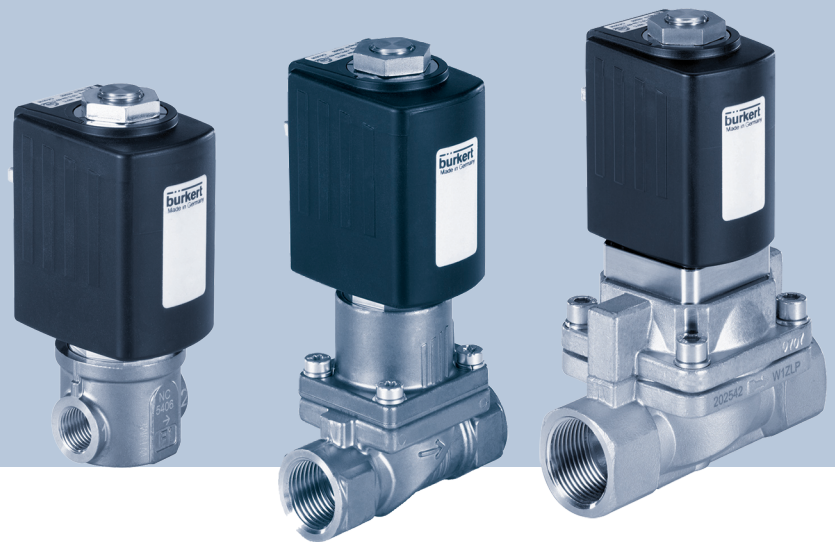


# Type 5406

Safety shut-off device – TÜV-tested according to  
DIN EN ISO 23553-1



## Operating Instructions

We reserve the right to make technical changes without notice.

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Technical documentation 2512/03\_GBen\_00805777\_1006549259\_1006686731 / Original DE

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# 1 About this document

The document is an important part of the product and guides the user to safe installation and operation. The information and instructions in this document are binding for the use of the product.

- ▶ Before using the product for the first time, read and observe the whole safety chapter.
- ▶ Before starting any work on the product, read and observe the respective sections of the document.
- ▶ Keep the document available for reference and give it to the next user.
- ▶ Contact the Bürkert sales office for any questions.



Further information concerning the product at [Products](#).

- ▶ Enter the article number from the type label in the search bar.

The illustrations in these instructions may vary depending on the product variant.

## 1.1 Symbols



### **DANGER!**

Warns of a danger that leads to death or serious injuries.



### **WARNING!**

Warns of a danger that can lead to death or serious injuries.



### **CAUTION!**

Warns of a danger that can lead to minor injuries.

### **NOTICE!**

Warns of property damage on the product or the installation.



Indicates important additional information, tips and recommendations.



Refers to information in this document or in other documents.

- ▶ Indicates a step to be carried out.

✓ Indicates a result.

**Menu** Indicates a software user-interface text.

## 1.2 Terms and abbreviations

The terms and abbreviations are used in this document to refer to following definitions.

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Product	Safety shut-off device Type 5406
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## 1.3 Manufacturer

Bürkert Fluid Control Systems

Christian-Bürkert-Str. 13-17

74653 Ingelfingen

GERMANY

The contact addresses are available at [Contact](#).



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## 2 Safety

### 2.1 Intended use

Improper use of Type 5406 solenoid valves may be dangerous to people, nearby equipment and the environment.

- Device has been specially designed for combustion plants and controls the supply of heating oil to a burner.
- When using the device, observe the authorised data, and the operating and usage conditions specified in the contract documents and in the operating instructions. These are described in [Technical data \[▶ 8\]](#).
- Prerequisites for safe and trouble-free operation are correct transport, storage and installation as well as careful operation and maintenance.
- 5406 valve may only be used in the supply line of a combustion plant.
- Safety shut-off device is designed for fuel oils DIN 51603 Part 1-6 with viscosity 1.6 to 76 cST. The use of other media is only permitted after consultation with the Bürkert sales department.
- The valve can also be used for mixtures of fuel oil EL and FAME (DIN (SPEC) 51603-6)/(EN 14214) if the following conditions are met:
  - Only FAME fuels that meet or are comparable to the specification according to EN 14214 may be used.
  - In order to reduce effects such as deposit formation and fuel ageing, mixtures of EL and FAME heating oils should always be sufficiently additive. The specifications of the additive manufacturer must be observed.

### 2.2 Basic safety instructions

These safety instructions do not take into account any unforeseen circumstances or incidents which may arise during installation, operation and maintenance.

#### **Danger due to high pressure**

- ▶ Before loosening lines or valves, switch off the pressure and vent the lines.

#### **Danger due to electrical voltage**

- ▶ Before reaching into the device or the system, switch off the power supply and secure to prevent reactivation.
- ▶ Observe the applicable accident prevention and safety regulations for electrical devices.

#### **Risk of burns from hot device surfaces.**

- ▶ Do not touch the device with your bare hands.

#### **Danger due to incorrect medium**

Unreleased media may impair the tightness and function of the valve.

- ▶ Only use media listed in [Technical data \[▶ 8\]](#).

### **Risk of injury from malfunctioning valves with alternating current (AC)**

A seized core will cause the solenoid to overheat, which leads to functional failure.

- ▶ Monitor the working process for proper function.

### **Risk of injury from functional impairment after external fire**

- ▶ Check the system and safety shut-off device after an external fire.
- ▶ In case of visible damage, replace the safety shut-off device!

### **Risk of escape of medium due to unsealed fittings**

- ▶ Make sure seats are properly seated.
- ▶ Carefully screw the solenoid and cable plug or valve and manifold together.

### **General dangerous situations**

To prevent injuries, observe the following:

- ▶ The system cannot be activated unintentionally.
- ▶ Installation and maintenance tasks must always be performed by authorised technicians, using the appropriate tools.
- ▶ Ensure a defined or controlled restart of the process after an interruption to the power supply.
- ▶ Device may only be operated when in perfect state and in accordance with the operating instructions for the valve and the combustion system.
- ▶ The generally accepted engineering standards must be followed when planning and operating the device.
- ▶ Do not make any modifications to the device and do not subject it to mechanical stress.

## 3 Technical data

### 3.1 Standards and directives

This product complies with the legal requirements applicable at the time of placing on the market and has been developed and tested in accordance with the relevant European directives/regulations and harmonized standards. The conformity is documented and, if necessary, supported by evidence. The EU Declaration of Conformity can be found behind the respective type on the home page [country.burkert.com](http://country.burkert.com)

### 3.2 Operating conditions

The following values are indicated on the type label (see Type label):

- Ambient and medium temperature
- Voltage<sup>1)</sup> (tolerance  $\pm 10\%$ )
- Current type
- Pressure

Storage temperature	-30...+80 °C
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#### Materials

Body	DN 6, DN 13: Brass DN 20: stainless steel
Valve seat seal	PTFE (E)
Body seal	FKM (F)
Solenoid jacket	Epoxide

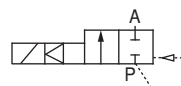
#### Media

Fuel oils (DIN 51603 Parts 1–6) and mixtures of EL and FAME heating oils (DIN (SPEC) 51603-6)/(EN 14214) with viscosity: 1.6 to 76 cST

Other media after consultation with the Bürkert sales department

#### Circuit function of 2/2-way valve:

A (NC)



#### Degree of protection

IP65 according to EN 60529 with approved cable plug according to DIN 175301-803

<sup>1)</sup> When used in combination with a return valve in electrical series connection, the voltage value on the type label is half of the respective mains voltage.

### 3.3 Type label

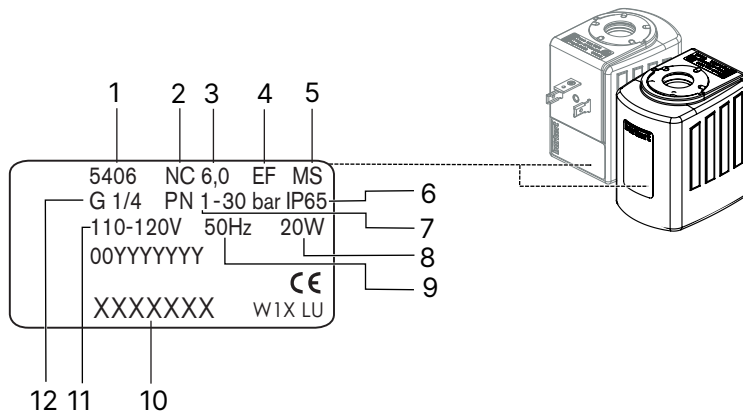


Fig. 1: Position and description of the type label

1 Type	2 Circuit function
3 Orifice	4 Sealing material
5 Body material	6 Degree of protection
7 PN	8 Power
9 Frequency	10 Article number
11 Voltage	12 Connection thread

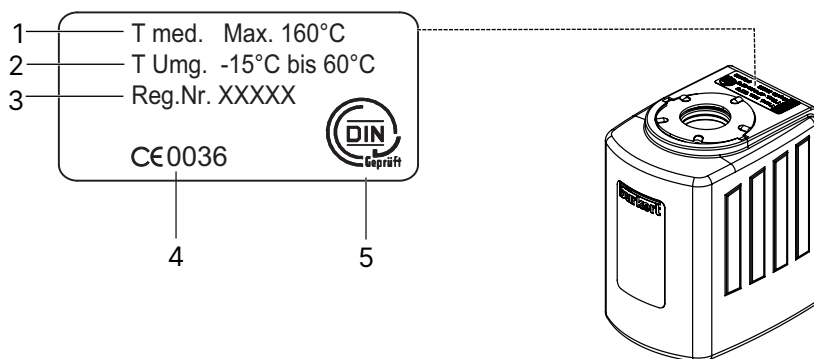


Fig. 2: Position and description of the additional label

1 Mas. permitted medium temperature	2 Permitted ambient temperature
3 Register number	4 Monitoring body
5 Register number	

## 4 Installation

### 4.1 Safety instructions



#### **DANGER!**

Risk of injury from high pressure in the system

- ▶ Before loosening lines or valves, switch off the pressure and vent the lines.



#### **DANGER!**

Risk of injury from electric shock

- ▶ Before reaching into the device or the system, switch off the power supply and secure to prevent reactivation.
- ▶ Observe the applicable accident prevention and safety regulations for electrical devices.



#### **WARNING!**

Risk of injury due to improper installation

- ▶ Installation must be carried out by authorised technicians only and with the appropriate tools.



#### **WARNING!**

Risk of injury from unintentional activation of the system and uncontrolled restart

- ▶ Secure the system against unintentional activation.
- ▶ Ensure a controlled restart after installation.

### 4.2 Before installation

Installation position: preferably actuator at the top.

- ▶ For the safe function of the safety shut-off device, check the pipelines for dirt and clean them if necessary.

## Dirt trap

- Up to DN 6 nominal diameter:  
a dirt filter is installed in the valve inlet.
- For nominal diameter 13 and nominal diameter 20:  
a dirt filter ( $\leq 500 \mu\text{m}$ ) must be installed upstream of the valve inlet (see following image).

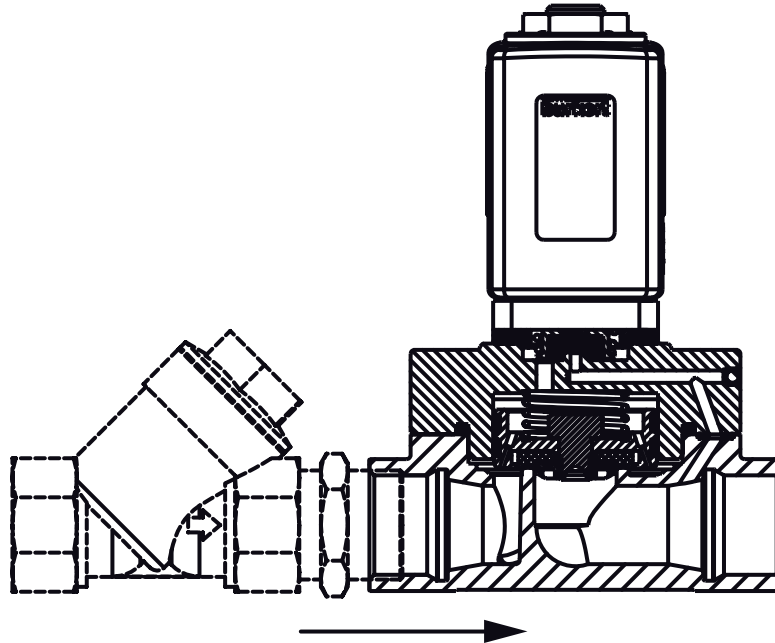


Fig. 3: Installation of the dirt filter

## 4.3 Installation

- ▶ Clean pipelines.
- ▶ Only use new seals.
- ▶ Hold the device on the body using the appropriate tool (open-end wrench) and screw into the pipeline.
- ▶ Note flow direction: from 1 → 2 (from P → A) or arrow direction on the body.

### NOTICE!

#### Breaking hazard

- ▶ Solenoid must not be used as a lever arm.

## 4.4 Electrical connection of cable plug

### **! WARNING!**

Risk of injury from electric shock

- ▶ Before reaching into the system, switch off the power supply and secure against reactivation.
- ▶ Observe the applicable accident prevention and safety regulations for electrical devices.

### **! WARNING!**

If there is no protective conductor function between the solenoid and the body, there is a risk of electric shock

- ▶ Always connect the protective conductor.
- ▶ Check electrical continuity between the solenoid and the body.

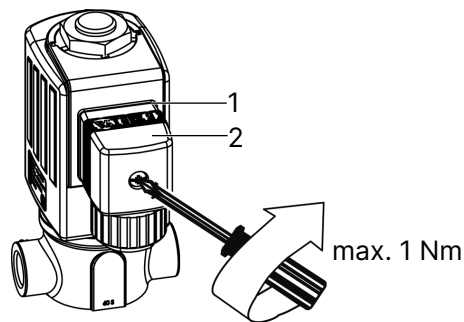


Fig. 4: Electrical connection of cable plug

1 Seal

2 Approved cable plug e.g. Type 2508 or other

## 5 Maintenance, troubleshooting

### 5.1 Safety instructions

#### **DANGER!**

Risk of injury from high pressure in the system

- ▶ Before loosening lines or valves, switch off the pressure and vent the lines.

#### **DANGER!**

Risk of injury from electric shock

- ▶ Before reaching into the device or the system, switch off the power supply and secure to prevent reactivation.
- ▶ Observe the applicable accident prevention and safety regulations for electrical devices.

#### **DANGER!**

Risk of injury due to improper repair work

- ▶ Maintenance must be carried out by authorised technicians using the appropriate tools.

#### **DANGER!**

Risk of injury from unintentional activation of the system and uncontrolled restart

- ▶ Secure the system against unintentional activation.
- ▶ Ensure a controlled restart after maintenance is completed.

### 5.2 Solenoid installation

#### **WARNING!**

Escaping medium

Medium may leak if a firmly fastened nut is loosened.

- ▶ Do not continue to rotate firmly fastened nuts.

#### **WARNING!**

Electric shock

If there is no protective conductor function between the solenoid and the body, there is a risk of electric shock.

- ▶ The plastic ring (optional) must be inserted into the body pins during installation. It must not protrude axially over the hexagonal nipple.
- ▶ Check the protective conductor function after installing the solenoid.

**! WARNING!**

Overheating, risk of fire.

Connecting the solenoid without a pre-installed valve will cause overheating and destroy the solenoid.

- ▶ Only connect the solenoid after the valve has been installed.

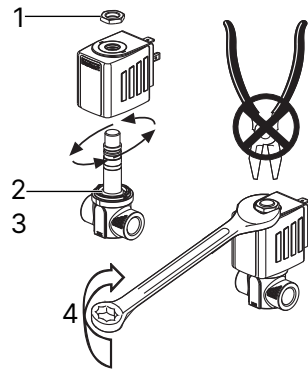


Fig. 5: Solenoid installation

1 Nut	2 O-Ring
3 Plastic ring (optional)	4 Observe the tightening torque! 15 Nm

The solenoid can be rotated on the valve body.

## 6 Troubleshooting

### If faults occur, check whether:

- the device is installed correctly (correct installation direction),
- the connection has been properly made,
- the device is not damaged,
- all screws have been tightened,
- voltage and pressure have been applied,
- and the pipelines are clean.

### If the magnet is not attracting

Possible cause:

- Short circuit or solenoid interrupted.
- Core or core area contaminated.

### After an external fire has occurred

- Check the system and safety shut-off device after an external fire.
- Replace the safety shut-off device in case of visible damage.

## 7 Spare parts



### CAUTION!

Risk of injury and/or damage to property due to incorrect parts

Incorrect accessories and unsuitable spare parts may cause injuries and damage the device and the surrounding area.

- ▶ Use only original accessories and original spare parts from Bürkert.

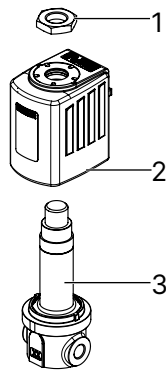


Fig. 6: Spare parts

1 Nut

2 Solenoid set

3 Armature set

Nut and solenoid set can be ordered completely under the identification number of the device (see [Type label \[▶ 9\]](#)).

Armature set on request.

## 8 Logistics

### 8.1 Transport and storage

- ▶ Protect the device against moisture and dirt in the original packaging during transportation and storage.
- ▶ Avoid UV radiation and direct sunlight.
- ▶ Protect connections, if present, from damage with protective caps.
- ▶ Observe the permitted storage temperature.

### 8.2 Return



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No work or tests will be carried out on the device until a valid Contamination Declaration has been received.

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- ▶ To return a used device to Bürkert, contact the Bürkert sales office. A return number is required.

### 8.3 Disposal

Environmentally friendly disposal



- ▶ Follow national regulations regarding disposal and the environment.
- ▶ Collect electrical and electronic devices separately and dispose of them as special waste.

Further information at [country.burkert.com](https://country.burkert.com)