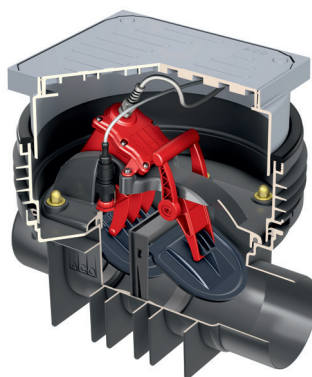


## Quatrix-K automatic faecal backflow stop

### Commissioning (handover), operation, inspections, servicing and troubleshooting

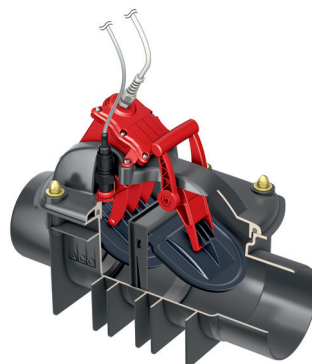
#### Quatrix-K automatic faecal backflow stop V3.0

with shaft system  
for installation below ground



#### Quatrix-K automatic faecal backflow stop V3.0

without shaft system,  
for installation in exposed pipelines



To ensure safe and proper usage, read the instructions for use and associated installation instructions carefully, provide them to end users, and keep them safely throughout the service life of the product.


## Introduction

ACO Passavant GmbH "ACO" would like to thank you for your confidence. You have purchased a product that reflects best engineering practice and has undergone quality checks prior to delivery to ensure its proper condition.




Illustrations in these instructions are provided for basic understanding only and may differ from your version of the product and the installation situation.

## Service, spare parts and accessories


For spare parts and accessories, see the "Product catalogue":  <http://www.aco.com>  
Please feel free to contact ACO Service if you require further information.

ACO Service  
Im Gewerbepark 11c  
D-36457 Stadtlengsfeld

Tel.: + 49 36965 819-444  
Fax: + 49 36965 819-367  
[service@aco.com](mailto:service@aco.com)

For products purchased outside  
of Germany please visit the  
local ACO Group website,  
 <http://www.aco.com>

## Warranty

For information on warranties, see "Terms and conditions of sale and delivery",  
 <http://www.aco-haustechnik.de/agb>

## Warning messages and use of symbols

Certain information are marked in these instructions as follows:



**WARNING** Signal word indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury



**CAUTION** Signal word indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury

**NOTICE** Signal word indicates the risk of damage to the product or environment



Tips and additional information to make your work easier



Bullets



Steps to be carried out in the specified order



References to further information

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## 1 For your safety



Read the instructions before installing and using the automatic faecal backflow stop to avoid personal injury and damage to property.

### 1.1 Planning

EN 12056-1 (5.5.2 Flooding within the building drainage system): *“The design of a draining system shall minimize the risk of blockage with normal predictable usage of the system. The design of drainage systems shall avoid cross-flow from one sanitary appliance to another.”*

EN 12056-1 (5.5.3 Backflow prevention): *“Wastewater collected or stored below backflow level shall be discharged into the drainage system via an automatic wastewater lifting plant. In exceptional cases, backflow stops may be permitted (see EN 12056-4).”*

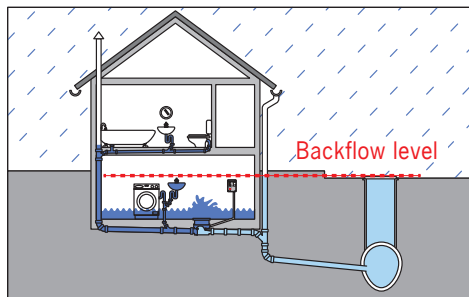
In the absence of any other specifications regarding the backflow level (e.g. in local byelaws governing public drainage systems), it is deemed to be the top of the road surface where the sewer connection is located.

**NOTICE** Backflow stops are designed for domestic use and may only be used if local building regulations and the following requirements according to EN 12056-4 are adhered to:

- Gradient from the drainage line into the sewage system.
- Flooding does not present a health hazard or threaten valuable property.
- There are only a small number of users and they have a WC available above the backflow level.
- Use of the connected drainage points can be suspended in the event of a backflow.

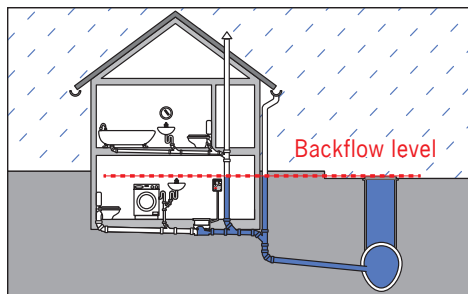
#### **Incorrect installation:**

**NOTICE** Incorrect installation may lead to self-flooding and backflow if drainage points above the backflow level are routed to a backflow stop.



### **Correct installation:**

Only route drainage points below the backflow level to a backflow stop. Connect downpipes for surface water downstream of the backflow stop in flow direction.



## **1.2 Intended use**

The operational safety is only with intended use guaranteed. When wastewater drains overflow, e.g. following heavy rain, blockages or pumping station failures, wastewater can backflow and cause damage to buildings. The Quatrix-K automatic faecal backflow stop, type 3F according to EN 13564-1, is designed for domestic use and protects drainage points beneath the backflow level from flooding from wastewater with or without faeces from the sewage system.

Hazardous substances may not be drained:

- Solids, e.g. ashes, glass, sand, textiles, cardboard
- Corrosive substances, e.g. acids, lyes, salts
- Foaming substances, e.g. cleaning, dishwashing and washing agents in large quantities
- Poisons, e.g. pesticides, pest control agents
- Oil and grease

## **1.3 Owner's responsibility**

Functional reliability is only warranted if users perform monthly inspections and properly qualified technicians inspect and service the system every six months.

📖 Section 5 “Regular inspections and servicing”.

ACO Service will be pleased to perform the professional half-yearly inspections and maintenance. Request maintenance contract, 📖 [service@aco.com](mailto:service@aco.com).

## **1.4 Disposal**

**NOTICE** Electrical devices and batteries must not be disposed of with household waste. Observe regional disposal regulations to avoid harming the environment. Your stockist must accept the return of used electrical appliances and batteries.



## **2 Description of the control unit**

### **2.1 Operating modes**

In normal mode (operational mode), the operating flap (backflow flap) and the emergency flap are open. Waste water can flow into the sewer system.

### **2.2 Automatic backflow protection**


The pipeline fills up if backflow occurs. The back pressure generated in the housing is measured with a pressure sensor and transmitted to the control unit.

The operating flap (motor driven backflow flap) closes. Wastewater can no longer drain out of the building and wastewater from the sewage system can no longer get into the building.

**NOTICE** Risk of flooding. If backflow has occurred, or the operating flap is closed, drainage points, e.g. WCs must not be used.


Once the back pressure starts to subside, the operating flap opens automatically.

#### **Automatic self-test:**

An automatic self-test takes place at intervals of 4 weeks. In the process, the operating flap is closed and then opened again. The first self-test begins approx. 1 hour after the commissioning/reset. In the event of a fault, the alarm will sound, and a fault notification (LED) appears,  Section 2.5 “Operating and fault displays”.


### **2.3 Operation during mains failure**

#### **Battery mode:**

In the event of a mains failure, the control unit automatically switches from mains mode to battery mode. All functions will be maintained for a period of approx. 2 hours. After this time, the unit is no longer operational: LED “Operational mode” goes off, and a battery fault is indicated visually (LED) and acoustically (alarm).  Section 2.5 “Operating and fault displays”.

After the batteries have been fully discharged, the control unit switches itself off. The operating flap remains open. A new battery pack has a lifetime of at least 2 years.

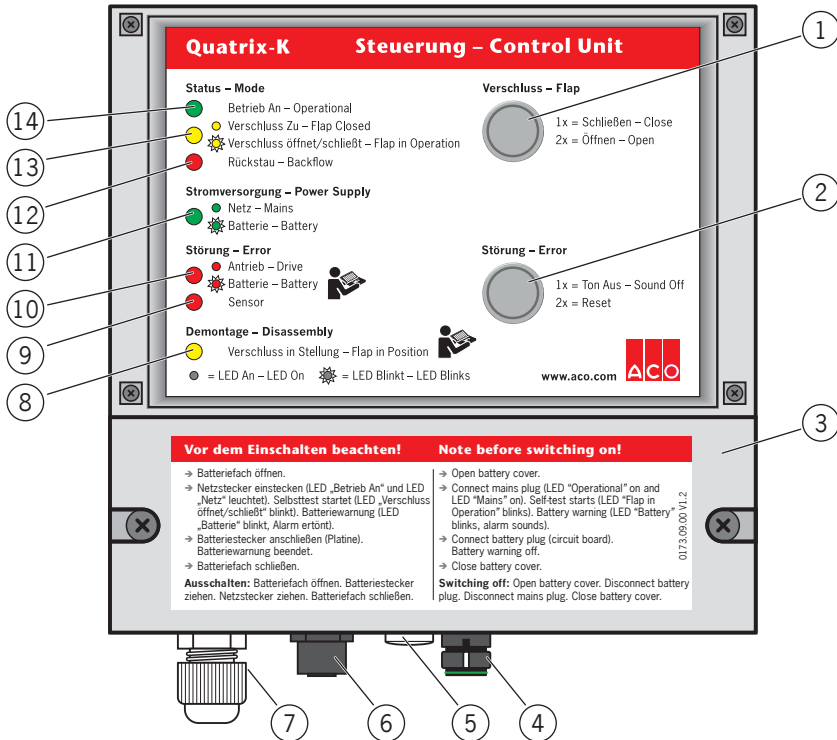
#### **Emergency flap:**

In case of a backflow when the control unit is switched off, or in the event of malfunctions, the emergency flap can be closed manually,  Section 4.5 “Activating the emergency flap”.

# Quatrix-K automatic faecal backflow stop

## Description of the control unit

### 2.4 Displays, operating elements and connections



- |   |                                       |
|---|---------------------------------------|
| 1 = Button <Flap>   | 9 = LED “red” <Sensor error>          |
| 2 = Button <Error>  | 10 = LED “red” <Drive error>          |
| 3 = Battery compartment                                       | <Battery error>                       |
| 4 = Motor cable connection                                    | 11 = LED “green” <Mains power supply> |
| 5 = Blind plug (for connection to the potential-free contact) | <Battery power supply>                |
| 6 = Sensor cable connection                                   | 12 = LED “red” <Backflow>             |
| 7 = Mains cable (pre-installed)                               | 13 = LED “yellow” <Flap closed>       |
| 8 = LED “yellow” <Disassembly>                                | <Flap in operation>                   |
|   | 14 = LED “green” <Operational mode>   |

Quatrix-K automatic faecal backflow stop

Description of the control unit

2.5 Operating and fault displays







Overview of operating and fault displays

LED Designation		Ready								Fault		Not in operation			
Mode	Operational	●	●	●	●	●	●	●	●	●	●	○	○	○	○
	Flap closed ... in operation	○	○	☀	●	●	●	●	○	○	○	○	○	○	○
	Backflow	○	○	○	○	○	●	●	○	○	○	○	○	●	○
Power supply	Mains	●		●	●	●	●	●	●	●	●	○	●	●	●
	Battery		☀												
Error (fault)	Drive	○	○	○	○	○	○	○	☀	☀		○	●	●	○
	Battery														
Dis-assembly	Sensor	○	○	○	○	○	○	○	○	○	○	○	○	○	●
	Flap in position	○	○	○	○	○	○	○	●	○	○	○	○	○	○
					🔔		🔔		🔔	🔔	🔔		🔔	🔔	🔔
									every 30 sec.	every 10 min.					
		↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
Further information in 📖 following table															

- = LED off
- = LED on
- ☀ = LED flashing
- 🔔 = alarm

## Quatrix-K automatic faecal backflow stop

### Description of the control unit

→ 1	Control unit in mains mode (normal mode).
→ 2	Control unit in battery mode (mains failure). → Connect power supply (mains),  Section 2.3 “Operation during mains failure”.
→ 3	Control unit performs automatic self-test or operating flap is manually closed or opened.
→ 4	Operating flap has been closed manually. → Press button <Flap> twice to open the operating flap.
→ 5	Operating flap has been closed manually but no alarm sounds. Alarm has been switched off manually. If the operating flap is not opened within 30 minutes, the alarm will sound again. → Press button <Flap> twice to open the operating flap.
→ 6	Backflow, operating flap has closed automatically.
→ 7	Backflow, operating flap has closed automatically. Alarm has been switched off manually.
→ 8	Operating flap in the “Disassembly-Position”. → Switch off alarm: Press button <Error> once. If the operating flap is still in the “Disassembly-Position” after 30 minutes, the alarm will sound again, and after 1 hour the operating flap will open automatically. → Hold down the buttons <Flap> and <Error> simultaneously for approx. 3 seconds to open the operating flap.
→ 9	Control unit in mains mode, but there is a battery fault. battery plug not connected. → Connect battery plug,  Section 4.2 “Commissioning the control unit”.
→ 10	Control unit in mains mode, but there is a battery fault. Battery capacity too low. → Replace battery pack,  Section 6.2.3 “Replacing the battery pack”.
→ 11	Control unit has no power supply (mains and battery). → Connect power supply (mains and battery).
→ 12	There is a fault with the drive unit. → Check the function of the mechanical components,  Section 5.2.1 “Inspecting and cleaning the backflow unit”. → Electric motor defective (no operating sounds, no function): Replace e-motor.
→ 13	Backflow, but there is a fault with the drive unit. → Close the emergency flap,  Section 4.5 “Activating the emergency flap”.
→ 14	Sensor, sensor plug, sensor cable, bayonet coupling not connected, in the meantime disconnected or defective. → Check the connections und press button <Error> twice to initiate the function of the sensor by commissioning/self-test. → If the alarm can not confirm: Replace sensor cable or sensor,  Section 6.2.4 “Replacing the sensor”.

## 3 Assembly and installation



The sensor cable and the connecting cable for the electric motor are each 5 m long. Cable extension sets are available as accessories. The maximum total length is 30 m, please see the "Product catalogue": <http://www.aco-haustechnik.de>

### 3.1 Connecting the electric motor and sensor unit

**NOTICE** For the assembly of the electric motor, it must be ensured that the mechanical components function faultlessly, and that the operating flap and emergency flap are open (status as delivered).

If the assembly of the electric motor and commissioning of the backflow stop do not take place immediately after the installation, the housing cover should be removed and the mechanical components of the backflow unit should be checked, Section 5.2.1 "Inspecting and cleaning the backflow unit".

**NOTICE** The control unit and the electric motor must be permanently protected against flooding and frost ( $> 5\text{ }^{\circ}\text{C}$ ).

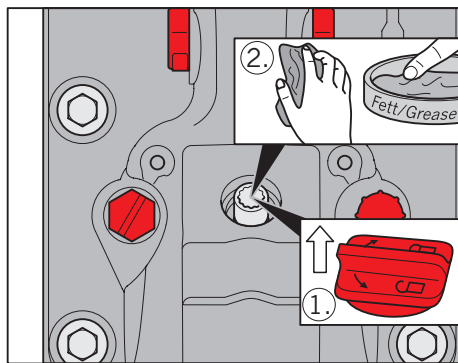
#### Assembling the control unit:

→ Mount the control unit on an internal wall where clearly visible and easily accessible.

#### Connecting the electric motor:

In the design with the shaft system, the cover must be removed from the shaft, Section 4.1 "Opening and closing the shaft system".

- Remove the red tommy nut from the spindle (1).
- Remove the 4 plugs (for protection during the construction period) from the threads for mounting the electric motor.
- Clean the spindle and lubricate with petroleum jelly (2).

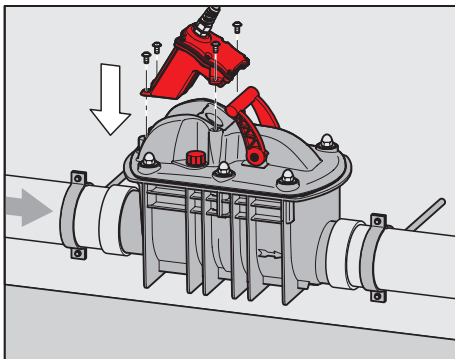


## Quatrix-K automatic faecal backflow stop

### Assembly and installation

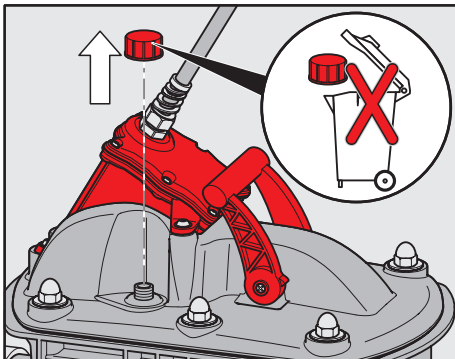
**NOTICE** Position the electric motor carefully on the spindle (make sure the spindle is in its mount) and bolt without forcing. Check the seating of the green O-ring on the underside of the electric motor.

- Position the electric motor on the spindle and bolt it to the housing.
- Lay connecting cable from the electric motor to the control unit.



**NOTICE** Lay the motor cable and sensor cable to the control unit without tension, and without kinks or crushing. The bending radius of the sensor cable must be at least 75 mm. Modifications of the cables and plugs are not permitted. If longer cables are required, exclusively the ACO cable extension set must be used.

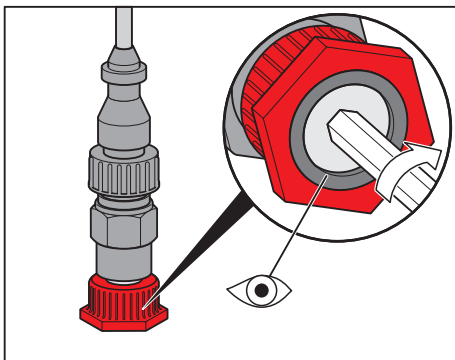
- Before connecting the hose to the housing cover, remove the sealing plug and keep in a safe place. The sealing plug is needed for tightness tests.



The sensor cable and pressure sensor are connected using a bayonet coupling in the status as delivered.

The pressure sensor is preassembled with the stainless steel adapter, the red union nut and the gasket in its status as delivered.

- Retighten the stainless steel adapter in the sensor plug using an Allen key (width across flats 5 mm) by hand (1.5 – 2.0 N·m), and check whether the gasket is stuck to the stainless steel adapter.

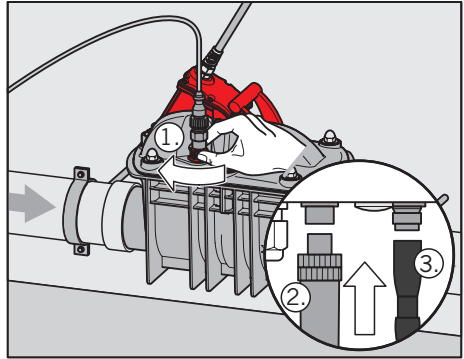


# Quatrix-K automatic faecal backflow stop

## Assembly and installation

**NOTICE** After a fall of > 1 m, sensor plugs should no longer be used. Sensor plugs must only be attached or released using the red union nut.

- ➔ Remove the protective caps from the plugs.
- ➔ Screw the sensor plug with the red union nut onto the connection (housing cover) (1).
- ➔ Insert the sensor plug at the other end of the sensor cable into the connection of the control unit, and screw it firmly in place using the union nut (2).
- ➔ Insert the plug of the motor cable into the connection of the control unit (3).



### 3.2 Connecting the notification systems (optional)

The control unit has a potential-free contact for connecting notification systems (PC, telephone, alarm system). The potential-free contact acts as a changeover contact and changes the position in the event of a malfunction or backflow. The cable gland is included in the scope of delivery.



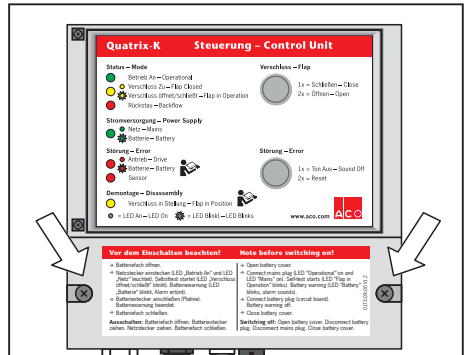
#### WARNING

**Risk of electric shock from live parts**

The connection in the control unit should be made by an electrician.

#### Opening the battery compartment:

- ➔ Unscrew the cover from the battery compartment.



# Quatrix-K automatic faecal backflow stop

## Assembly and installation

- Remove the battery plug from the connection base on the circuit board (1).



### WARNING

**Risk of electric shock from live parts**

- Disconnect the mains plug.

- Unscrew the blind plug from the thread (2).
- Screw the M12 cable gland (scope of delivery) into the thread (1).
- Insert 2-core cable through the cable gland and tighten union nut.

### Two connection options:

Depending on the connection, the contact closes either in the event of faults (error message and backflow) or during operation.



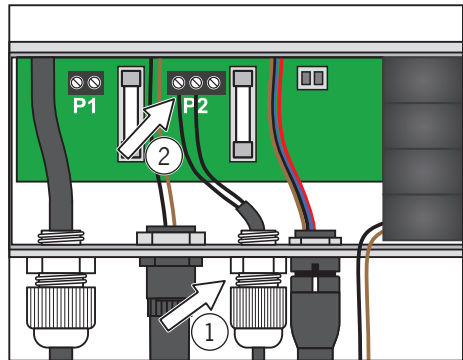
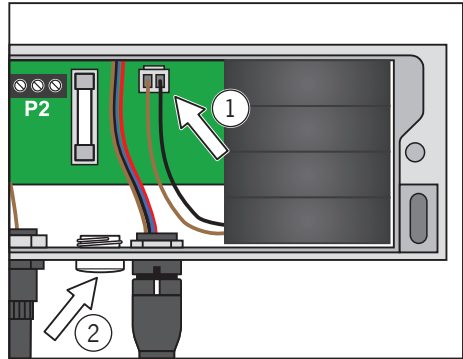
Faults are reported

Operation is reported

- Connect stripped wires to connection terminal "P2" (2).

### Closing the battery compartment:


- Connect the mains plug to a mains socket with fuse protection.
- Insert the battery plug into the connection base of the circuit board.
- Place the cover onto the battery compartment and screw into position.

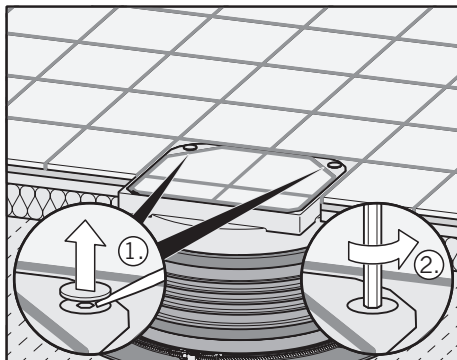


## **4 Commissioning**

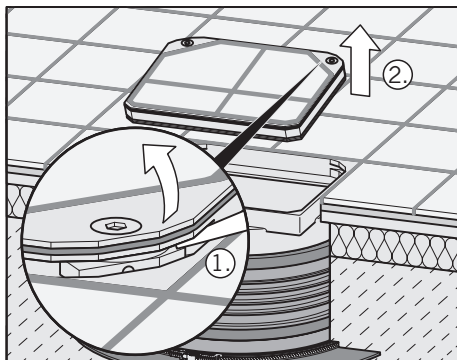
### **4.1 Opening and closing the shaft system**

#### **Opening the shaft system:**

- Remove protective caps from locking screws, e.g. with a slotted screwdriver (1).
- Using an Allen key (width across flats 10 mm), turn both locking screws by about  $\frac{1}{4}$  towards  until they stop (2).



- Lift up the cover (on the side with the locking screws).

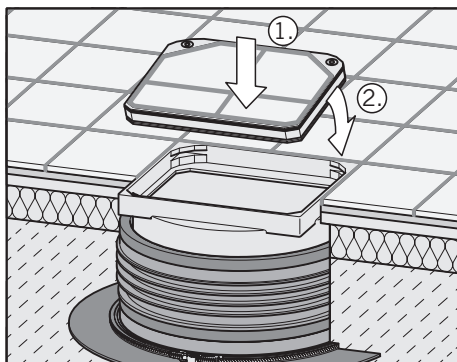


#### **If the cover is too tight:**

- Wedge a slotted screwdriver (1) under one corner beneath the O-ring (on the side with the locking screws).
- Lift up the cover and remove (2).

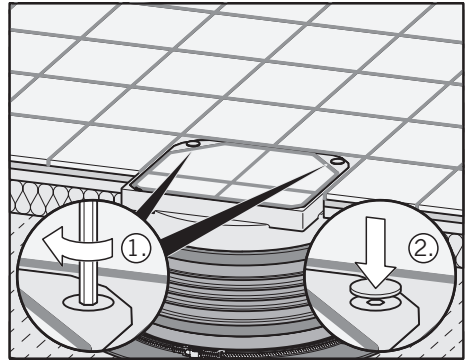
#### **Closing the shaft system:**

- Remove the O-ring and lubricate with petroleum jelly.
- Re-position the O-ring in the upper groove on the cover.
- Place the cover in the top section:  
First slide the cover into the groove in the top section (1) then fold it shut (2).



# Quatrix-K automatic faecal backflow stop Commissioning

- ➔ Using an Allen key (width across flats 10 mm), turn both locking screws by about ¼ towards ① until they stop (1).
- ➔ Replace the protective caps on the locking screws (2).

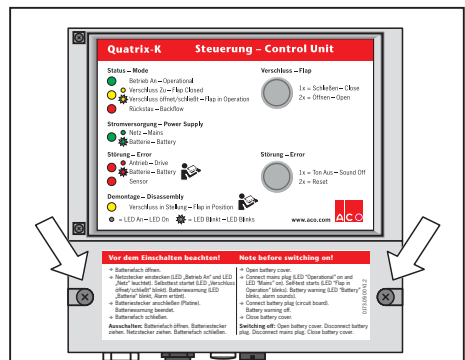


## 4.2 Commissioning the control unit

Once power has been connected, the control unit switches itself on and performs a self-test.

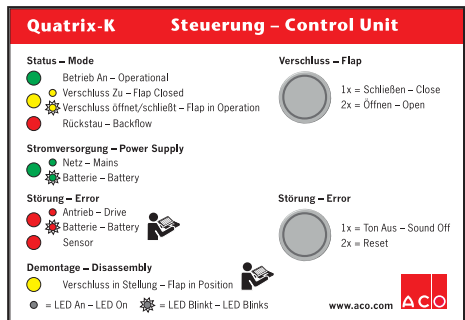
### Commissioning the control unit:

- ➔ Unscrew the cover from the battery compartment.
- ➔ Connect the mains plug to a mains socket with fuse protection.



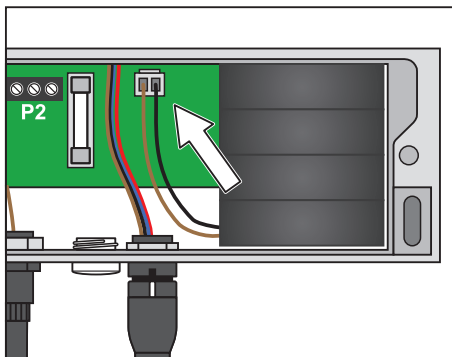
### Automatic self-test:

- All LEDs flashing in continuous series from top to bottom.
- LED <Operational mode> and LED <Mains power suply> will light up. The power supply is present.
- LED <Flap in operation> flashes. The operating flap closes and opens again.
- LED <Battery error> flashes. An alarm sounds at intervals of 30 seconds.



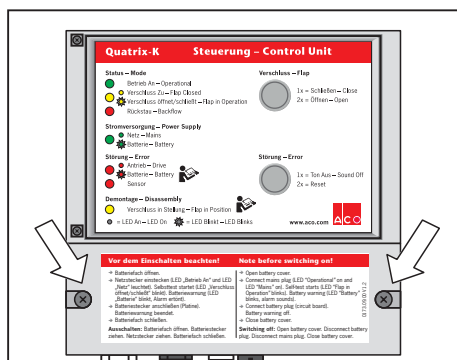
## Quatrix-K automatic faecal backflow stop Commissioning

- ➔ Insert the battery plug into the connection base of the circuit board.
- LED <Battery error> goes off and the alarm stops.
- LED <Operational mode> and LED <Mains power supply> will light up. The unit is ready for operation.
- ➔ Place the cover onto the battery compartment and screw into position.

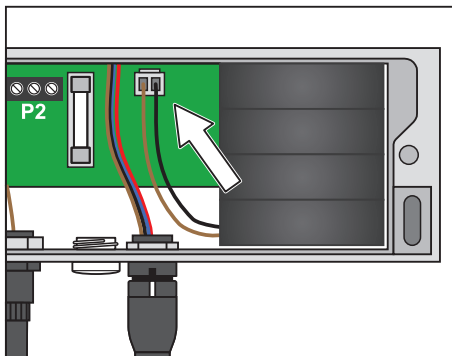


### Decommissioning the control unit:

- Unscrew the cover from the battery compartment.



- ➔ Remove the battery plug from the connection base on the circuit board.
- ➔ Disconnect the mains plug.
- ➔ Place the cover onto the battery compartment and screw into position.



### 4.3 Activating the operating flap

#### Closing the operating flap:

- Press button <Flap> once. LED <Flap closed> lights up and an alarm sounds.
- Switch off alarm: Press button <Error> once.



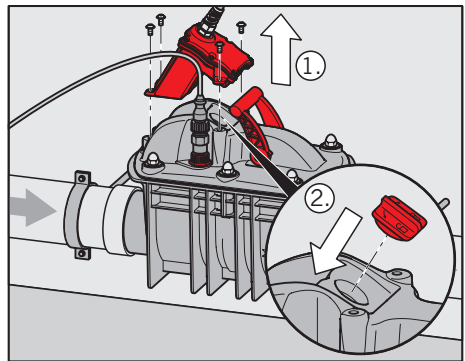
If the operating flap is not opened within 30 minutes, the alarm will sound again.

#### Opening the operating flap:

- Press button <Flap> twice.

### 4.4 Manually activating the operating flap


- Unscrew the electric motor from the housing cover (1).
- Place the red tommy nut on the spindle (2).

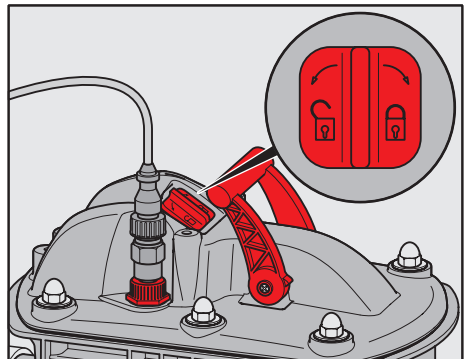


#### Closing the operating flap:

- Turn the red tommy nut clockwise until it locks (max. 5 N·m).


#### Opening the operating flap:

- Turn the red tommy nut anti-clockwise until it locks (max. 5 N·m).
- Install the motor,  Section 3.1 "Connecting the electric motor and sensor unit".



### 4.5 Activating the emergency flap

**NOTICE** The emergency flap must be open for water to drain. Close the emergency flap if a malfunction occurs during backflow, e.g. in extremely heavy rain.

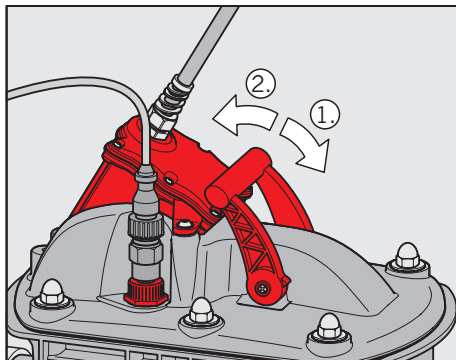
If the emergency flap cannot be activated correctly and easily,  Section 5.2.1 “Inspecting and cleaning the backflow unit”.

#### Closing the emergency flap:

- Push the red lever in flow direction until it locks (clicks audibly into place) (1).


#### Opening the emergency flap:

- Push the red lever against the flow direction until it locks (2).






Conclude commissioning by testing flap integrity,  Section 5.2.2 “Tightness test”.

## 5 Regular inspections and servicing

Keep records of all inspections, e.g. to provide evidence of maintenance in the event of an insurance claim,  Annex 2 “Maintenance log” (template).

### 5.1 Monthly inspections

Once a month, the following steps need to be carried out:



- Open and close the emergency flap,  Section 4.5 “Activating the emergency flap”.
- Closing and opening the operating flap,  Section 4.3 “Activating the operating flap”.
- Shaft systems only: Check the seal on the cover for visible damage,  Section 4.1 “Opening and closing the shaft system”.

### 5.2 Six-monthly inspections and servicing

According to EN 13564-2, backflow stops (type 3F) must be inspected and serviced every six months by properly qualified technicians\*.

*\*Definition according to DIN 1986-100: “Properly qualified technicians work for companies other than the operating company, or are experts or other institutions with documented proof of the necessary expertise for operating, servicing and inspecting separator units to the extent outlined above, and who have the technical equipment required to inspect separator units. In individual cases in larger companies, these inspections may also be performed by properly qualified technicians working for the operating company provided they are authorised to work independently and are not bound by instructions, and possess the same level of qualification and access to the necessary technical equipment.”*

At intervals of 6 months, the following steps need to be carried out:

- Inspect and clean the backflow unit,  Section 5.2.1 “Inspecting and cleaning the backflow unit”.
  - Clean the backflow unit
  - Check the seals and sealing surfaces. Replace damaged seals.
  - Check the mechanics and condition of moving parts. Grease all moving parts. Replace worn or damaged parts.
  - Make sure all parts have been correctly installed.
- Tightness test,  Section 5.2.2 “Tightness test”.

## Quatrix-K automatic faecal backflow stop

### Regular inspections and servicing



#### CAUTION

**Risk of infection from contact with water containing faeces**

- Wear liquid-tight disposable gloves
- Avoid skin and eye contact
- Wash hands thoroughly after cleaning

### 5.2.1 Inspecting and cleaning the backflow unit

#### Moving the operating flap to the “Disassembly-Position”:

→ Hold down the buttons <Flap> and <Error> simultaneously for approx. 3 seconds.

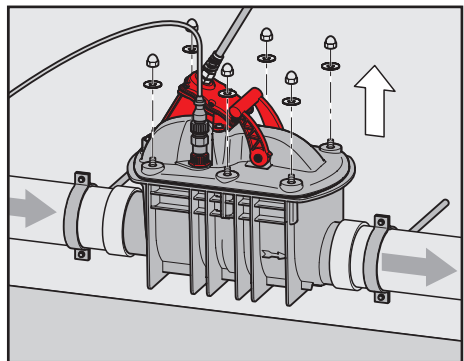
LED <Disassembly> lights up, an alarm sounds, and the operating flap moves to the “Disassembly-Position”.

→ Switch off alarm: Press button <Error> once.



If the operating flap is still in dismantling position after 30 minutes, the alarm will sound again, and after 1 hour the operating flap will open automatically.

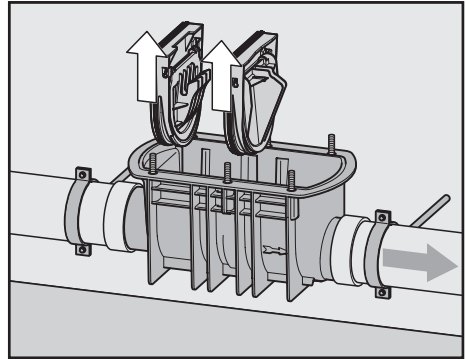
→ Unscrew the cap nuts from housing cover and remove the cover.



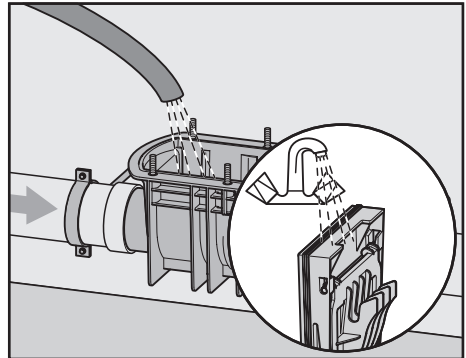
## Quatrix-K automatic faecal backflow stop

### Regular inspections and servicing

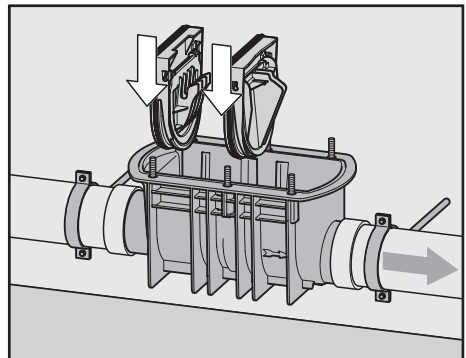
- Remove the operating flap and emergency flap from the housing.



- Check the sealing surfaces and seals for visible damage. Replace damaged parts.
- Remove deposits on the housing. Clean the housing, operating flap and emergency flap with clear water.
- Check the mechanics and condition of moving parts. Grease all moving parts. Replace worn or damaged parts.



- Reinsert the operating flap and emergency flap into the housing.




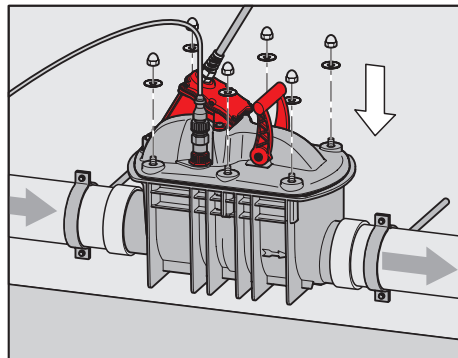
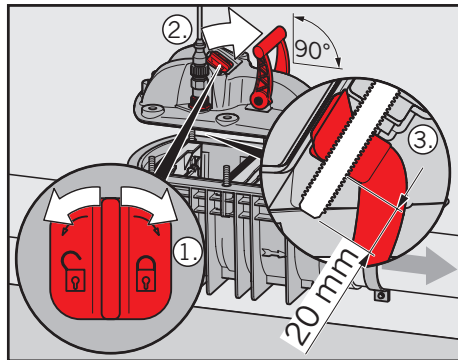
# Quatrix-K automatic faecal backflow stop

## Regular inspections and servicing

### If the electric motor has been removed:

**NOTICE** When positioning the housing cover, make sure the spindle (motor mount) and the emergency flap are correctly positioned. In the “Disassembly-Position”, the spindle protrudes approx. 20 mm from the threaded actuator. If this is not the case, the “Disassembly-Position” must be set manually.


- ➔ Setting the “Disassembly-Position” manually: Place the red tommy nut on the spindle and turn it (1) until the spindle is protruding approx. 20 mm from the threaded actuator (2).
- ➔ Move the red lever (emergency flap) to a vertical position (3) so that the bottom of the lever slides into the flap guide.
- ➔ Place the housing cover on the housing and tighten the cap nuts diagonally (5 – 8 N·m).
- ➔ Install the electric motor,  Section 3.1 “Connecting the electric motor and sensor unit”.

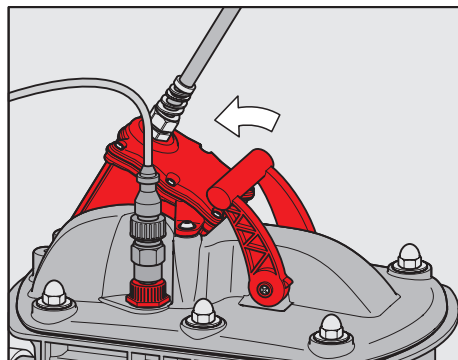


- ➔ To open the emergency flap, push the red lever against the flow direction until it locks.

### Restore the operational readiness:


- ➔ Hold down the buttons <Flap> and <Error> simultaneously for approx. 3 seconds to open the operating flap.

The control unit performs a self-test,  Section 4.2 “Commissioning the control unit”.



### 5.2.2 Tightness test

The test includes simulating a backflow using a test funnel (included in the scope of supply). The seal integrity of the backflow unit is deemed to be sufficient if less than 500 ml (0.5 l) of water is needed to top up the test funnel within 10 minutes.

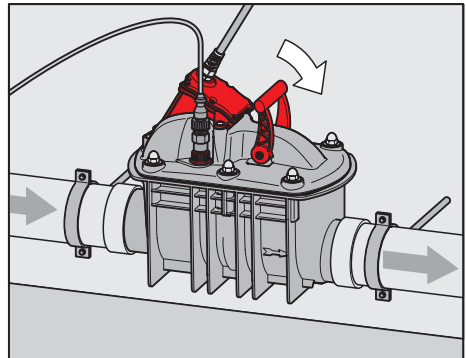
If this is not the case, clean the backflow unit. Coarse deposits are frequently the problem,  Section 5.2.1 “Inspecting and cleaning the backflow unit”.

Repeat the test.

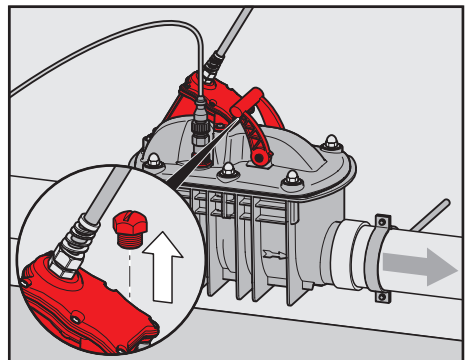
Replace the backflow unit if more than 500 ml (0.5 l) of water still has to be used to top up within 10 minutes.

#### **Closing the operating flap:**

- Press button <Flap> once. LED <Flap closed> lights up and an alarm sounds.
- Switch off alarm: Press button <Error> once. If the operating flap is not opened within 30 minutes, the alarm will sound again.
- To close the emergency flap, push the red lever in flow direction until it locks (clicks audibly into place).



- Unscrew the red plug from its housing.




## Quatrix-K automatic faecal backflow stop

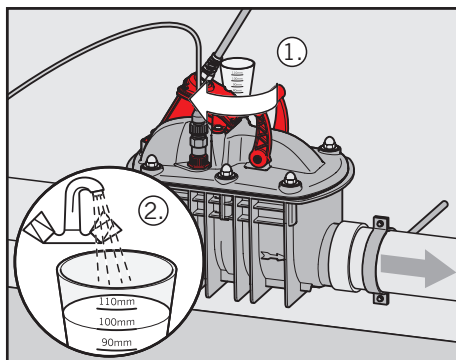
### Regular inspections and servicing

- Screw the test funnel into the thread (1).
- Fill the funnel with clean water (approx. 4 litres) up to the "100 mm" mark (2).
- Top up with water if the level drops.



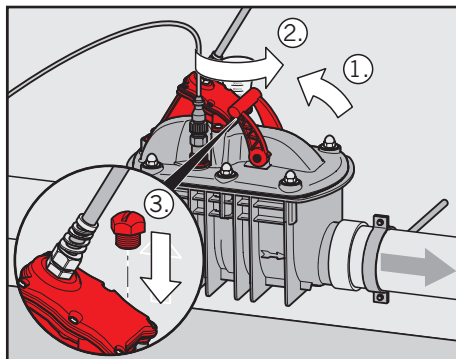
LED <Backflow> lights up during the test.

If the LED <Backflow> does not light up, the function of the sensor unit must be checked manually,  Section 5.2.3 "Manually checking the sensor unit".



#### After testing:

- To open the emergency flap, push the red lever against the flow direction until it locks (1).
- Unscrew the test funnel from the thread (2).
- Screw the red plug into the housing (3).



#### Opening the operating flap:

- Press button <Flap> twice. The alarm goes off.

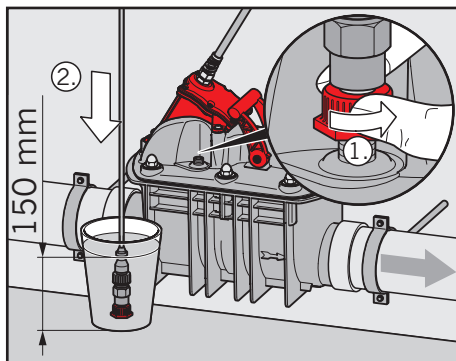
### 5.2.3 Manually checking the sensor unit

**NOTICE** Sensor plug must only be attached or released using the red union nut.

- Unscrew the sensor plug with the red union nut from the connection (housing cover) (1).

**NOTICE** Never clean sensor plug with high-pressure cleaners or sharp objects.

- Remove dirt from the sensor plug, e.g. using a cloth.
- Remove the stainless steel adapter from the sensor plug using an Allen key (width across flats 5 mm), clean it, and screw it back into the sensor plug by hand (1.5 – 2.0 N·m).
- Insert the sensor plug approx. 150 mm into a container filled with water, such as a bottle (2).



#### Correct backflow detection:

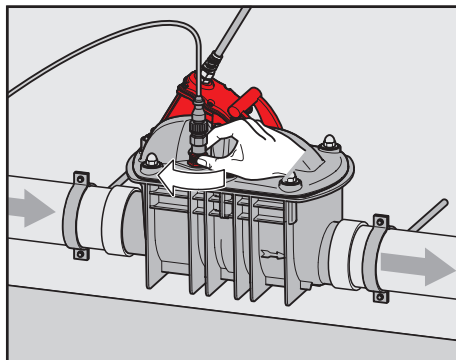
- LED <Backflow> lights up after a delay of approx. 3 seconds.
- LED <Flap in operation> flashes while the operating flap closes.
- LED <Flap closed> lights up and an alarm sounds after the operating flap has closed.
- Switch off alarm: Press button <Error> once.

**NOTICE** Sensor plug must only be attached or released using the red union nut.

- Remove sensor plug from the container.
- Screw the sensor plug with the red union nut onto the connection (housing cover). Ensure that the gaskets are positioned correctly.



Once the sensor plug has been removed from the container, the operating flap opens automatically after approx. 30 seconds.



## 6 Troubleshooting



### WARNING

#### Risk of electric shock from live parts

- Repairs on electrical components must be performed by an electrician.
- Do not exceed technical limits, Section 7 “Technical data”.

### CAUTION

#### Risk of infection from contact with water containing faeces

- Wear liquid-tight disposable gloves
- Avoid skin and eye contact
- Wash your hands thoroughly

### 6.1 Finding and eliminating faults

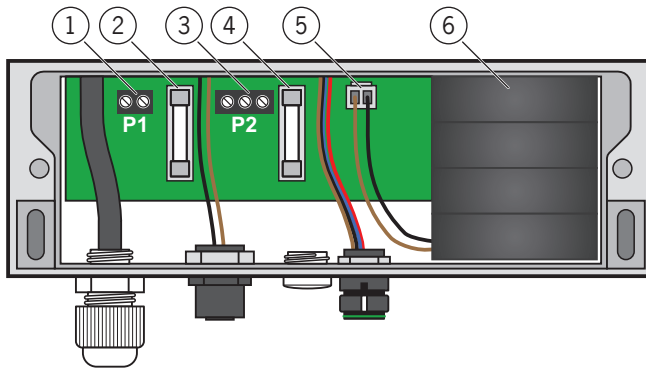
If the control unit does not indicate a fault, Section 2.5 “Operating and fault displays”, other causes may be responsible. If the actions listed below fail to remedy the problem, the system will need to be repaired by ACO or an authorised service centre.

Fault	Cause(s)	Remedy/ies
The emergency flap won't activate, or does not click (audibly) into place	Lever (emergency flap) was put in the wrong position when assembling the housing cover Cap nuts on the housing cover are screwed on too tightly	→  Section 5.2.1 “Inspecting and cleaning the backflow unit”
Malfunction The operating flap won't activate	The operating flap is clogged up with deposits (dirt) Spindle was put in the wrong position when assembling the housing cover	→  Section 5.2.1 “Inspecting and cleaning the backflow unit” → If water flows back: Close the emergency flap,  Section 4.5 “Activating the emergency flap”
No backflow detection	Sensor cable not installed or connected properly, or damaged Housing cover does not close air tight	→  Section 3.1 “Connecting the electric motor and sensor unit” →  Section 5.2.3 “Manually checking the sensor unit” →  Section 5.2.1 “Inspecting and cleaning the backflow unit”

## 6.2 Replacing parts

Use only original spare parts or manufacturer-authorised accessories to maintain device safety.

### 6.2.1 Battery compartment (circuit board)



- 1 = Connection terminal "P1" low-voltage
- 2 = Power low-voltage fuse\*
- 3 = Connection terminal "P2" (potential-free) for optional notification systems

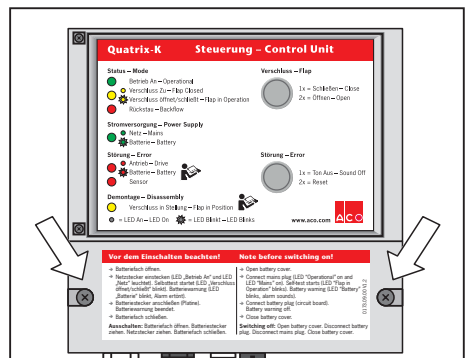
- 4 = Battery fuse\*
- 5 = Battery plug connection base
- 6 = Battery pack\*

\*Replacement parts

### 6.2.2 Replacing the fuse

#### Opening the battery compartment:

- Unscrew the cover from the battery compartment.



# Quatrix-K automatic faecal backflow stop

## Troubleshooting

- Remove the battery plug from the connection base on the circuit board.



### WARNING

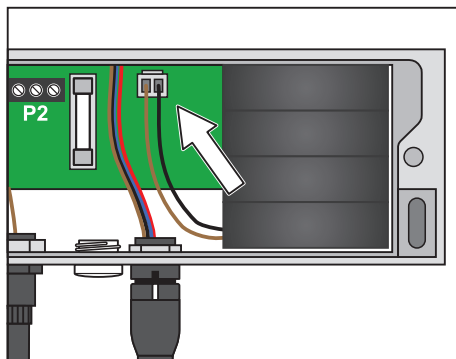
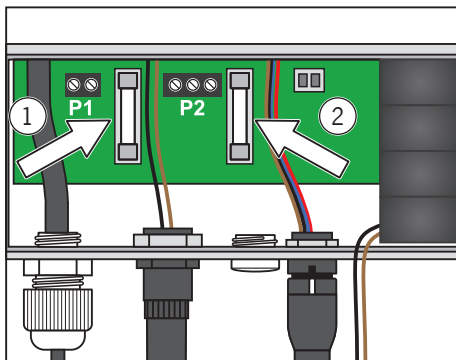
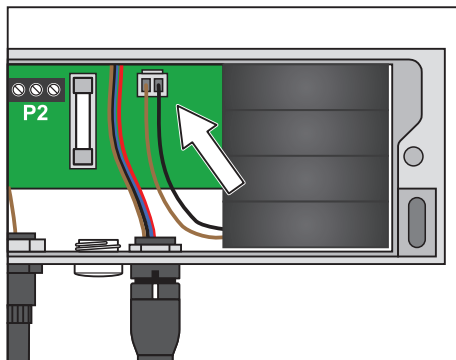
**Risk of electric shock from live parts**

- Disconnect the mains plug.

**NOTICE** Only use fuses of the same type, see Section 7 “Technical Data”.

- Replace low-voltage fuse (1) or battery fuse (2).

- Connect the mains plug to a mains socket with fuse protection.
- Insert the battery plug into the connection base of the circuit board.
- Place the cover onto the battery compartment and screw into position.



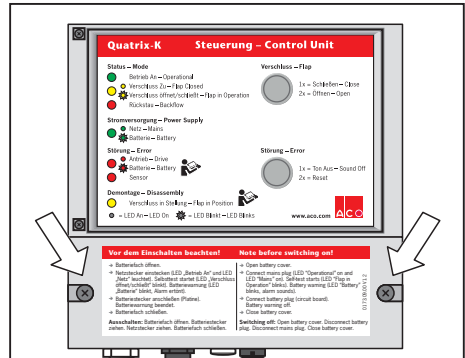
### 6.2.3 Replacing the battery pack



For fault-free operation, the battery pack should be replaced every 2 years.

#### Opening the battery compartment:

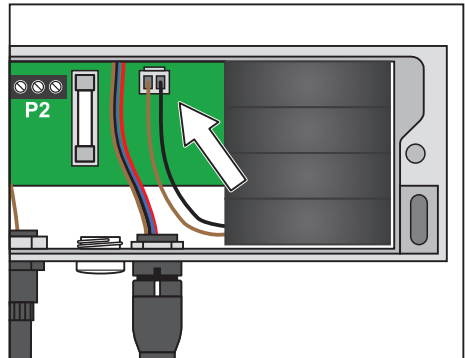
- Unscrew the cover from the battery compartment.



- Remove the battery plug from the connection base on the circuit board.
- Remove empty battery pack and dispose of it, Section 1.4 "Disposal".

**NOTICE** Only use original battery packs, Section 7 "Technical Data". Spare parts order, page 2 "ACO Service".

- Insert new battery pack.
- Insert the battery plug into the connection base of the circuit board.
- Close the battery compartment.
- Place the cover onto the battery compartment and screw into position.

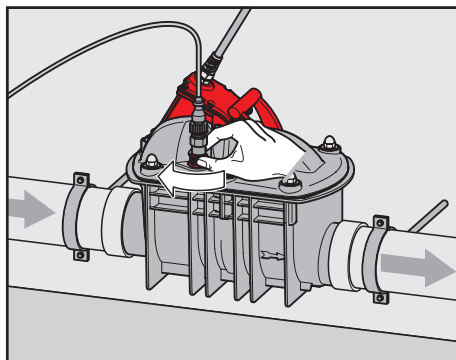
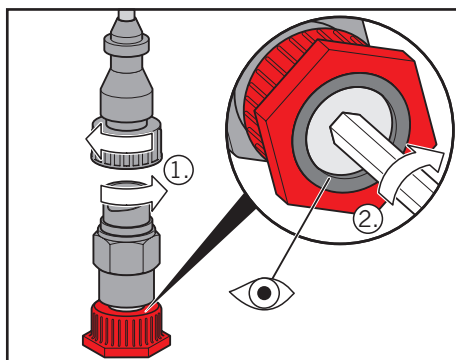
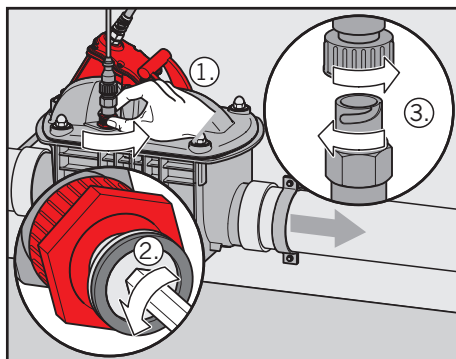


### 6.2.4 Replacing the sensor

The sensor cable and pressure sensor are connected using a bayonet coupling in the status as delivered.

**NOTICE** Sensor plug must only be attached or released using the red union nut. Never rotate the sensor cable.

- Unscrew the sensor plug with the red union nut from the connection (housing cover) (1).
- Remove the stainless steel adapter from the sensor plug using an Allen key (width across flats 5 mm) (2). Check that the gasket is stuck to the stainless steel adapter.
- Release bayonet coupling (3).
- Replace pressure sensor.
- Close bayonet coupling (clicks into place) (1).
- Place union nut on the stainless steel adapter and screw it into the sensor plug by hand using an Allen key (width across flats 5 mm) (1.5 – 2.0 N·m). Ensure that the gaskets are positioned correctly (2).
- Screw the sensor plug with the red union nut onto the connection (housing cover).



## 7 Technical data

<b>Quatrix-K control unit</b>	
<b>Characteristic data</b>	<b>Values</b>
Mains voltage:	100 – 240 V AC, 50 – 60 Hz
Power consumption:	60 W (operation)
	8 W (standby)
Mains protection:	Max. 16 A
Circuit protection	Thermal cutout (mains transformer)
Control unit protection type:	IP 54
DC motor protection type:	IP 68 (24 hours at 3 m immersion)
Battery pack:	15 V, LR6 alkaline
Fuse (mains):	2.5 A, slow blow
Fuse (battery):	2.5 A, slow blow
Operational readiness in the event of mains failure:	Approx. 2 hours (battery mode)
Alarm volume:	Approx. 85 dB
Dimensions (H x W x D):	Approx. 180 mm x 165 mm x 75 mm
Potential-free contact:	Mains voltage 250 V/AC, current 3 A
Art. no. battery pack:	0169.04.21
<b>Quatrix-K automatic faecal backflow stop</b>	
<b>Characteristic data</b>	<b>Values</b>
Declaration of performance (EU BauPVO 305/2011):	DOP ID code: BD/G1/4005
Classification:	Type 3F (EN 13564-1)
Shaft system load class:	K3 (EN 1253-1)
Quatrix-K for installation in exposed pipelines:	Art. no. 620368 (DN/OD 110)
	Art. no. 620468 (DN/OD 125)
	Art. no. 620369 (DN/OD 160)
Quatrix-K with shaft system for installation below ground:	Art. no. 620370 (DN/OD 110)
	Art. no. 620487 (DN/OD 125)
	Art. no. 620371 (DN/OD 160)

Annex 1: Handover procedure and documentation

Commissioning and induction by the company performing the work in the presence of the persons authorised to accept the system, and of the client.

Date of commissioning: \_\_\_\_\_

Date of handover: \_\_\_\_\_

Product identification

Product	Art. no.	Serial no. (type plate)	Year built (type plate)	Nominal width DN/OD	Shaft system
<input type="radio"/> Quatrix-K				<input type="radio"/> 110 <input type="radio"/> 125 <input type="radio"/> 160	<input type="radio"/> with <input type="radio"/> without
<input type="radio"/> Quatrix-K control unit					
<input type="radio"/> Quatrix-K electric motor					

Technical supervisors

	Work performed by	Work accepted by	Client
Name:			
Contact:			
Tel.:			
Fax:			
Email:			
Address:			

# Quatrix-K automatic faecal backflow stop

## Annex 1: Handover procedure and documentation

### Check list (to be completed by the company performing the work)

Inspections	Remarks	O.K.	not O.K.
Installation of the unit	Pipelines, connections, flow direction, supports	○	○
State of the plant	Visual inspection: exterior damage, soiling	○	○
Design with shaft system	Shaft system opens/closes without problems (no tension present)	○	○
Unit functions	Operating flap manually closed/opened (📖 Section 4.4)	○	○
	Emergency flap (📖 Section 4.5)	○	○
Tightness test	Test (📖 Section 5.2.2)	○	○
Backflow detection	Test (📖 Section 5.2.1)	○	○
Control unit installation	Mounted in an accessible place, protected against flooding and frost, connections, sensor cable installation	○	○
Control unit functions	Functions, operations, reports (📖 Section 2.5)	○	○

### Induction (to be given by the company performing the work)

Induction	Remarks	Yes	No
Induction:	Functions, operation, operating notes, automatic self-test, troubleshooting, maintenance duties	○	○
Handover:	Instructions for use	○	○
	Installation instructions	○	○

### Remarks:

Signature (work performed by): \_\_\_\_\_

Signature (work accepted by): \_\_\_\_\_

Annex 2: Maintenance log

Copy maintenance log for future servicing work. Half-yearly maintenance and inspection permissible only when performed by qualified technical personnel.

Date of service:

Date of last service:

Last service performed by:

Product identification

Product	Art. no.	Serial no. (type plate)	Year built (type plate)	Nominal width DN/OD	Shaft system
<input type="radio"/> Quatrix-K				<input type="radio"/> 110 <input type="radio"/> 125 <input type="radio"/> 160	<input type="radio"/> with <input type="radio"/> without
<input type="radio"/> Quatrix-K control unit					
<input type="radio"/> Quatrix-K electric motor					

Technical supervisors

	Work performed by	Work accepted by	Client
Name:			
Contact:			
Tel.:			
Fax:			
Email:			
Address:			

### Prior to servicing

State of the plant	Evaluation
Level of soiling:	<input type="radio"/> low <input type="radio"/> medium <input type="radio"/> high
Signs of wear:	<input type="radio"/> low <input type="radio"/> medium <input type="radio"/> high
Shaft system was/is flooded:	<input type="radio"/> yes <input type="radio"/> no
Alarm sounds/sounded:	<input type="radio"/> yes <input type="radio"/> no
Operating state:	<input type="radio"/> Mains <input type="radio"/> Battery <input type="radio"/> Off
Fault signals since last servicing:	

### Servicing check list

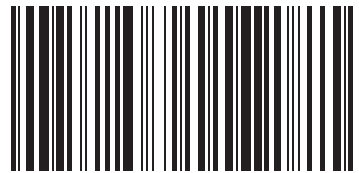
Servicing work	Performed
Function of the “Disassembly-Position” checked (📖 Section 5.2.1)	<input type="radio"/> yes <input type="radio"/> no
Operating flap manually closed/opened (🔧 Section 4.4)	<input type="radio"/> yes <input type="radio"/> no
Emergency flap closed/opened (🔧 Section 4.5)	<input type="radio"/> yes <input type="radio"/> no
Backflow unit and all parts inspected and cleaned (🔧 Section 5.2.1)	<input type="radio"/> yes <input type="radio"/> no
Tightness test performed (📖 Section 5.2.2)	<input type="radio"/> yes <input type="radio"/> no
Sensor unit checked (🔧 Section 5.2.3)	<input type="radio"/> yes <input type="radio"/> no
Battery pack replaced (at intervals of 2 years) (🔧 Section 6.2.3)	<input type="radio"/> yes <input type="radio"/> no
Reset to “Normal operation” (operational mode) following servicing: Operating and emergency flaps open, power supply checked	<input type="radio"/> yes <input type="radio"/> no
Unit in good operating condition	<input type="radio"/> yes <input type="radio"/> no

### Parts replaced:

### Remarks:

Signature (work performed by): \_\_\_\_\_

Signature (work accepted by): \_\_\_\_\_



4002626843432

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