib IIIB T155 °C Db

Circuit functions	Port connection	Orifice ventilation 1 → 2	Orifice ventilation 2 → 3	Q <sub>Nn</sub> value air <sup>1.)</sup> 1 → 2	Q <sub>Nn</sub> value air <sup>1.)</sup> 2 → 3	Pressure range <sup>2.)</sup>	Resist-ance at 20 °C ± 4 %	Min. holding current	Article no. with connection pins
		[mm]	[mm]	[l/min]	[l/min]		[Ω]		
<b>C, solenoid valve</b> 3/2 way Direct-acting Normally closed 	Bürkert Cartridge connection	0.5	0.65	6	9.5	Vac...6	320	29	289027
							510	23	289028
<b>D, solenoid valve</b> 3/2 way Direct-acting Normally open 	Bürkert Cartridge connection	0.65	0.5	6.5	6	Vac...4	320	29	auf Anfrage

1.) Measurement at 6 bar and +20 °C at the valve inlet and 1 bar pressure difference  
 2.) Technical vacuum (-0.8 bar)

Further versions on request	
<b>Additional</b> Leads version up to 300 mm	<b>Voltage</b> Voltages 9 V, 6 V, 3 V
<b>Approval</b> Oxygen compatibility: Suitable for the oxygen application labeled with a blue sticker	

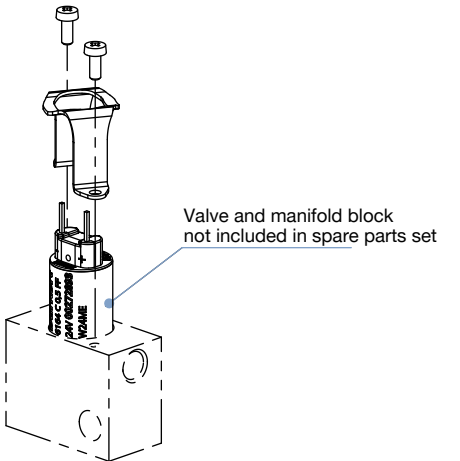
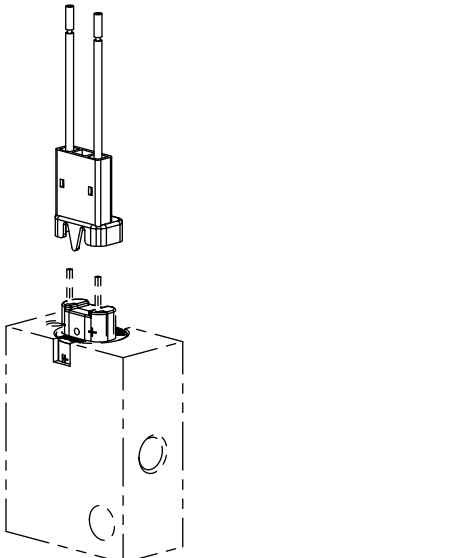
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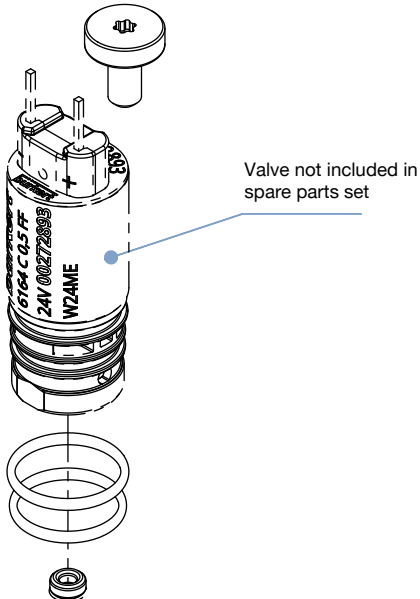

### 9.4. Ordering chart accessories

#### Single manifold fully sunken

Ordering information and dimensions of the single manifold fully sunken can be found in chapter “8.1. Single manifold fully sunken” on page 12.

#### Further accessories

Accessories	Description	Article no.
	<p><b>Mounting bracket set for semi-recessed mounting for type 6164</b></p> <p>Scope of delivery:</p> <ul style="list-style-type: none"> <li>• 2 x fixing screws; M1.6x5; stainless steel A2</li> <li>• 1 x mounting bracket; 1.4310</li> </ul>	<p>696032 </p>
	<p><b>Plug for Type 6164 with two PVC wires; AWG 24; length 300 mm</b></p>	<p>695951 </p>

Accessories	Description	Article no.
 <p>Valve not included in spare parts set</p>	<p><b>Spare parts set for Type 6164</b></p> <p>Scope of delivery:</p> <ul style="list-style-type: none"> <li>• 1 x cheese head screw with internal TORX T8; M2.5x5; stainless steel A2</li> <li>• 2 x O-ring large; FKM</li> <li>• 1 x O-ring small; FKM</li> </ul>	<p>696033 </p>



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