



## Servo-assisted 2/2-way piston valve up to 1000 bar

- Hydrogen-resistant screwed fluid housing
- Function test with forming gas at nominal pressure
- Piston system with mechanical seal bearings
- Explosion-proof design ATEX and IECEx
- Inspection holes for monitoring the process seal

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

### Type description

The valve type 6480 is a servo-controlled piston valve for hydrogen applications with a nominal diameter of 8 mm. A minimum differential pressure of at least 5 bar is required in the valve to support the opening and closing process. To increase the pressure resistance in contact with hydrogen, the plunger guiding tube and stopper are screwed together. Certified 3.1 materials suitable for hydrogen and carbon-coated magnetic steels are used. Each valve is subject to a functional test at maximum nominal pressure. The external leakage at nominal pressure is  $5 \times 10^{-5}$  mbar l/s. On request, the push-over coil can be provided as a zone 1 or category 2 explosion-proof version.

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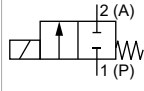
## 1. General technical data

|                                                    |                                                                                                              |
|----------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| <b>Product properties</b>                          |                                                                                                              |
| Dimensions                                         | Further information can be found in chapter <a href="#">“5. Dimensions” on page 6.</a>                       |
| <b>Material</b>                                    |                                                                                                              |
| Seal                                               | PEEK/FKM and PEEK/PTFE                                                                                       |
| Body                                               | Stainless steel 1.4404                                                                                       |
| Coil                                               | Powder-coated steel                                                                                          |
| <b>Tightness</b>                                   |                                                                                                              |
| Permissible internal leakage rate                  | $2 \times 10^{-3}$ mbar l/s at 20 bar, $5 \times 10^{-5}$ mbar l/s at nominal pressure                       |
| Permissible external leakage rate                  | $5 \times 10^{-5}$ mbar l/s                                                                                  |
| Max. switching cycles regarding leakage rates      | ~ 40.000 at $\Delta p = 100 \dots 200$ bar                                                                   |
| Max. absolute switching cycles (service)           | ~ 80.000 (1 year) at $\Delta p = 100 \dots 200$ bar                                                          |
| <b>Pressure</b>                                    |                                                                                                              |
| Pressure level                                     | PN 1000 bar                                                                                                  |
| Differential pressure <sup>1)</sup>                | 5...1000 bar<br>Further information can be found in chapter <a href="#">“7.4. Ordering chart” on page 9.</a> |
| Orifice                                            | DN 8.0                                                                                                       |
| Circuit function                                   | A<br>Further information can be found in chapter <a href="#">“2. Circuit functions” on page 4.</a>           |
| Thermal insulation class of solenoid coil          | Class H                                                                                                      |
| <b>Performance data</b>                            |                                                                                                              |
| Duty cycle                                         | 100 % continuous operation                                                                                   |
| <b>Electrical data</b>                             |                                                                                                              |
| Operating voltage                                  | 24 V/DC, 24 V/50 Hz, 24 V/60 Hz, 230 V/50 Hz (other voltages on request)                                     |
| Voltage tolerance                                  | $\pm 10$ %                                                                                                   |
| <b>Medium data</b>                                 |                                                                                                              |
| Operating medium <sup>2)</sup>                     | Hydrogen                                                                                                     |
| Medium temperature                                 | - 40 °C...+ 80 °C at ambient temperature of max. + 40 °C                                                     |
| Viscosity                                          | Max. 22 mm <sup>2</sup> /s                                                                                   |
| <b>Process/Port connection &amp; communication</b> |                                                                                                              |
| Electrical connection                              | Male cable plug according to DIN 43650<br>Terminal box M16×1.5 (ATEX)                                        |
| Port connection                                    | G 3/8, UNF 13/16 - 16                                                                                        |
| <b>Approvals and conformities</b>                  |                                                                                                              |
| Degree of protection                               | IP65 according to DIN 60529                                                                                  |
| Explosion protection                               | Further information can be found in chapter <a href="#">“3.4. Explosion protection” on page 4.</a>           |
| Others                                             | Further information can be found in chapter <a href="#">“3.5. Others” on page 4.</a>                         |
| <b>Environment and installation</b>                |                                                                                                              |
| Installation position                              | Actuator upright or horizontal                                                                               |
| Ambient temperature                                | - 20 °C...+ 50 °C                                                                                            |

1.) Pressure data: overpressure to atmospheric pressure, depending on orifice, tightness seal or nominal pressure

2.) Medium resistance according to material combination

2. Circuit functions

| Symbol                                                                            | Description                                                                                    |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
|  | <b>Circuit function A (CF A)</b><br>2/2-way solenoid valve<br>Direct-acting<br>Normally closed |

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. This includes the following directives:

- Pressure equipment directive 2014/68/EU category IV
- Machinery directive 2006/42/EC

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                                                                                                                                                                                                                                                             |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>Optional: Explosion protection</b><br>As a category 2 device suitable for zone 1/21 and zone 2/22 (optional).<br><br><b>ATEX:</b><br>II 2G Ex e mb IIC T4 Gb<br>II 2D Ex tb mb IIIC T130 °C Db<br><br><b>IECEx:</b><br>Ex e mb IIC T4 Gb<br>Ex tb mb IIIC T130 °C Db |

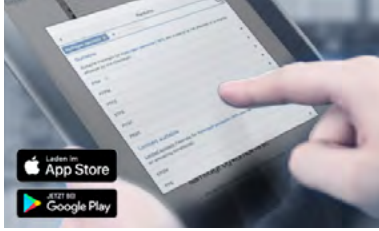
3.5. Others

Hydrogen

| Conformity                                                                          | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <b>Suitability for hydrogen</b><br>The products are suitable for use with gaseous hydrogen, according to the manufacturer's declaration. <ul style="list-style-type: none"><li>• ISO 19880 - 3: Gaseous hydrogen - Refuelling stations - Part 3: Shut-off devices</li><li>• SAE J2601: Fueling Protocols for Light Duty Gaseous Hydrogen Surface Vehicles → 700 bar</li><li>• SAE J2601 - 2: Fueling Protocol for Gaseous Hydrogen Powered Heavy Duty Vehicles → 350 bar</li><li>• ISO 14687: Characteristics of hydrogen as a fuel - specification of the product</li><li>• DIN 17124: Hydrogen as a fuel</li><li>• SAE J2719: Hydrogen Purity</li></ul> |

## 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.

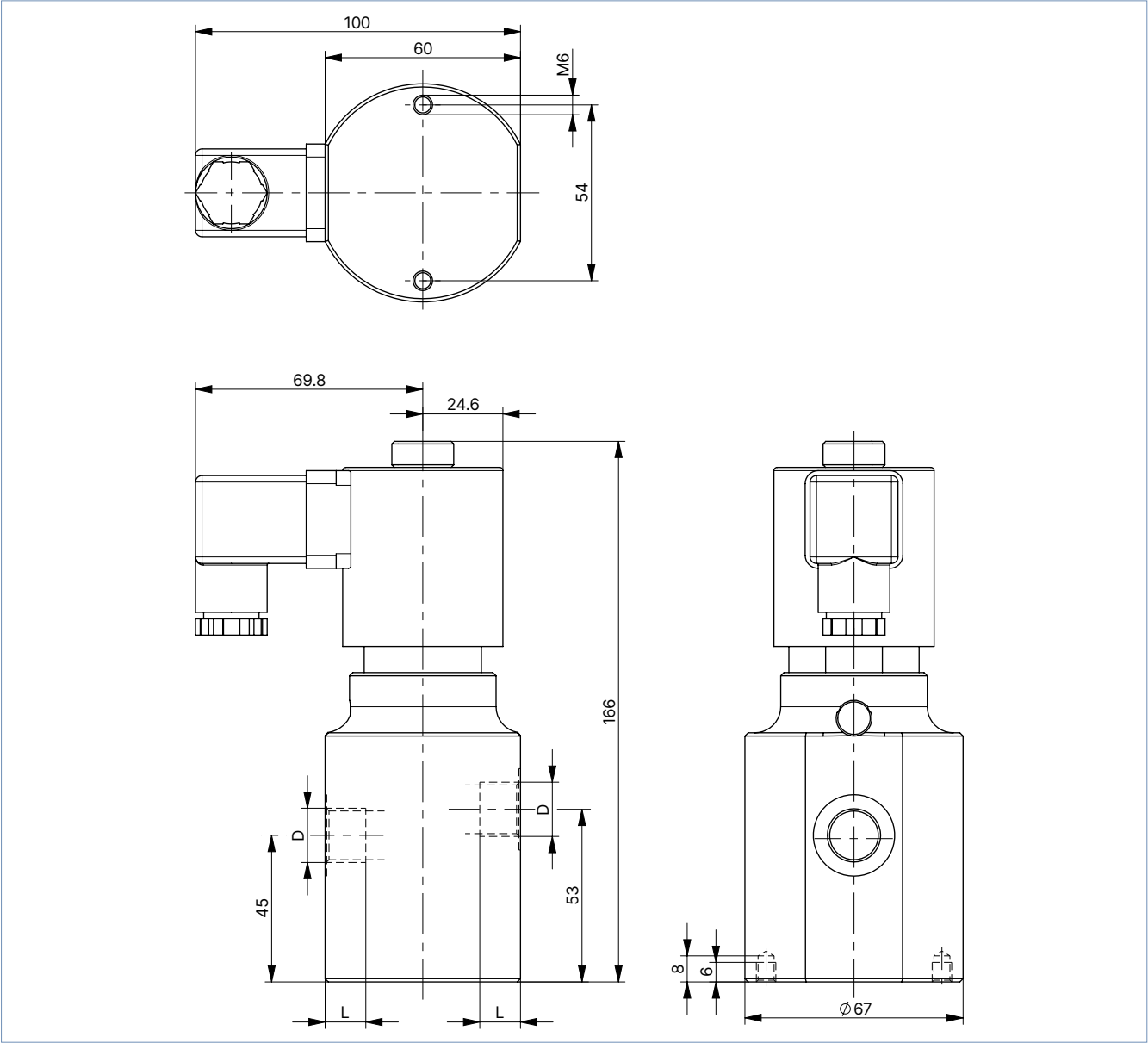
[Start chemical resistance check](#)

5. Dimensions

5.1. Threaded version

Standard version

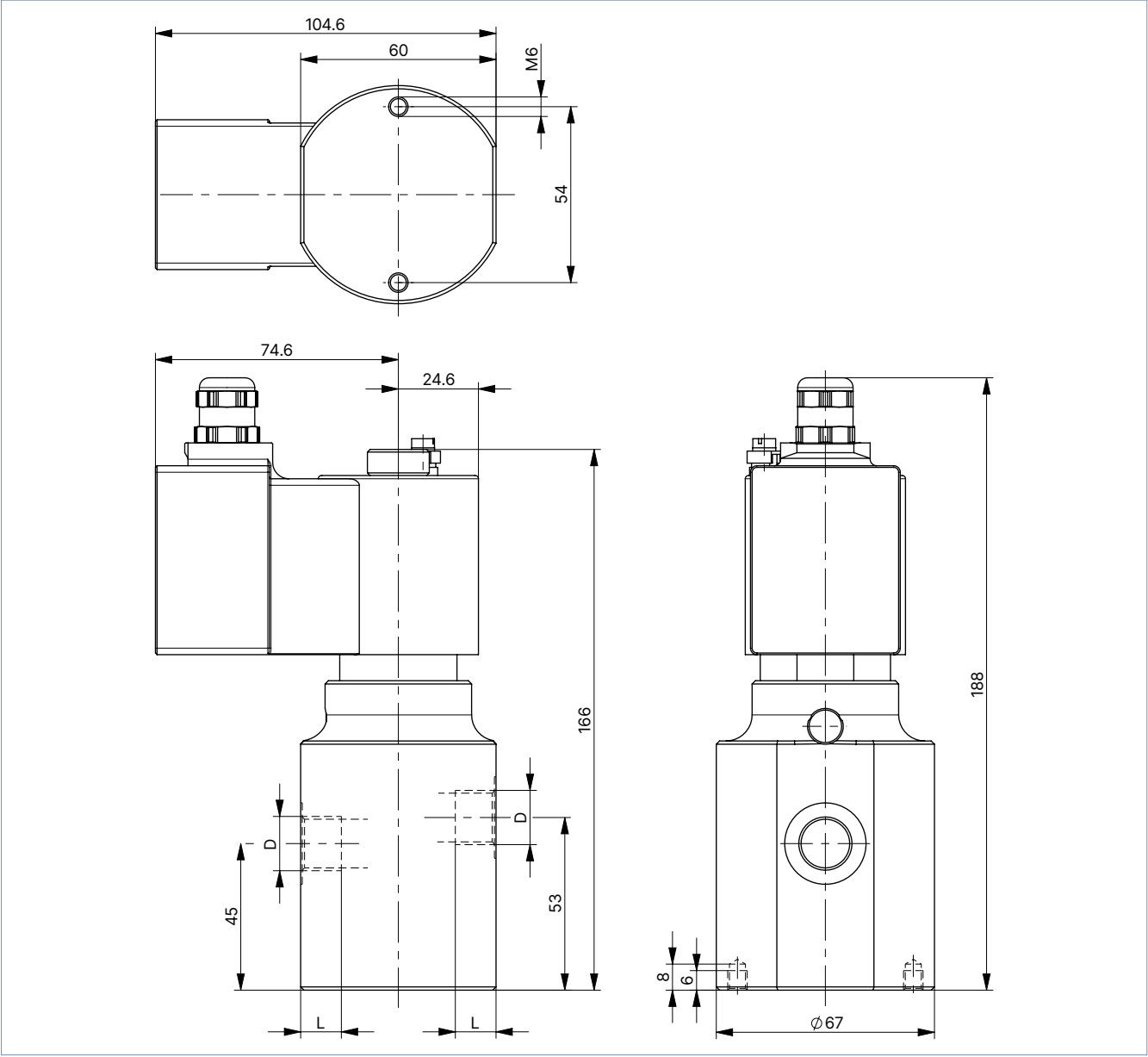
**Note:**  
Dimensions in mm



| Port connection | D              | L    |
|-----------------|----------------|------|
| GM83            | G 3/8          | 12.5 |
| UNFG            | 13/16 - 16 UNF | 25.4 |

ATEX/IECEx terminal box version

**Note:**  
Dimensions in mm



| Port connection | D              | L    |
|-----------------|----------------|------|
| GM83            | G 3/8          | 12.5 |
| UNFG            | 13/16 - 16 UNF | 25.4 |

DTS 1000636667 EN Version: - Status: RL (released | freigegeben | validé) printed: 03.10.2024

## 6. Performance specifications

### 6.1. Power consumption

**Note:**

The cable plug for AC valves contains an integrated rectifier.

| Coil size   | Cold performance |
|-------------|------------------|
| [mm]        | [W]              |
| 49 (8)      | 24               |
| 49 (8) ATEX | 24               |

## 7. Ordering information

### 7.1. 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](#)

### 7.2. Bürkert product filter

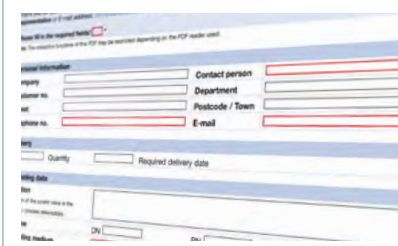


#### Bürkert product filter – Get quickly to the right product

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](#)

### 7.3. 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.

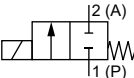
[Fill out the form now](#)

## 7.4. Ordering chart

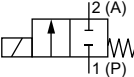
### Standard version

#### Note:

Other versions are available on request.

| Circuit function                                                                                                                                               | Port connection                | Orifice | K <sub>v</sub> value water | Pressure range | Article no.                                                                                  |                                                                                              |                                                                                              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------|----------------------------|----------------|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
|                                                                                                                                                                |                                |         |                            |                | 024/DC                                                                                       | 024/AC                                                                                       | 230/AC                                                                                       |
|                                                                                                                                                                |                                | [mm]    | [m³/h]                     | [bar]          | [V/Hz]                                                                                       | [V/Hz]                                                                                       | [V/Hz]                                                                                       |
| Stainless steel body with threaded connection, cable head with integrated rectifier for AC included in scope of delivery                                       |                                |         |                            |                |                                                                                              |                                                                                              |                                                                                              |
| <b>CF A</b><br>2/2-way solenoid valve<br>Direct-acting<br>Normally closed<br> | <b>Seal material PEEK/FKM</b>  |         |                            |                |                                                                                              |                                                                                              |                                                                                              |
|                                                                                                                                                                | G 3⁄8                          | 8.0     | 0.6                        | 5...500        | 20093243  | 20093244  | 20093245  |
|                                                                                                                                                                |                                | 8.0     | 0.6                        | 5...900        | 20093247  | 20093248  | 20093249  |
|                                                                                                                                                                | <b>Seal material PEEK/PTFE</b> |         |                            |                |                                                                                              |                                                                                              |                                                                                              |
|                                                                                                                                                                | UNF<br>13/16 - 16              | 8.0     | 0.6                        | 5...1000       | 20093250  | 20093251  | 20093252  |

### ATEX/IECEx terminal box version

| Circuit function                                                                                                                                                 | Port connection         | Orifice | K <sub>v</sub> value water | Pressure range | Article no.                                                                                    |                                                                                                |                                                                                                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|---------|----------------------------|----------------|------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
|                                                                                                                                                                  |                         | [mm]    | [m³/h]                     | [bar]          | 024/DC<br>[V/Hz]                                                                               | 024/AC<br>[V/Hz]                                                                               | 230/AC<br>[V/Hz]                                                                               |
| Stainless steel body with threaded connection                                                                                                                    |                         |         |                            |                |                                                                                                |                                                                                                |                                                                                                |
| <b>CF A</b><br>2/2-way solenoid valve<br>Direct-acting<br>Normally closed<br> | Seal material PEEK/FKM  |         |                            |                |                                                                                                |                                                                                                |                                                                                                |
|                                                                                                                                                                  | G 3⁄8                   | 8.0     | 0.6                        | 5...500        | 20093254  | 20093255  | 20093257  |
|                                                                                                                                                                  |                         | 8.0     | 0.6                        | 5...900        | 20093258  | 20093259  | 20093260  |
|                                                                                                                                                                  | Seal material PEEK/PTFE |         |                            |                |                                                                                                |                                                                                                |                                                                                                |
|                                                                                                                                                                  | UNF<br>13/16 - 16       | 8.0     | 0.6                        | 5...1000       | 20093261  | 20093262  | 20093263  |