

## Type 8840

Modular process valve cluster, DN10  
Modularer Prozessventilknoten, DN10  
Nœud de vanne de process modulaire, DN10



## Operating Instructions

Bedienungsanleitung  
Manuel d'utilisation

We reserve the right to make technical changes without notice.  
Technische Änderungen vorbehalten.  
Sous réserve de modifications techniques.

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# 1 THE OPERATING INSTRUCTIONS

The operating instructions describe the entire life cycle of the device. Keep these instructions ready to hand at the operation site.

## Important safety information.

- ▶ Carefully read these instructions.
- ▶ Observe in particular the safety instructions, intended use and operating conditions.
- ▶ Persons, who work on the device, must read and understand these instructions.

## 1.1 Definition of terms

Term	in these instructions representative for
Valve cluster, device	modular process valve cluster Type 8840
Ex atmosphere	potentially explosive atmosphere
Ex approval	approval in the potentially explosive atmosphere

## 1.2 Symbols



### DANGER

Warns of an immediate danger.

- ▶ Failure to observe the warning will result in a fatal or serious injury.



### WARNING

Warns of a potentially dangerous situation.

- ▶ Failure to observe the warning may result a fatal or serious injury.



### CAUTION

Warns of a possible danger.

- ▶ Failure to observe the warning may result in a moderate or minor injury.

### NOTE

Warns of damage to property.



Indicates important additional information, tips and recommendations.



Refers to information in these operating instructions or in other documentation.



Highlights instructions to avoid a danger.



Designates a procedure which you must carry out.

## 2 INTENDED USE

The modular process valve cluster Type 8840 is designed for controlling the flow rate of liquid and gaseous media, especially distributing and collecting or mixing and supplying media.

- ▶ Use the device for its intended purpose only. Non-intended use of the device may be dangerous to people, nearby equipment and the environment.
- ▶ In areas at risk of explosion, only use devices approved for use in those areas. These devices are labeled with a separate Ex type label. When utilized in a potentially explosive atmosphere, always pay attention to the details on the separate Ex type label and the Ex additional instructions contained in the scope of delivery.
- ▶ The prerequisites for safe and efficient operation are correct transport, storage, assembly, installation, start-up, operation, and maintenance.
- ▶ When using the device, observe the permitted data, operating conditions and application conditions. This information can be found in the contractual documents, the operating instructions and on the type label.
- ▶ Use the device only in conjunction with third-party devices and components recommended and authorized by Bürkert.
- ▶ Make sure the device is in efficient working order before use.

## 3 BASIC SAFETY INSTRUCTIONS

These safety instructions do not consider any contingencies or incidents which occur during assembly, operation and maintenance. The operator is responsible for observing the location-specific safety regulations, also with reference to the personnel.



### **Risk of injury from high pressure and medium leakage.**

- ▶ Before working on the system or device, switch off the pressure and vent or drain lines.

### **Risk of burns from hot media.**

- ▶ Do not touch the device during operation.

### **Risk of injury from moving parts.**

- ▶ Do not reach into openings.

### **General hazardous situations.**

To prevent injury, ensure that:

- ▶ The device may be operated only when in perfect condition and in consideration of the operating instructions.
- ▶ Do not transport, install or remove heavy devices without the aid of a second person and using suitable auxiliary equipment.
- ▶ Do not make any changes on the device and do not subject it to mechanical stress.
- ▶ Secure the system from unintentional actuation.

- ▶ Only trained technicians may perform installation and maintenance work.
- ▶ Install the device in accordance with the regulations in force in the country.
- ▶ After an interruption in the power supply, ensure that the process is restarted in a defined or controlled manner.
- ▶ Observe the general rules of technology.
- ▶ To attach the valve cluster, use only the factory-provided fastening threads.
- ▶ Feed only air or neutral gases up to 60 °C into the pilot air ports.
- ▶ Ensure adequate freedom of motion and sufficiently long pneumatic hoses on the pilot air ports which move up and down as determined by the valve stroke.
- ▶ Do not remove body components from the valve cluster.
- ▶ Remove the pilot air ports for transportation.

## **4 GENERAL INFORMATION**

### **4.1 Contact addresses**

#### **Germany**

Bürkert Fluid Control Systems  
Sales Center  
Christian-Bürkert-Straße 13-17  
D-74653 Ingelfingen  
Tel. + 49 (0) 7940 - 10-91 111  
Fax + 49 (0) 7940 - 10-91 448  
E-mail: [info@burkert.com](mailto:info@burkert.com)

#### **International**

Contact addresses are found on the final pages of the printed operating manual.

And also on the Internet at: [country.burkert.com](http://country.burkert.com)

### **4.2 Warranty**

The warranty is only valid if the device is used as intended in accordance with the specified application conditions.

### **4.3 Information on the Internet**

The operating instructions and data sheets for Bürkert products can be found on the Internet at: [country.burkert.com](http://country.burkert.com)

## 5 PRODUCT DESCRIPTION

### 5.1 Structure and description

The valve cluster is suitable for controlling liquid and gaseous media and can be used to distribute, collect, mix or supply media.

The valve cluster, based on a modular valve body, allows different configurations. The individual parts are joined hermetically tight and in a very compact way.

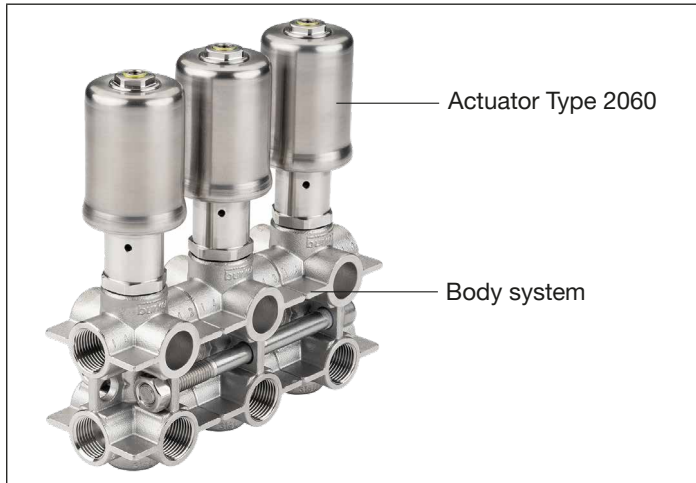


Fig. 1: Structure of the valve cluster

### 5.2 Versions

Depending on the requirement and preferred type of automation, different actuators (ELEMENT, CLASSIC, INOX) can be selected.

The following orifices are available:

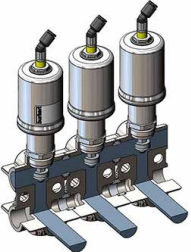
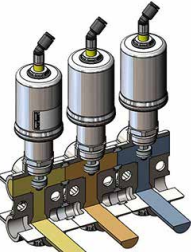
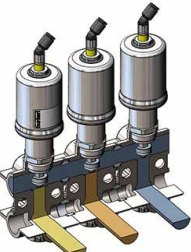
- DN10 (screwed down and sealed with a graphite seal),
- DN20 and DN25 (welded).



The orifices 20 and 25 are described in separate operating instructions.

### 5.3 Functions

Function	Application description	Representation
Distributor	Distributing: The valve cluster distributes the medium from a feed line to several consumers	

Function	Application description	Representation
Collector	Collecting: The medium can be collected from several consumers	
	Mixing: Different media, e. g. hot water and cold water or various chemicals, can be mixed	
	Supplying: Different media, e. g. various cleaning agents, can be supplied alternately to one consumer	

## 6 TECHNICAL DATA

### 6.1 Standards and directives

The device complies with the valid EU harmonisation legislation. In addition, the device also complies with the requirements of the laws of the United Kingdom.

The harmonised standards that have been applied for the conformity assessment procedure are listed in the current version of the EU Declaration of Conformity/ UK Declaration of Conformity.

### 6.2 Type label

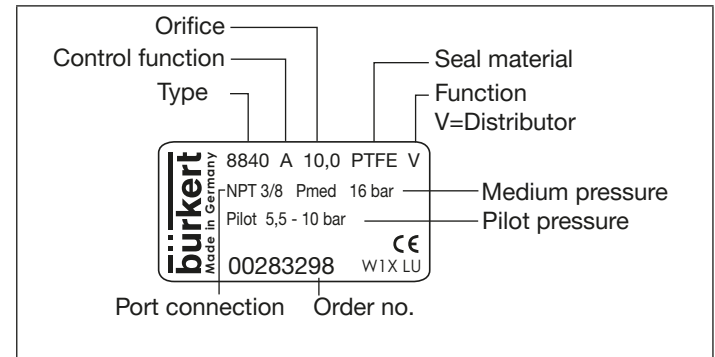


Fig. 2: Description of the type label

### 6.3 Operating conditions

Operating conditions	
Permitted ambient temperature	-10...+60 °C
Permitted medium temperature	-10...+180 °C
Flow media	Water, alcohols, oils, fuels, hydraulic fluid, saline solutions, alkalis, organic solvents, vapor, air, neutral gases
Control media	Neutral gases, air

### 6.4 Mechanical data

Mechanical data	
Control function	CFA, CFB
Dimensions	Depending on the number of valve positions
Weight	Depending on the number of valve positions
Number of valve slots	2 to 9 (others on request)
Body material	Stainless steel precision cover 316L (CF3M)
Seal material	Seat seal: PTFE Seal between actuator and body: graphite

### 6.5 Pneumatic data

Pneumatic data	
Max. pilot pressure	10 bar
Line connection	G3/8 or NPT3/8 socket connection
Pilot air port	M5

### 6.6 Pressure range

Orifice [mm]	Actuator size [mm]	Minimum pilot pressure	Maximum operating pressure up to 180 °C	
		CFA [bar]	CFA [bar]	CFB [bar]
10	32	5.5	16	16

## 7 INSTALLATION

### **DANGER**

**Risk of injury from high pressure and medium leakage.**

- ▶ Before working on the system or device, switch off the pressure and vent or drain lines.

### **WARNING**

**Risk of injury from improper installation.**

- ▶ Installation may be carried out only by trained technicians and with the appropriate tools.
- ▶ Secure system against unintentional activation.
- ▶ After installation, ensure that the process is restarted in a controlled manner.

**Risk of burns from hot media.**

- ▶ Do not touch the device during operation.

**Risk of crushing from moving pneumatic connection.**

- ▶ When opening and closing the device, do not touch the moving pneumatic connection.
- ▶ Do not reach into the area immediately above and below the control air connection.

**Risk of injury from moving parts.**

- ▶ Do not reach into openings.

### **CAUTION**

**Risk of injury due heavy devices.**

During transport or during assembly, a heavy device may fall and cause injury.

- ▶ Do not transport, install or remove heavy devices without the aid of a second person and using suitable auxiliary equipment.
- ▶ Use appropriate tools.

## 7.1 Preparatory work

The installation position is optional. Preferably with actuator face up.

- Observe flow direction.
- Observe type of incoming flow.
- Remove contaminants from pipelines.
- Ensure that the pipelines are aligned.

### 7.1.1 Install dirt traps

Dirt trap for devices with approval in accordance with DIN EN 161

In accordance with DIN EN 161 (Automatic shut-off valves for gas burners and gas appliances) a dirt trap must be connected upstream of the valve and prevent the insertion of a 1 mm plug gauge.

For devices with stainless steel body:

- Install dirt traps upstream of the valve.

## 7.2 Installing valve cluster

- Screw the media connections into the designated threads.
- Fit pneumatic hoses into the designated pilot air ports. Specifications for the recommended pilot air ports, see Chapter “7.3.1”.

## 7.3 Pneumatic connection



### DANGER

Risk of injury due to connection of unsuitable hoses.

- ▶ Use only hoses which can withstand the pressure and temperature of the medium.
- ▶ Observe technical data of the hose manufacturer.

### 7.3.1 Pilot air port



The 45° angle connection is recommended for the pilot air port (see chapter 10).  
In this case the free-moving hose length should be min. 250 mm.  
If the hose length is shorter, the durability and function of the plug-in coupling will be impaired.



If a straight pilot air port is used, the free-moving hose length should be min. 400 mm.  
If the hose length is shorter, the durability and function of the plug-in coupling will be impaired.



**Risk of crushing.**

- ▶ Due to risk of crushing, a 90° pilot air port must not be used.

## 7.4 Removal

### DANGER

Risk of injury from high pressure and medium leakage.

- ▶ Before working on the system or device, switch off the pressure and vent or drain lines.

- Loosen the pneumatic connection.
- Remove the valve cluster.

### NOTE

Damage to the device.

- ▶ Do not remove individual body components of the valve cluster.

## 8 MAINTENANCE, TROUBLESHOOTING

### WARNING

Risk of injury from improper maintenance.

- ▶ Maintenance may only be carried out by trained specialist personnel using suitable tools.
- ▶ Secure system from unintentional activation.
- ▶ Following maintenance, ensure a controlled restart.

### 8.1 Maintenance work

#### 8.1.1 Actuator

The actuator is maintenance-free provided it is used according to these operating instructions.

#### 8.1.2 Valve set

In the event of leaks, replace the valve set.



The procedure for replacing the valve set is described in chapter “9”.

#### 8.1.3 Visual inspection

Perform regular visual inspections according to the application conditions:

- Check media connections for leaks.
- Check release bore for leaks.

## 8.2 Cleaning

Commercially available cleaning agents can be used to clean the outside.

### NOTE

**Avoid causing damage with cleaning agents.**

- ▶ Before cleaning, check that the cleaning agents are compatible with the body materials and seals.

## 8.3 Recommended auxiliary materials

The following auxiliary materials are recommended in this manual for the proper operation, maintenance and repair of the device:

Type of auxiliary material	Auxiliary material	Manufacturer information
Lubrication paste	Klüberpaste UH1 96-402	Klüber Lubrication München KG www.klueber.de
Adhesive	Loctite 278	Marketing Loctite, Henkel AG & Co. KGaA www.loctite.de

## 8.4 Malfunction

Malfunction	Reason	Remedial action
Actuator does not switch	Pilot pressure too low	Observe pressure specifications on the type label
	Medium pressure too high	
	Flow direction reversed	Observe the direction arrows in chapter <a href="#">“5.3”</a>
Valve is not sealed	Dirt between seal and valve seat	Installing dirt trap
	Seat seal worn	Installing new swivel plate
	Seat seal damaged	
	Flow direction reversed	Observe the direction arrows in chapter <a href="#">“5.3”</a>
Valve is leaking on the release bore	Pilot pressure too low	Observe pressure specifications on the type label
	Medium pressure too high	
Valve is leaking on the release bore	Packing gland worn	Replace actuator

## 9 REPLACING THE VALVE SET

### **!** DANGER

Risk of injury from high pressure and medium leakage.

- ▶ Before working on the system or device, switch off the pressure and vent or drain lines.

The valve set consists of:

- Swivel plate consist of seal holder, seat seal, centering,
- Graphite seal (can also be ordered separately).

### 9.1 Remove the actuator

#### **!** WARNING

Risk of injury from damaged devices.

- ▶ To remove the actuator from the valve body, use an open-end wrench, never a pipe wrench.

- Clamp the valve body in a holding device (applies only to valves which have not yet been installed).

#### NOTE

Damage to the seat seal or the seat contour.

- ▶ When removing the actuator, the valve must be open.

- Control function A: pressurize the pilot air port with compressed air (5.5 bar) .  
For control function B do not apply compressed air.

- Using a suitable open-end wrench, place the wrench flat on the tube (AF 22).

- Unscrew the actuator from the valve body.

### 9.2 Replace swivel plate

#### **!** WARNING

Risk of injury from damaged devices.

If the tightening torque is too great, the spindle thread may be damaged.

- ▶ Observe tightening torque.

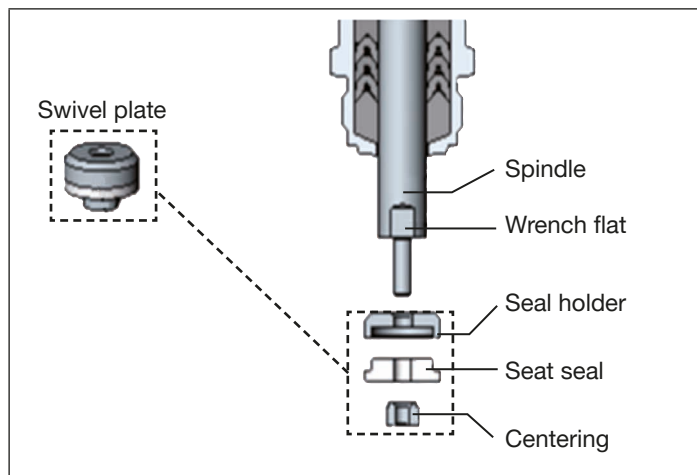


Fig. 3: Replace swivel plate

## Type 8840

### Replacing the valve set

- Counter spindle on the wrench flat using open-end wrench (AF 6).
- Carefully loosen centering using a suitable open-end wrench (AF 5.5). Do not damage spindle thread.
- Unscrew centering.
- Remove seal holder together with seat seal.
- Attach new seal holder and new seat seal to the spindle.
- Apply adhesive (Loctite 278) to spindle thread.
- Screw on centering and tighten using a suitable open-end wrench (AF 5.5).  
Observe tightening torque of 0.6 Nm.

### 9.3 Installing the actuator



#### DANGER

##### Danger if incorrect lubricants used.

Unsuitable lubricant may contaminate the medium. In oxygen applications there is a risk of an explosion.

- ▶ In specific applications, e.g. oxygen or analysis applications, use appropriately authorised lubricants only.

- Grease nipple thread before re-installing the actuator (e.g. with Klüber paste UH1 96-402 from Klüber).
- Check the seal and replace if necessary.
- Control function A: pressurize the pilot air port with compressed air (5.5 bar). For control function B do not apply compressed air.

- Screw the actuator.  
Observe tightening torque of  $40 \pm 3$  Nm.

## 10 REPLACEMENT AND WEARING PARTS



#### CAUTION

Risk of injury and/or damage by the use of incorrect parts.

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

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

Replacement and wearing parts	Order no.
Valve set	220053
Pilot air port, M5, 45° for compressed air hose $D_o = 4$ mm, $D_i = 2$ mm	903383
Pilot air port, M5, 45° for compressed air hose $D_o = 6$ mm, $D_i = 4$ mm	771077
Graphite seal DN10	677475
Actuator Type 2060, DN10, PTFE, CFA	378821
Actuator Type 2060, DN10, PTFE, CFB	378822
Actuator Type 2060, DN10, PTFE, CFA, with reduced spring force EC04	20076999

Actuator Type 2060, DN10, PTFE, CFA, hot water variant NG16	378823
Actuator Type 2060, DN10, PTFE, CFB, hot water variant NG16	378824
Actuator Type 2060, DN10, PTFE, CFA, suitable for use with food PL01	378607
Actuator Type 2060, DN10, PTFE, CFA, suitable for use with food PL01 with reduced spring force EC04	387600

## 11 TRANSPORT, STORAGE, DISPOSAL



### CAUTION

**Risk of injury due heavy devices.**

During transport or during assembly, a heavy device may fall and cause injury.

- ▶ Do not transport, install or remove heavy devices without the aid of a second person and using suitable auxiliary equipment.
- ▶ Use appropriate tools.

### NOTE

**Damage in transit due to inadequately protected devices.**

- ▶ Protect the device against moisture and dirt in shock-resistant packaging during transportation.
- ▶ Observe permitted storage temperature.

**Incorrect storage may damage the device.**

- ▶ Store the device in a dry and dust-free location.
- ▶ Storage temperature  $-20...+65$  °C.

### 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](http://country.burkert.com)



[www.burkert.com](http://www.burkert.com)