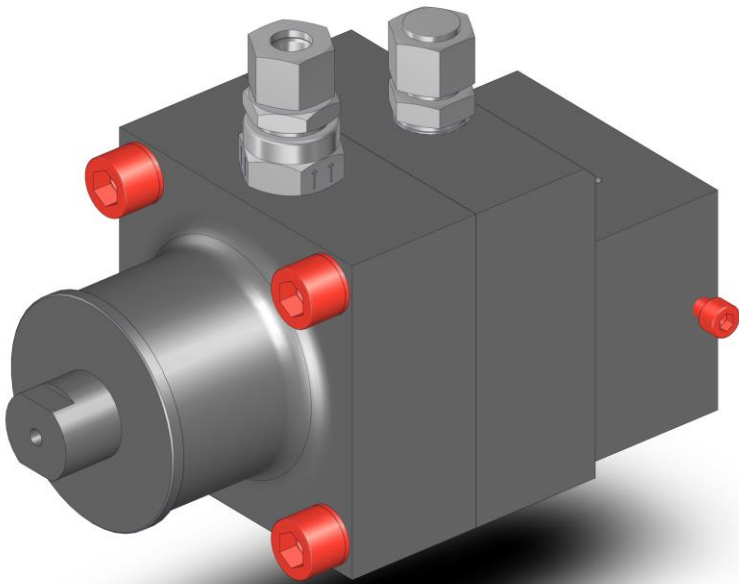


Honeywell



HON 672 Controller

Component documentation,
Maintenance manual and spare parts

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1 General considerations

Contents

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1.1 About this component documentation

Validity and purpose

This component documentation applies to the HON 672 controller.

This component documentation provides all individuals with the information required in order to safely handle the device in connection with the following tasks:

- Maintenance and servicing
- Storage and disposal

Target group

This component documentation is intended for anyone who requires the following information concerning the product:

- Intended use
- Device models
- Technical specifications
- How it works
- Maintenance manual
- Spare parts drawings and spare parts lists

Illustration

Honeywell offers products with identical functions in a number of different sizes. For this reason, we are unable to guarantee that the illustrations in this documentation will match the dimensions of your product. In these cases, the illustrations should be viewed as a concept sketch.



Safety

Failing to observe the information provided in this document may lead to injuries, including death and material damages.

To ensure the safety, any persons handling the product must have read and understood the following parts of this document before they start with any work involving it:

- the chapter entitled Safety
- the chapters that describe the work to be done

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Details about the manufacturer's liability

The manufacturer will not be liable for damages and malfunctions arising from failure to observe this component documentation and other applicable documents.

Constructive changes

The written approval from Honeywell Gas Technologies GmbH, Kassel, is required for any modifications and additions to the product. Any violation will void the legal liability for consequences arising thereof.

1.2 About the safety notices





Meaning

The information contained in the safety notices is intended to prevent personal injury. Safety notices contain the following information:

- Nature and source of the danger
- Possible consequences associated with the non-observance of the notice
- Procedures for the prevention of personal injury

Types of safety notices

This document contains the following types of safety notices:

Type of safety notice	Description	Sign
Basic safety notices	Superordinate safety notices not relating to a specific task: <ul style="list-style-type: none"> ▪ They contain a summarized description of hazards, risks and safety procedures associated with the handling of the device. ▪ Their purpose is to inform and educate the user about an existing danger and about practicing behavioral safety. ▪ They are suitable as safety instruction for all employees handling the device. 	Recognizable by the heading of the chapter
Instruction-related safety notices	Safety notices containing specific instructions relating to the entire manual or a group of manuals	  
Step-related safety notices	Safety notices containing specific instructions relating only to the step	DANGER WARNING CAUTION
Additional safety notice	Instruction to observe certain safety notices with reference to a location in the document where safety notices containing specific information about dangers, risks and specific instructions for safety procedures can be found	

Danger levels

The safety notices containing specific instructions are identified with a signal word. The signal word represents a certain danger level:

Danger level	If you fail to follow the instruction, then ...	And the consequence is ...
DANGER	an accident will happen	serious bodily injury or death.
WARNING	an accident may happen	possible serious bodily injury or death.
CAUTION	an accident may or will happen.	minor or moderate bodily injury.

Warnings about material damages

Warnings about possible material damages are identified with the word **Attention** in this document.

2 Description

Contents

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Intended use	6
Device models	7
Labels/Markings	8
Physical design and operation	9
Technical specifications	11

2.1 Intended use

Intended use

The HON 672 controller is used to trigger safety shut-off valves within a controlled gas system.

The controller can be used for neutral, non-aggressive gases and the gases specified in DVWG Code of Practice G260.

Note: The device's operating limits concerning the gas, the operating pressure, and the operating temperature can be found either on the rating plate affixed to the device or in the device's technical specifications.

The use under different operating conditions must be coordinated in consultation with the manufacturer.

The HON 672 controller, which conforms to DIN EN 334 / DIN EN 14382, is intended to be used for the following gas pressure regulators:

- HON 402
- HON 408
- HON 503
- HON 512
- HON 530
- HON 711
- HON 721
- HON 731
- HON 5020

Limitations of use

Please observe the following limitations of use:

- Do not use the device for any media other than those mentioned in the intended use or those discussed with and approved by the manufacturer.
- Do not use the device in any installation position other than the one documented in this component documentation.
- Do not use the device against the direction of flow specified on the device and in the component documentation.
- When replacing defective parts, only use original spare parts or manufacturer-approved standard parts.
- Do not attempt to modify or remodel the device on your own.

2.2 Device models

HON 672 controller models

The configuration levels of the HON 672 controller can be varied in some respects using individual components.

The following individual components are always part of the device:

- Spring adjuster of the pilot spring
- Comparator stage
- Switch stem

The following individual components are installed in some versions of the device:

- Comparator stage
 - Diaphragm measuring unit
 - Piston measuring unit

HON 672 controller models

The comparator stage as an individual component is executed in three models with different designs in dependence on the control range (W_d) of the controller:

Series	Design for upper response pressure	Control range W_{dso}		Thread type
		[mbar]	[psi]	
HON 672	K10a: Diaphragm measuring unit	50 - 1500	0.73 - 22	Metric, imperial
	K11a/1: Diaphragm measuring unit	40 - 4500	0.58 - 65	
	K11a/2: Piston measuring unit	2500 - 8000	36 - 116	

Series	Design for lower response pressure	Control range W_{dsu}		Thread type
		[mbar]	[psi]	
HON 672	K10a: Diaphragm measuring unit	10 - 120	0.15 - 1.7	Metric, imperial
	K11a/1: Diaphragm measuring unit	60 - 1000	0.87 - 14	
	K11a/2: Piston measuring unit	800 - 2200	11.6 - 32	

The designs that use the imperial system of measurement feature ports that conform to Anglo-American thread standards and use inches as a unit.

The designs that use the metric system of measurement feature ports that conform to European thread standards and use metric units.

Versions and designs in this component documentation

The technical specifications and maintenance information, as well as the spare parts lists and spare parts drawings in the appendix, describe all the HON 672 controller models available.

2.3 Labels/Markings

Illegible labels



Illegible information on the device poses a risk of injury due to resulting erroneous operation, use, or installation.

Labels, as well as inscriptions and stamping on the device, can eventually become soiled or otherwise unrecognizable to such an extent that users will not be warned effectively of hazards and may be unable to follow required operating instructions. This will pose a risk of injury.

- ⇒ Make sure to always keep all relevant labels in good condition so that they will be easily legible.
- ⇒ Immediately replace damaged and missing labels.

Identifying the device

Make sure you have the right component documentation for your device.

To identify your device, look at the nameplate.

Verifying the technical specifications

Make sure that the conditions on site correlate with the information on the type plate and the technical specifications.

Technical specifications (see page 11)

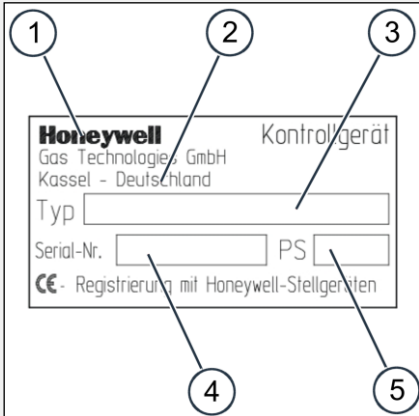
Locating the monitoring device's type plates

The controller type plate locations are as follows:

Figure	No.	Description
	1	Type plate on the side of the monitoring device
	2	Additional type plate on the side of the monitoring device

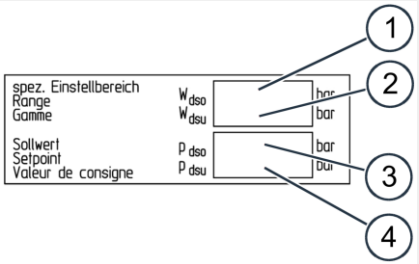
Interpreting the type plate on the monitoring device

The details on the type plate have the following meaning:

Figure	No.	Description
	1	Manufacturer ID
	2	Manufacturer's address
	3	Type designation
	4	Serial number
	5	PS = Maximum allowable pressure

Interpreting the additional type plate on the monitoring device

The details on the additional type plate mean the following:

Figure	No.	Description
	1	Specific adjustment range [bar] W_{dso} = Excess pressure
	2	Specific adjustment range [bar] W_{dsu} = Insufficient pressure
	3	Setpoint to be set [bar] p_{dso} = Upper response pressure value
	4	Setpoint to be set [bar]; see configuration p_{dsu} = Lower response pressure value

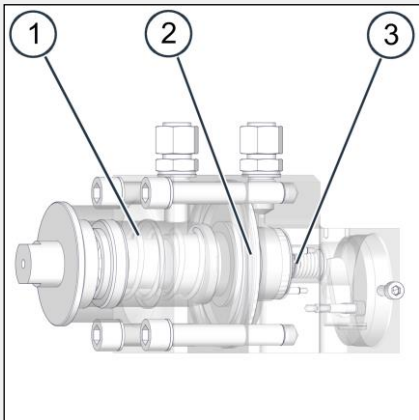
Labels on connection lines

Small color-coded text labels must be used to mark the controller's connection lines based on what the lines are used for.

2.4 Physical design and operation

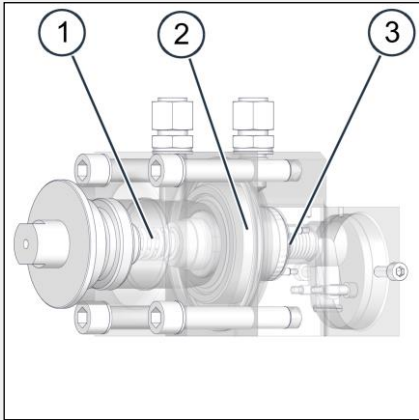
Physical design of the controllers K10a and K11a/1

The controller is made up of the following individual components:

Figure	No.	Description
	1	Pilot spring
	2	Comparator stage with diaphragm measuring unit
	3	Switch stem (not visible)

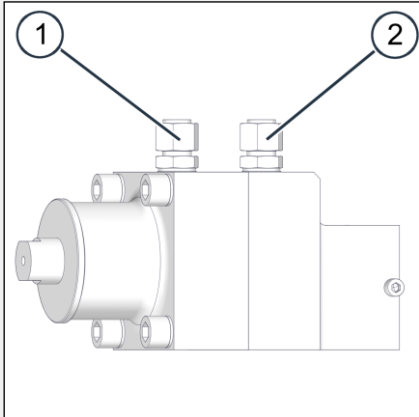
Physical design of the controller K11a/2

The controller is made up of the following individual components:

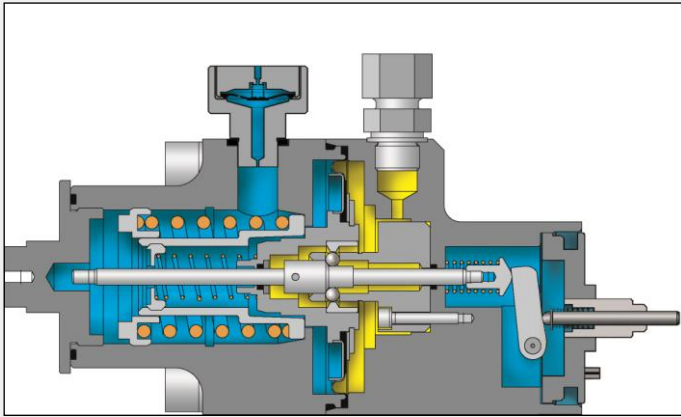
Figure	No.	Description
	1	Pilot spring
	2	Comparator stage with piston measuring unit
	3	Switch stem (not visible)

Controller connection lines

The controller features the following connections:

Figure	No.	Connection	Pipe connection thread type	
			Metric	Imperial
	1	Vent line	E12L	1/2"
	2	Measuring line (outlet pressure)	E12L	1/2"

Functional diagram of the controller

Figure	Color	Meaning
	Yellow	Outlet pressure
	Blue	Atmospheric pressure

- How the controller works**
- If the gas pressure exceeds or falls below the set response pressure, the pulse is guided to the lower side of the measuring diaphragm. This either raises or lowers the measuring diaphragm.
 - The switch stem transmits the triggering motion from the controller to the switch bearing of the trip mechanism.
 - The piston movement of the trip mechanism releases the locking mechanism of the opened valve flap shaft.
 - The spring-loaded valve flap which moves angularly closes and stops the flow of gas.

2.5 Technical specifications

Characteristic device values and materials

The following characteristic values apply to all control ranges:

	Value
Max. inlet pressure p_{umax}	100 bar (1450 psi)
Temperature range	-20 to +60 °C (-4 to +140 °F)
Materials	Case: Aluminum alloy Internal parts: Al alloy, stainless steel O-rings: rubber-like synthetic material diaphragms: rubber-like synthetic material

Actuating mechanisms for overpressure

Controller	Automatic for overpressure [bar]	Response time [sec.]
K10a	0.05 - 1.5	0.1 - 0.3
K11a/1	0.4 - 4.5	0.1 - 0.3
K11a/2	2.5 - 8.0	0.1 - 0.3

Actuating mechanisms for underpressure

Controller	Automatic for underpressure [bar]	Response time [sec.]
K10a	0.01 - 0.12	0.1 - 0.3
K11a/1	0.06 - 1.0	0.1 - 0.3
K11a/2	0.8 - 2.2	0.1 - 0.3

Gas properties

The properties of the gas conveyed through the HON 672 controller must meet the requirements specified by the DVGW German Technical and Scientific Association for Gas and Water in the latest version of DVGW Code of Practice G 260 (A).

ATEX specifications

The device's mechanical components do not contain any potential sources of ignition, and accordingly do not fall under the scope of ATEX 95 (94/9/EC). The electrical components used on the device meet all applicable ATEX requirements.

3 Safety

Contents

Topic	Page
Basic safety rules	12
Requirements concerning the workforce, personal protective gear, workplaces	13

3.1 Basic safety rules

Target group of these rules	These rules are intended for any individuals handling the device.
Purpose of these rules	These rules are designed to make sure that any individuals working with or on the device will thoroughly familiarize themselves with the corresponding hazards and safety measures and will observe the safety notices contained in this component documentation and on the device. If you do not follow these rules, there is a risk of injury including death and material damages.
How to use this component documentation	<p>Observe the following rules:</p> <ul style="list-style-type: none"> ▪ Read the chapter entitled Safety and the chapters relating to your responsibilities in their entirety. It is vital that you have understood these contents. ▪ Always keep this component documentation in the vicinity of the device so that you can consult it when necessary. ▪ Include this component documentation if you are transferring ownership of the device.
Handling the device	<p>Observe the following rules:</p> <ul style="list-style-type: none"> ▪ Only individuals who meet the requirements set forth in this component documentation have permission to work with/on the device. ▪ The device's intended use includes its use in hazardous locations. All work with and on the device must be carried out only after the presence of an explosive atmosphere has been fully ruled out. ▪ Only use the device for the intended purpose. Never use the device for any other, potentially logical purposes. ▪ Follow all the safety measures outlined in this component documentation and on the device. In particular, wear the mandatory personal protective gear. ▪ Do not modify the device in any way, e. g. by removing parts or adding unapproved parts. In particular, you have no permission to modify or disable any safety contrivances. ▪ When replacing defective parts, only use original spare parts or manufacturer-approved standard parts.
Requirements concerning the workforce	<p>Personnel must meet the following requirements:</p> <ul style="list-style-type: none"> ▪ All personnel must meet the requirements corresponding to their duties. ▪ All personnel must read and understand this component documentation before working with/on the device. ▪ All occupational health and safety regulations that apply in your country must be complied with. ▪ All personnel must be provided with the personal protective equipment required for their work. This personal protective equipment must be in good condition at all times. ▪ All personnel must wear the personal protective equipment required for their work.

Conduct in the event of accidents

The device is designed and built such that the employees can work with it without being at risk. In spite of all the precautions, accidents can happen under unfavorable circumstances. Always consult the directives of your company concerning the protection of the workforce.

3.2 Requirements concerning the workforce, personal protective gear, workplaces

Requirements concerning the workforce

Individuals tasked with handling the device must meet the following requirements:

Personnel	Responsibilities	Required qualification
Mechanical fitter	<ul style="list-style-type: none"> ▪ Mechanical removal and installation ▪ Maintenance and servicing 	<ul style="list-style-type: none"> ▪ Professional training and experience operating pressure equipment and systems ▪ Knowledge of the relevant standards and regulations ▪ Ability to identify and avoid dangers autonomously

Requirements for the personal protective gear

Any persons handling the device must be equipped with the following personal protective gear:

Task	Required personal protective gear
Mechanical activities involved in maintenance, storage, disposal	<ul style="list-style-type: none"> ▪ Safety boots with protection for electrostatic discharge (ESD) ▪ Safety gloves

Workplace requirements

To ensure the safe handling of the device, the personnel must remain at the workplaces intended for performing their tasks.

The workplaces for performing the various tasks are at the following locations:

Task	Workplaces
<ul style="list-style-type: none"> ▪ Maintenance, repairs ▪ Storage ▪ Disposal 	All around the device, depending on the task

4 Maintenance

Contents

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Maintenance on the controller with diaphragm measuring unit K10a	15
Maintenance on the controller with diaphragm measuring unit K11a/1	23
Maintenance on the piston measuring unit K11a/2	31
Completing the maintenance	38

4.1 Maintenance schedule

Meaning

The maintenance schedule provides an overview of the periodically required maintenance.

Maintenance schedule

Since the maintenance intervals are highly dependent on the operating conditions and the gas quality, it is impossible to provide set maintenance intervals. It is recommended to use maintenance intervals conforming to the specifications in DVGW Code of Practice G 495. In addition, the need for maintenance must be determined and documented on the basis of operational requirements and experience.

Maintenance must be carried out in compliance with all federal and state laws and regulations, as well as with the local rules and regulations set forth by the relevant utilities and authorities and any other applicable regulations.

4.2 Preparing for the maintenance

Preparation work for controller maintenance

Proceed as follows:

Step	Description	Explanation
1	Have the maintenance and servicing parts ready	<p>Refer to the topic <i>Explanation of spare parts</i> to find out which spare parts drawings belong to your device model and have the corresponding maintenance and service parts ready before starting maintenance.</p> <ul style="list-style-type: none"> ▪ The spare parts that are always required for the controller's maintenance are listed in the spare parts kits for the controller. ▪ Spare part drawings and spare parts lists are listed in the <i>appendix</i> (see page 41). <p>In addition to these maintenance parts, there are also servicing parts that need to be checked during maintenance in order to make sure that they are in working condition. Depending on their condition, these must be replaced as needed.</p> <p>Consequently, it is recommended that the required servicing parts be kept on hand as per the section <i>Servicing parts for controllers</i> in the topic <i>Maintenance and servicing parts for HON 672</i> (see page 47) to prevent downtimes.</p>
2	Preparing special tools	<p>In addition to standard tools, have the special tools required for your specific controller model ready to go before maintenance. Please refer to the <i>Special tools</i> section in <i>Lubricants, threadlockers, and special tools</i> (see page 49).</p> <p>You will also need a magnetic bowl for the maintenance of your controller to enable removal of the balls of the guide sleeve.</p>
3	Have the required lubricants and threadlockers ready	<p>For specifications concerning the lubricants and threadlockers that must be used, please refer to the sections of the same name under <i>Lubricants, threadlockers, and special tools</i> (see page 49).</p>

Step	Description	Explanation
4	Removing the controller from the actuator assembly	<p>WARNING! Risk of serious injury posed by pressurized components moving in an uncontrolled manner when handled improperly. If not handled properly or in the event of a defect, gas can escape from pressurized components under high pressure and cause serious injuries and even death. Before you start working on these components:</p> <ul style="list-style-type: none"> ▪ Close all connections leading to the gas-carrying line. ▪ Establish a depressurized status. Residual amounts of energy must be depressurized as well. <p>Before starting with the maintenance work, the controller must be removed from the actuator assembly with which it operates. For instructions on how to remove the controller, please refer to the user manual for the relevant gas pressure regulator. Keep in mind that it is always necessary to depressurize the actuator assembly (including the controller) and purge all gas-conveying lines with nitrogen before removal.</p>

4.3 Maintenance on the controller with diaphragm measuring unit K10a

Falling components



Crush and impact hazard posed by components falling or toppling over accidentally.

When working with heavy components that have been removed or are yet to be installed, injury may result if the components start moving in an uncontrolled manner, e.g., fall down from the working surface or topple over.

- ⇒ Place removed components exclusively on level, horizontal working surfaces with enough load-bearing capacity.
- ⇒ If necessary, secure removed components so that they will not fall or topple over.
- ⇒ Wear the required personal protective equipment.
- ⇒ Exercise caution when performing the relevant tasks.

Cleaning

Observe the following cleaning instructions:

- Before assembly, all parts must be cleaned in order to remove any foreign particles (swarf) and soiling.
- If screws, bolts, or washers are replaced with identical new parts, any oil on these new parts must first be removed.

Tightening torques

Observe the tightening torques below when following the instructions in this section:

Part	Tightening torque	Step	Task
Guide bushing screws	3 Nm	3	Mounting the controller
Housing cover screws	85 Nm	13	Mounting the controller

Dismounting the controller

Proceed as follows:

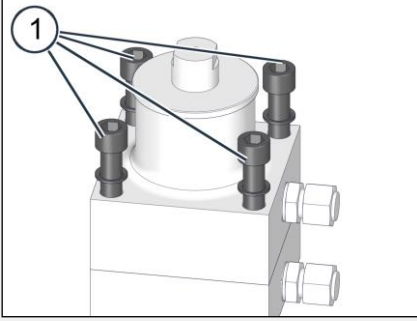
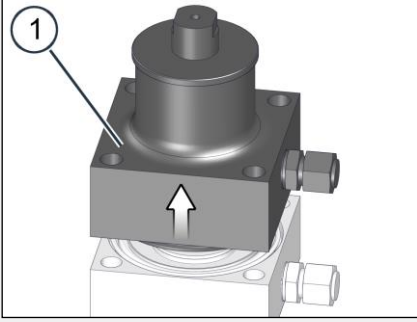
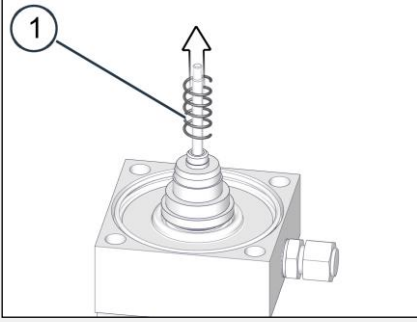
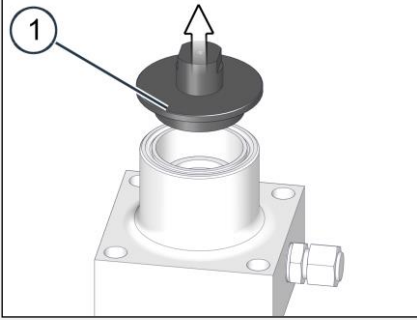
Figure	Step	Description
	1	Unscrew and remove the 4 screws (1) of the housing cover.
	2	Remove the housing cover (1).
	3	Remove the spring (1).
	4	Unscrew the cap (1). The cover is needed as a tool.

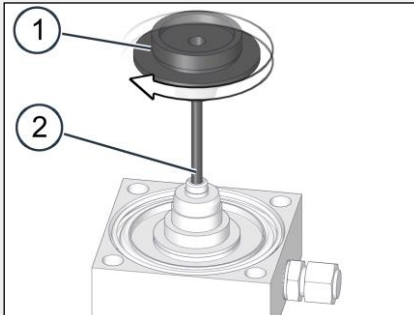
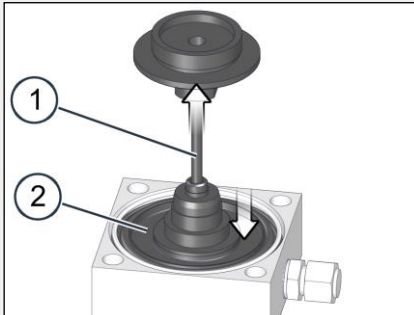
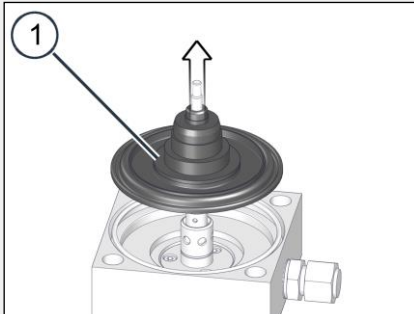
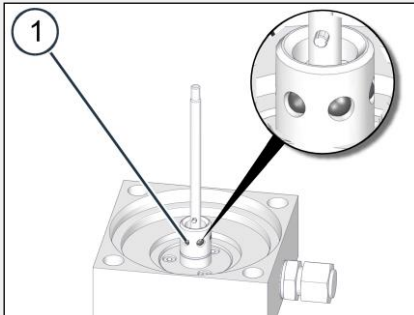
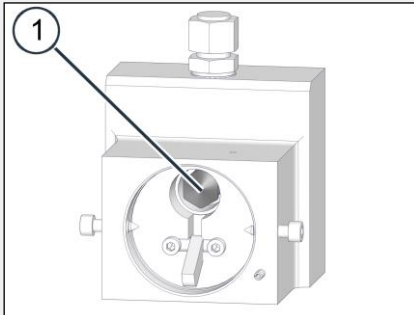
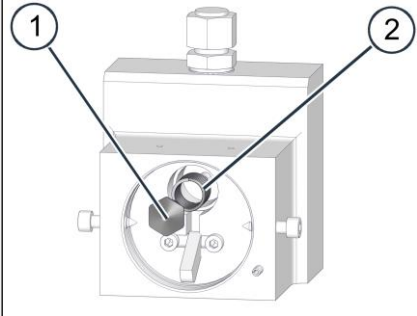
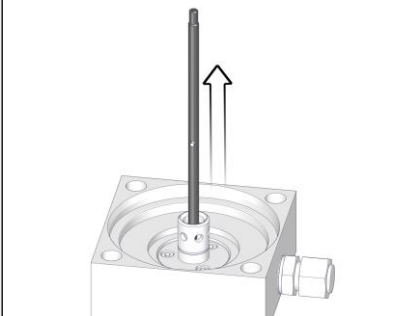
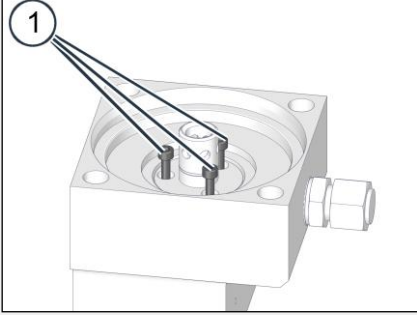
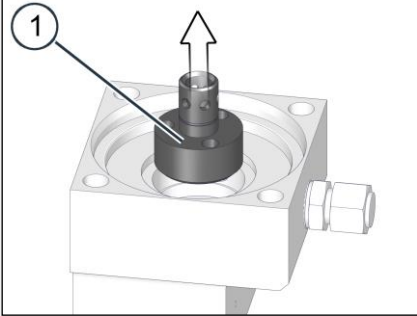
Figure	Step	Description
	5	Screw the cover (1) onto the valve spindle (2).
	6	Hold down the diaphragm system (2) and pull the valve spindle (1) upwards.
	7	Remove the diaphragm system (1) by lifting it off.
	8	Use the magnetic bowl to remove the 6 balls (1).
	9	Unscrew the pressure piece (1) and remove it.

Figure	Step	Description
	10	Remove the pressure piece (1) and the spring (2).
	11	Remove the valve spindle (1).
	12	Unscrew and remove the 3 screws (1) of the guide bushing.
	13	Remove the guide bushing (1).

Maintaining the monitoring device

Proceed as follows:

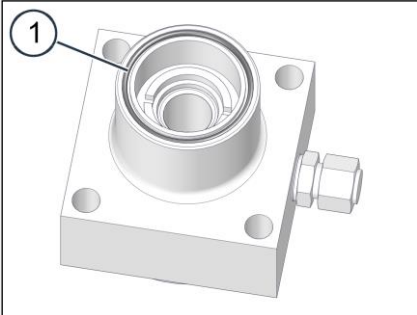
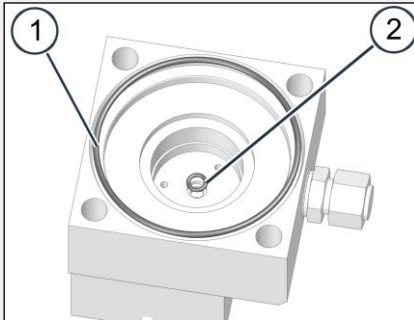
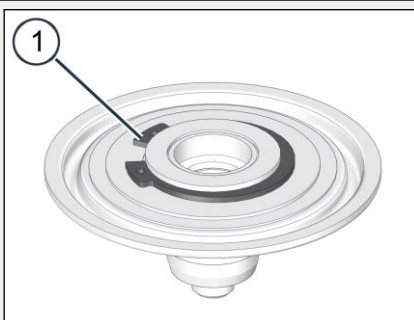
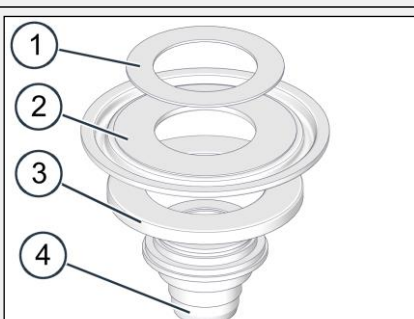
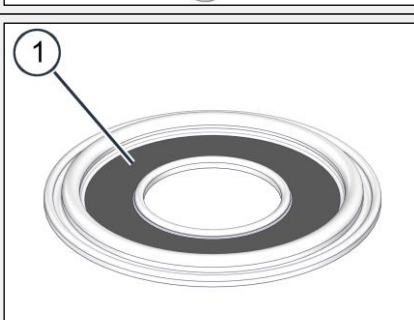
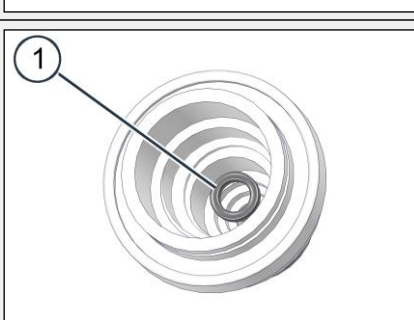
Figure	Step	Description
	1	Replace the O-ring (1) with a new, lubricated O-ring. Note: See the appendix for the lubricants to be used.

Figure	Step	Description
 <p>A perspective view of a square diaphragm assembly mounted on a base. Two O-rings are highlighted with callouts: (1) points to the O-ring on the top flange, and (2) points to the O-ring on the bottom flange.</p>	<p>2</p>	<p>Replace the O-rings (1) and (2) with new, lubricated O-rings. Note: See the appendix for the lubricants to be used.</p>
 <p>A perspective view of the diaphragm system, which is a circular, multi-layered component. A retaining ring is highlighted with callout (1) and is shown being lifted away from the assembly.</p>	<p>3</p>	<p>Turn the diaphragm system over. Remove the retaining ring (1) from the diaphragm system.</p>
 <p>A perspective view of the dismantled diaphragm system. The components are labeled: (1) Lower diaphragm plate, (2) Diaphragm, (3) Upper diaphragm plate, and (4) Locking sleeve.</p>	<p>4</p>	<p>Dismantle the diaphragm system: (1) Lower diaphragm plate (2) Diaphragm (3) Upper diaphragm plate (4) Locking sleeve</p>
 <p>A perspective view of the diaphragm component. The inner diaphragm bead is highlighted with callout (1).</p>	<p>5</p>	<p>Check the diaphragm for damage. Replace it if necessary. Grease the inner diaphragm bead (1). Note: See the appendix for the lubricants to be used.</p>
 <p>A perspective view of the diaphragm component. An O-ring is highlighted with callout (1) and is shown being replaced.</p>	<p>6</p>	<p>Replace the O-ring (1) with a new, lubricated O-ring. Note: See the appendix for the lubricants to be used.</p>

Mounting the controller

Proceed as follows:

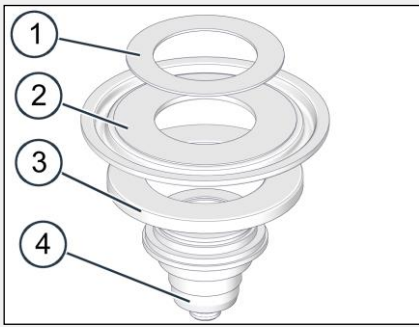
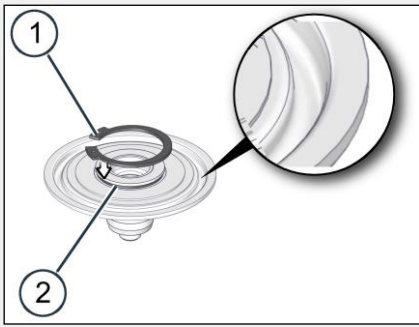
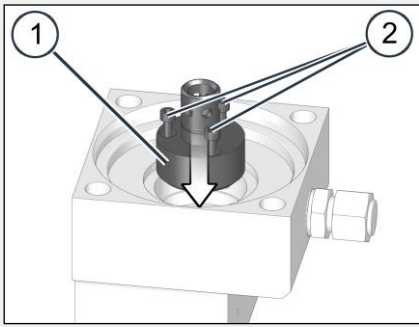
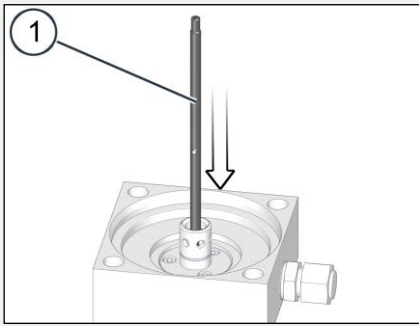
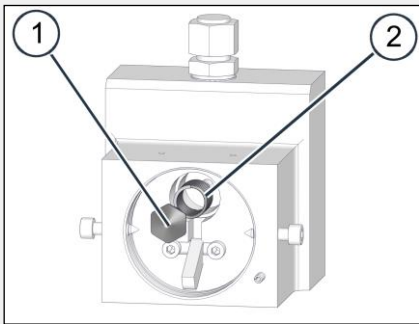
Figure	Step	Description
	<p>1</p>	<p>Assemble the diaphragm system:</p> <ul style="list-style-type: none"> ▪ (1) Lower diaphragm plate ▪ (2) Diaphragm ▪ (3) Upper diaphragm plate ▪ (4) Locking sleeve
	<p>2</p>	<p>Ensure that the retaining ring is seated correctly:</p> <p>The retaining ring (1) must be seated below the edge of the locking sleeve (2) all the way around.</p> <p>Make sure that the diaphragm is aligned correctly: The side of the diaphragm that has a depression at the center should be facing downward.</p>
	<p>3</p>	<p>Install the guide bushing (1) by tightening the 3 screws (2) using a crosswise pattern. Tightening torque: 3 Nm</p>
	<p>4</p>	<p>Insert the valve spindle (1).</p>
	<p>5</p>	<p>Put the pressure piece (1) and the spring (2) in place.</p>

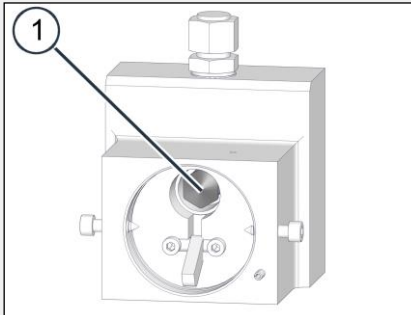
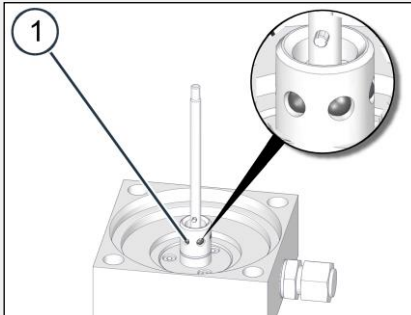
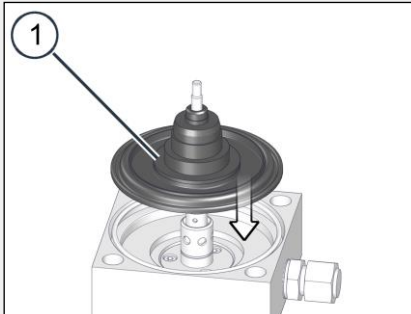
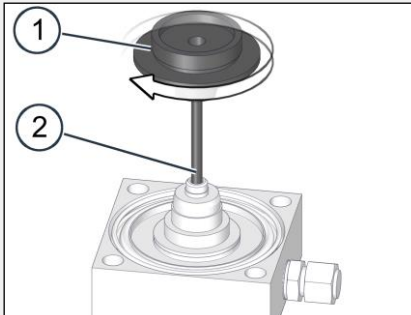
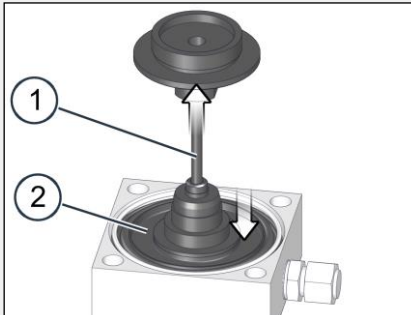
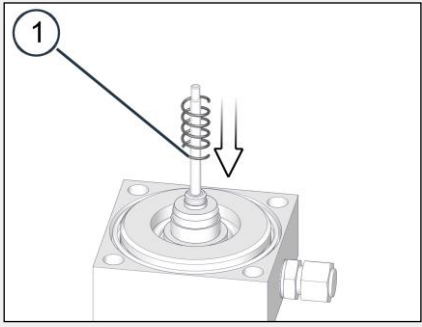
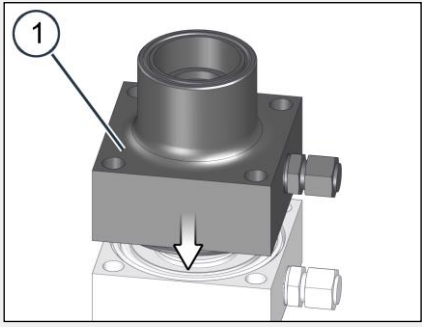
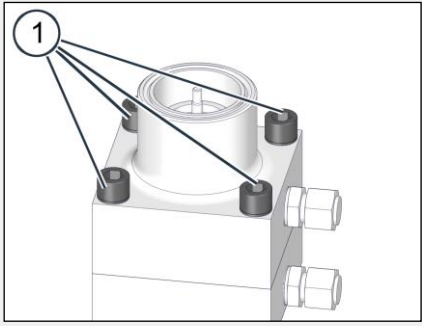
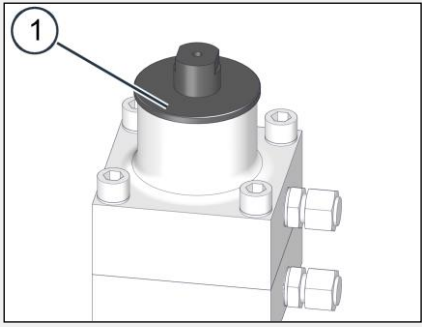
Figure	Step	Description
	6	Tighten the pressure piece (1) finger tight.
	7	Put in the 6 balls (1).
	8	Put on the diaphragm system (1).
	9	Screw the cover (1) onto the valve spindle (2).
	10	Pull the valve spindle (1) upwards and press the diaphragm system (2) all the way down, overcoming the resistance of the balls.

Figure	Step	Description
	<p>11</p>	<p>Put the spring (1) in place.</p>
	<p>12</p>	<p>Put on the housing cover (1).</p>
	<p>13</p>	<p>Tighten the 4 screws (1) using a crosswise pattern. Tightening torque: 85 Nm</p>
	<p>14</p>	<p>Screw on the cover (1).</p>

Next task

Proceed as follows:
Completing the maintenance (see page 38)

4.4 Maintenance on the controller with diaphragm measuring unit K11a/1

Falling components



Crush and impact hazard posed by components falling or toppling over accidentally.

When working with heavy components that have been removed or are yet to be installed, injury may result if the components start moving in an uncontrolled manner, e.g., fall down from the working surface or topple over.

- ⇒ Place removed components exclusively on level, horizontal working surfaces with enough load-bearing capacity.
- ⇒ If necessary, secure removed components so that they will not fall or topple over.
- ⇒ Wear the required personal protective equipment.
- ⇒ Exercise caution when performing the relevant tasks.

Cleaning

Observe the following cleaning instructions:

- Before assembly, all parts must be cleaned in order to remove any foreign particles (swarf) and soiling.
- If screws, bolts, or washers are replaced with identical new parts, any oil on these new parts must first be removed.

Tightening torques

Observe the tightening torques below when following the instructions in this section:

Part	Tightening torque	Step	Task
Guide bushing screws	3 Nm	3	Mounting the controller
Housing cover screws	85 Nm	14	Mounting the controller

Dismounting the controller

Proceed as follows:

Figure	Step	Description
	1	Unscrew and remove the 4 screws (1) of the housing cover.
	2	Remove the housing cover (1).

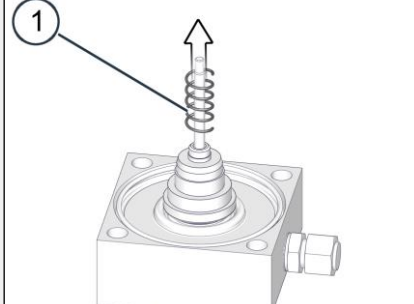
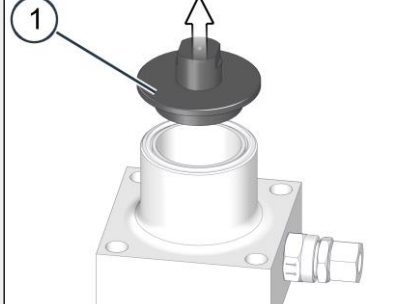
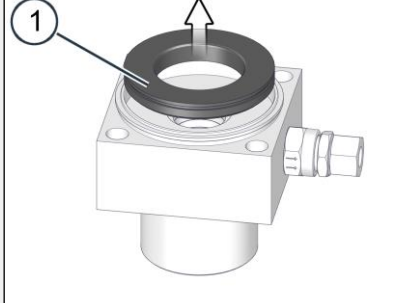
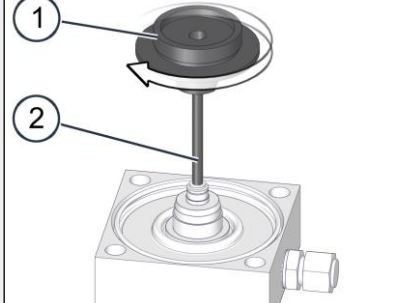
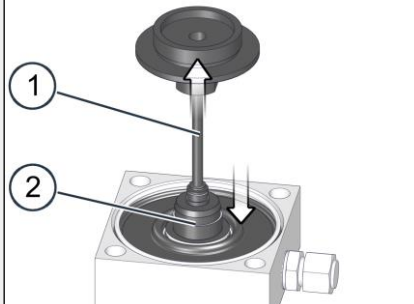
Figure	Step	Description
	3	Remove the spring (1).
	4	Unscrew the cap (1). The cover is needed as a tool.
	5	Turn over the housing cover and take out the intermediate ring (1).
	6	Screw the cover (1) onto the valve spindle (2).
	7	Hold down the diaphragm system (2) and pull the valve spindle (1) upwards.

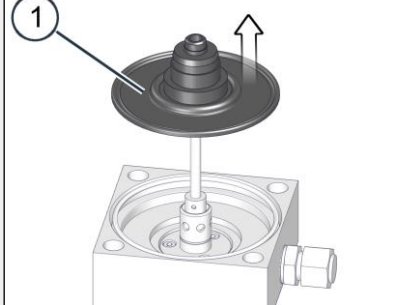
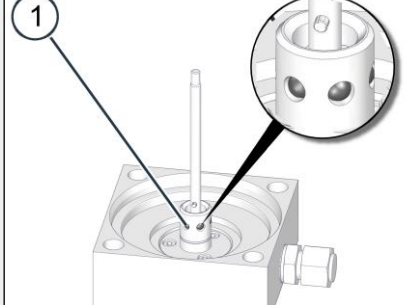
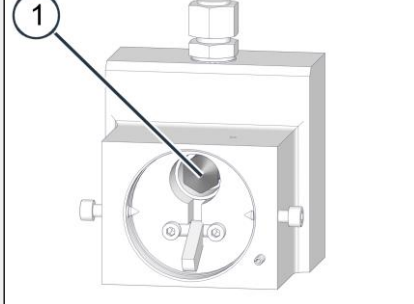
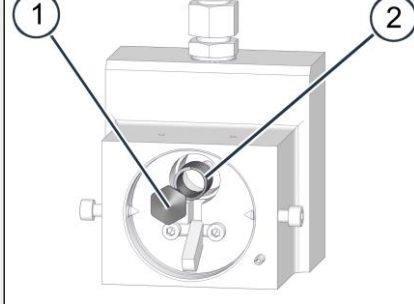
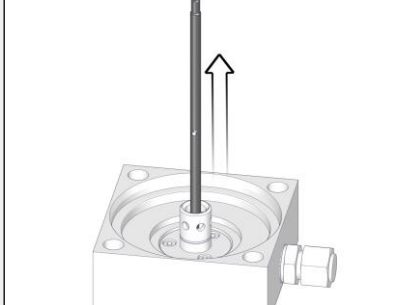
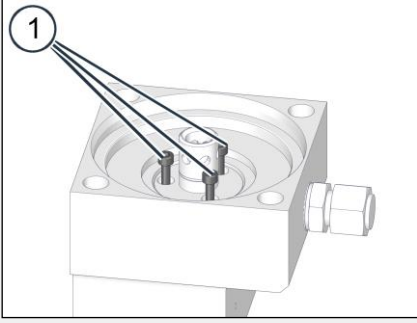
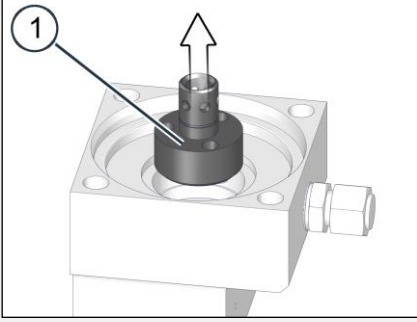
Figure	Step	Description
	8	Remove the diaphragm system (1) by lifting it off.
	9	Use the magnetic bowl to remove the 6 balls (1).
	10	Unscrew the pressure piece (1) and remove it.
	11	Remove the pressure piece (1) and the spring (2).
	12	Remove the valve spindle (1).

Figure	Step	Description
	13	Unscrew and remove the 3 screws (1) of the guide bushing.
	14	Remove the guide bushing (1).

Maintaining the monitoring device

Proceed as follows:

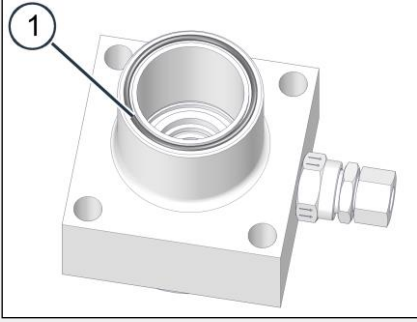
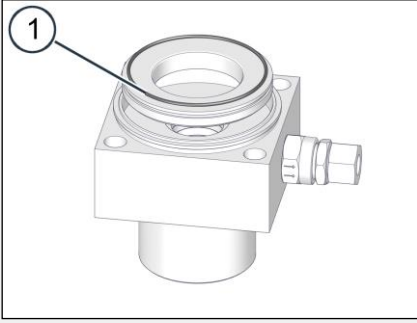
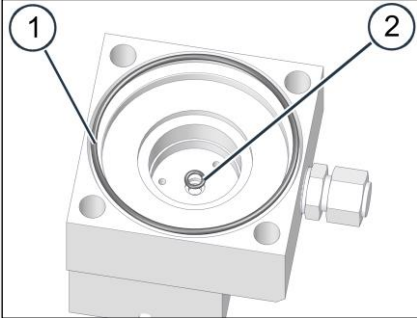
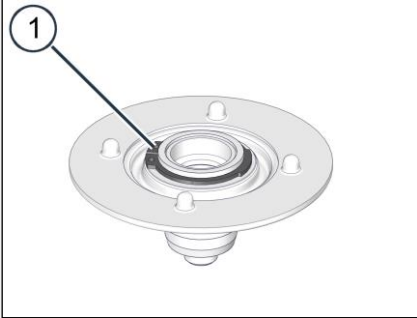
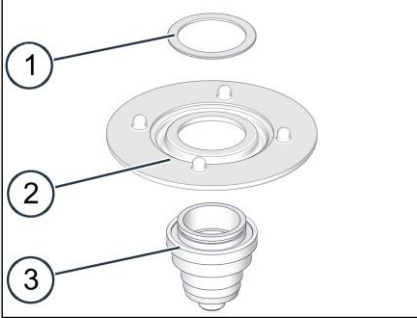
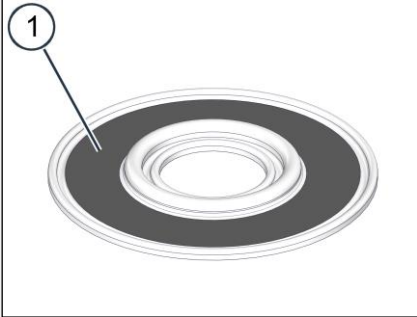
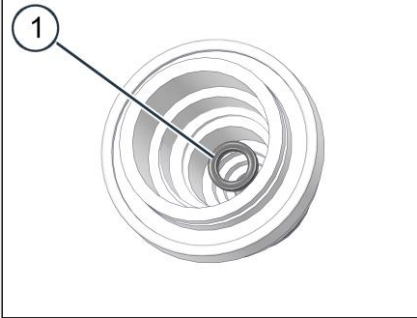
Figure	Step	Description
	1	Replace the O-ring (1) with a new, lubricated O-ring. Note: See the appendix for the lubricants to be used.
	2	Replace the O-ring (1) with a new, lubricated O-ring. Note: See the appendix for the lubricants to be used.
	3	Replace the O-rings (1) and (2) with new, lubricated O-rings. Note: See the appendix for the lubricants to be used.

Figure	Step	Description
	4	Turn the diaphragm system over. Remove the retaining ring (1) from the diaphragm system.
	5	Dismantle the diaphragm system: (1) Lower diaphragm plate (2) Diaphragm (3) Locking sleeve
	6	Check the diaphragm for damage. Replace it if necessary. Grease the inner diaphragm bead (1). Note: See the appendix for the lubricants to be used.
	7	Replace the O-ring (1) with a new, lubricated O-ring. Note: See the appendix for the lubricants to be used.

Mounting the controller

Proceed as follows:

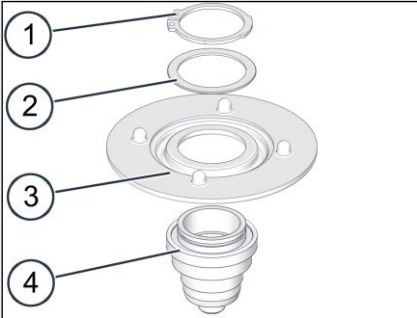
Figure	Step	Description
	1	Assemble the diaphragm system: ▪ (1) Locking ring ▪ (2) Lower diaphragm plate ▪ (3) Diaphragm ▪ (4) Locking sleeve

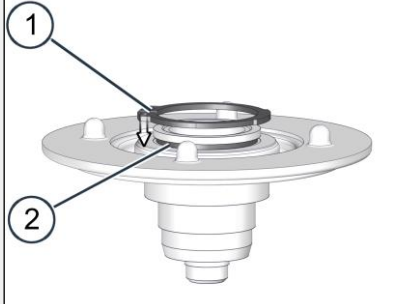
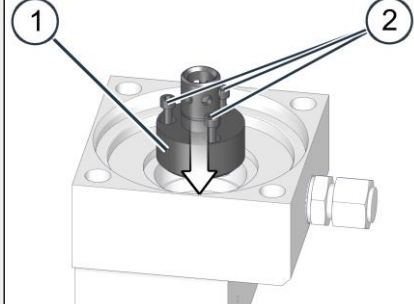
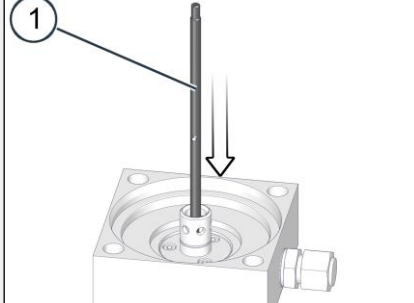
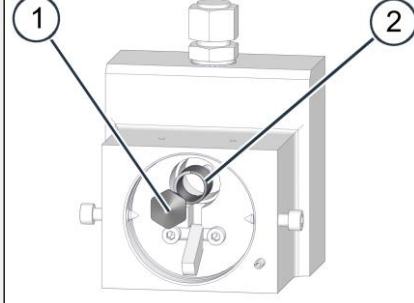
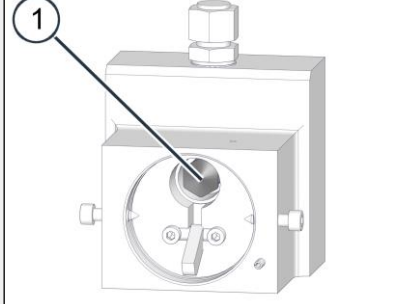
Figure	Step	Description
	<p>2</p>	<p>Ensure that the retaining ring is seated correctly: The retaining ring (1) must be seated below the edge of the locking sleeve (2) all the way around.</p>
	<p>3</p>	<p>Install the guide bushing (1) by tightening the 3 screws (2) using a crosswise pattern. Tightening torque:3 Nm</p>
	<p>4</p>	<p>Insert the valve spindle (1).</p>
	<p>5</p>	<p>Put the pressure piece (1) and the spring (2) in place.</p>
	<p>6</p>	<p>Tighten the pressure piece (1) finger tight.</p>

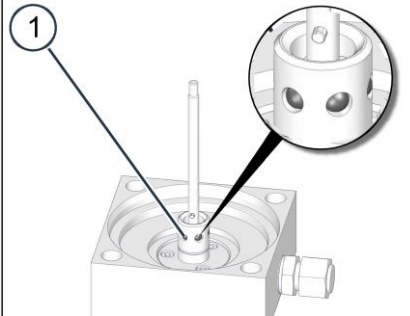
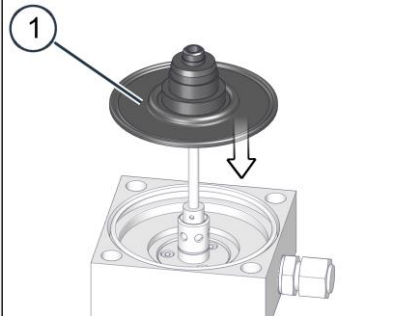
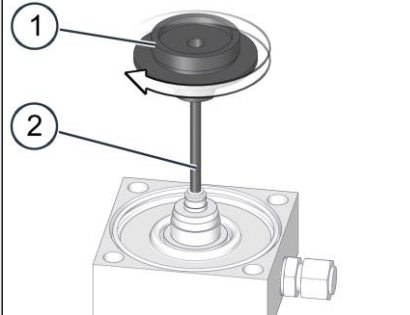
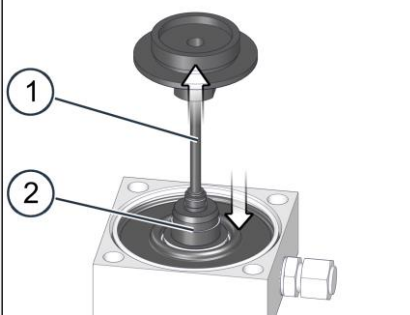
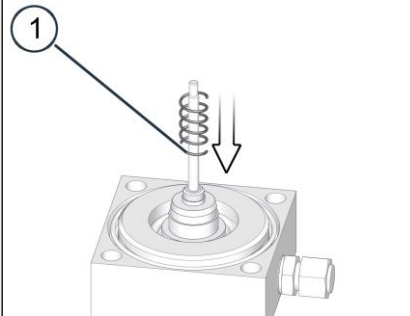
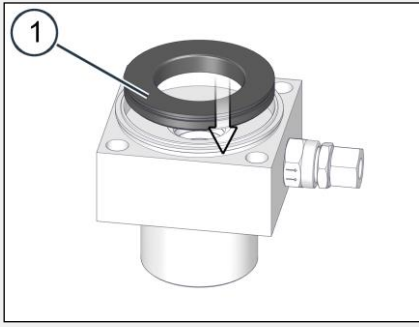
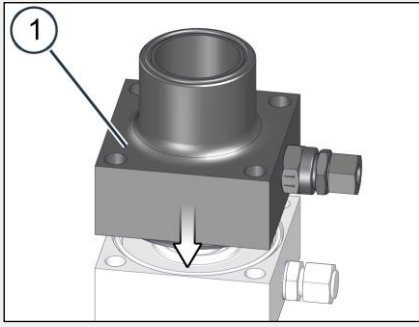
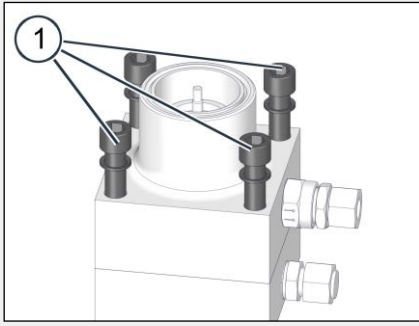
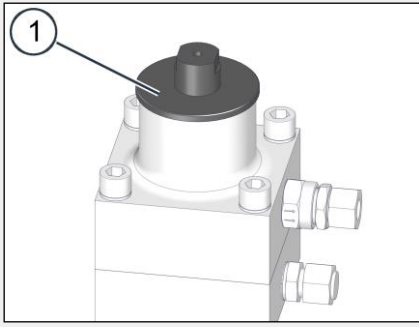
Figure	Step	Description
	7	Put in the 6 balls (1).
	8	Put on the diaphragm system (1).
	9	Screw the cover (1) onto the valve spindle (2).
	10	Pull the valve spindle (1) upwards and press the diaphragm system (2) all the way down, overcoming the resistance of the balls.
	11	Put the spring (1) in place.

Figure	Step	Description
	12	Put on the intermediate ring (1).
	13	Put on the housing cover (1).
	14	Tighten the 4 screws (1) using a crosswise pattern. Tightening torque: 85 Nm
	15	Screw on the cover (1).

Next task

Proceed as follows:
Completing the maintenance (see page 38)

4.5 Maintenance on the piston measuring unit K11a/2

Falling components

CAUTION

Crush and impact hazard posed by components falling or toppling over accidentally.

When working with heavy components that have been removed or are yet to be installed, injury may result if the components start moving in an uncontrolled manner, e.g., fall down from the working surface or topple over.

- ⇒ Place removed components exclusively on level, horizontal working surfaces with enough load-bearing capacity.
- ⇒ If necessary, secure removed components so that they will not fall or topple over.
- ⇒ Wear the required personal protective equipment.
- ⇒ Exercise caution when performing the relevant tasks.

Cleaning

Observe the following cleaning instructions:

- Before assembly, all parts must be cleaned in order to remove any foreign particles (swarf) and soiling.
- If screws, bolts, or washers are replaced with identical new parts, any oil on these new parts must first be removed.

Tightening torques

Observe the tightening torques below when following the instructions in this section:

Part	Tightening torque	Step	Task
Guide bushing screws	3 Nm	2	Mounting the controller
Housing cover screws	85 Nm	12	Mounting the controller

Dismounting the controller

Proceed as follows:

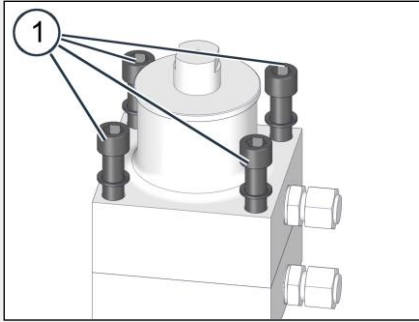
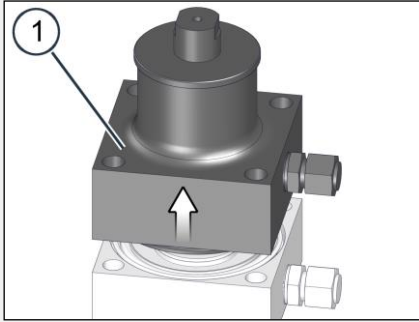
Figure	Step	Description
	1	Unscrew and remove the 4 screws (1) of the housing cover.
	2	Remove the housing cover (1).

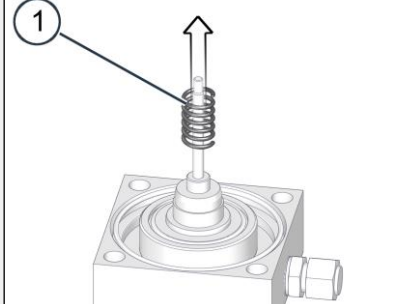
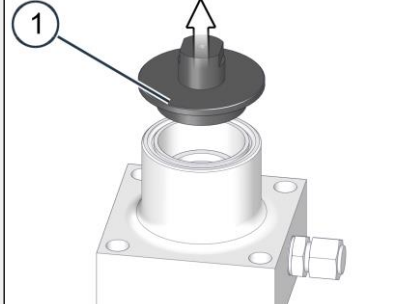
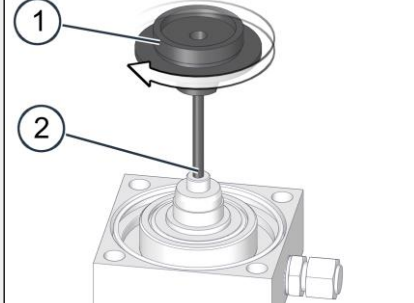
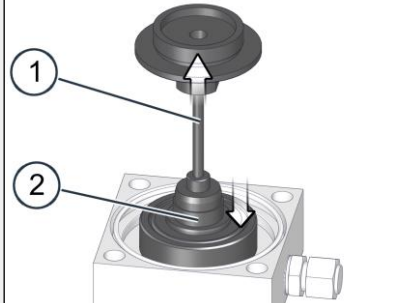
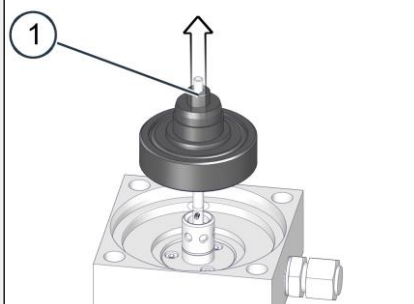
Figure	Step	Description
	3	Remove the spring (1).
	4	Unscrew the cap (1). The cover is needed as a tool.
	5	Screw the cover (1) onto the valve spindle (2).
	6	Hold down the piston system (2) and pull the valve spindle (1) upwards.
	7	Remove the piston system (1) by lifting it off.

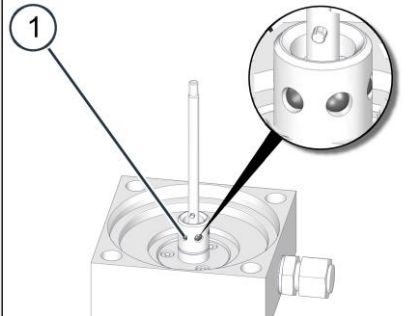
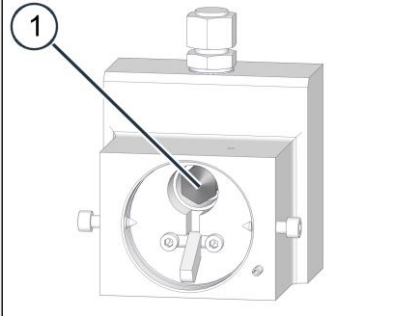
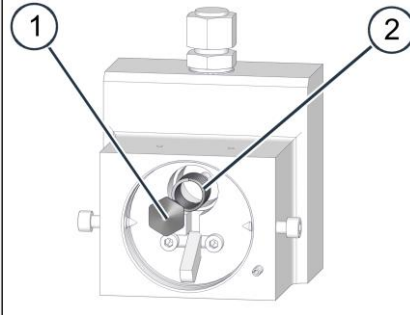
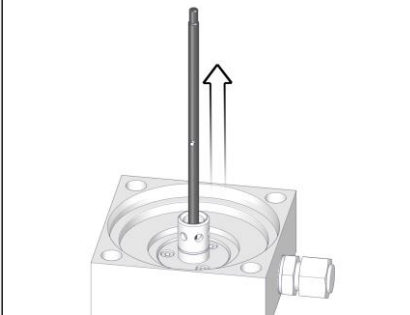
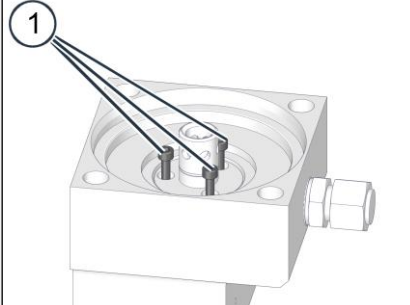
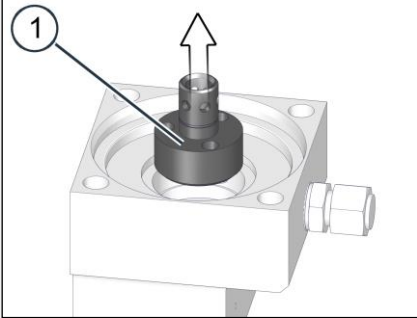
Figure	Step	Description
	8	Use the magnetic bowl to remove the 6 balls (1).
	9	Unscrew the pressure piece (1) and remove it.
	10	Remove the pressure piece (1) and the spring (2).
	11	Remove the valve spindle (1).
	12	Unscrew and remove the 3 screws (1) of the guide bushing.

Figure	Step	Description
	13	Remove the guide bushing (1).

Maintaining the monitoring device

Proceed as follows:

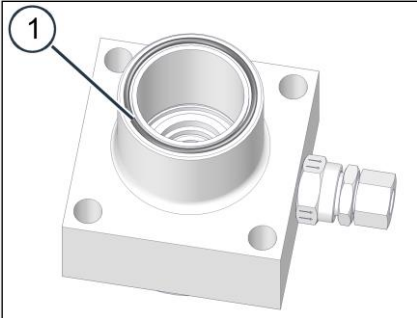
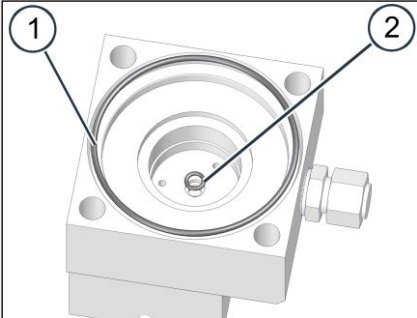
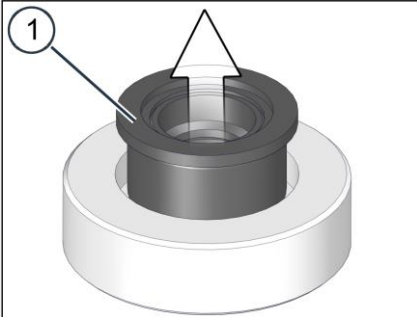
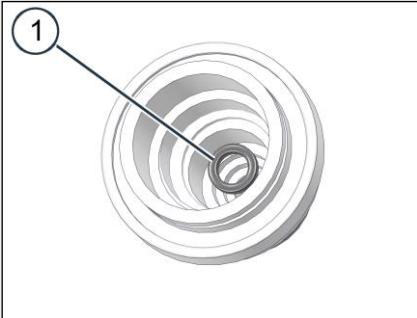
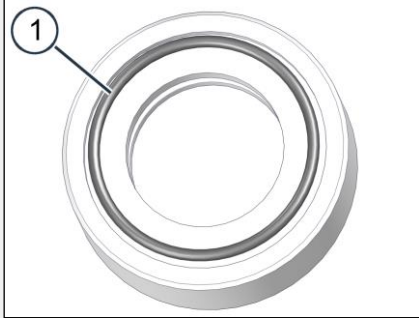
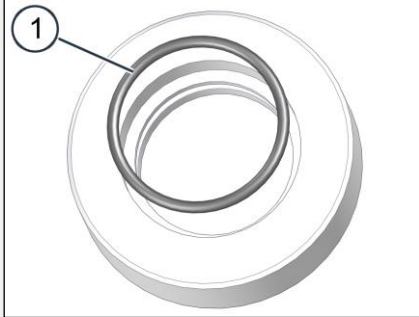
Figure	Step	Description
	1	Replace the O-ring (1) with a new, lubricated O-ring. Note: See the appendix for the lubricants to be used.
	2	Replace the O-rings (1) and (2) with new, lubricated O-rings. Note: See the appendix for the lubricants to be used.
	3	Disassemble the piston system by taking out the locking sleeve.
	4	Replace the O-ring (1) with a new, lubricated O-ring. Note: See the appendix for the lubricants to be used.

Figure	Step	Description
	5	Replace the O-ring (1) with a new, lubricated O-ring. Note: See the appendix for the lubricants to be used.
	6	Turn the piston system over. Replace the O-ring (1) with a new, lubricated O-ring. Note: See the appendix for the lubricants to be used.

Mounting the controller

Proceed as follows:

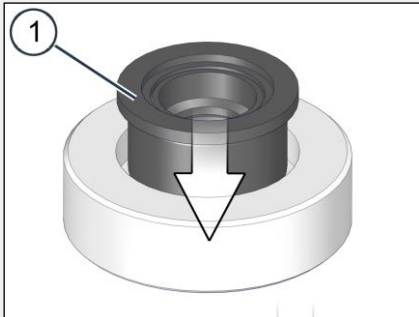
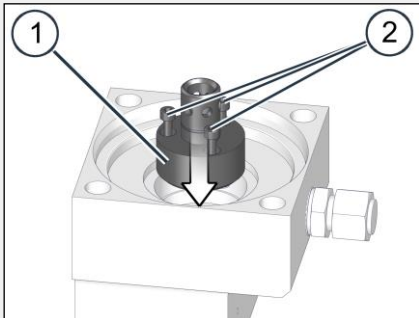
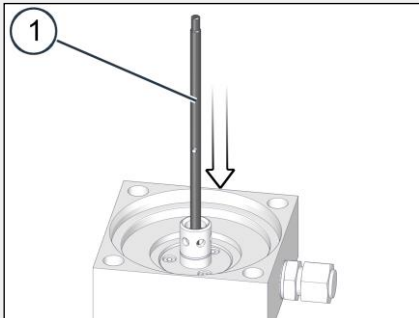
Figure	Step	Description
	1	Reassemble the piston system by inserting the locking sleeve.
	2	Install the guide bushing (1) by tightening the 3 screws (2) using a crosswise pattern. Tightening torque: 3 Nm
	3	Insert the valve spindle (1).

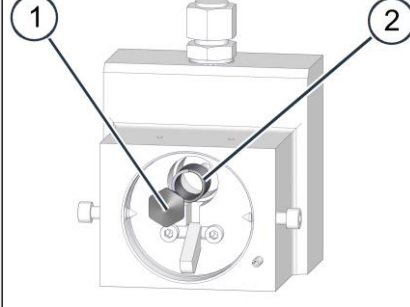
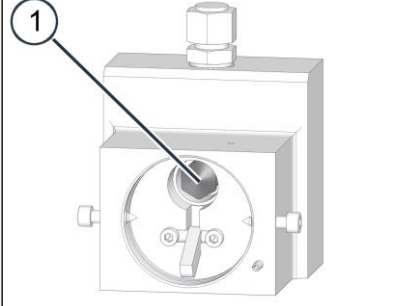
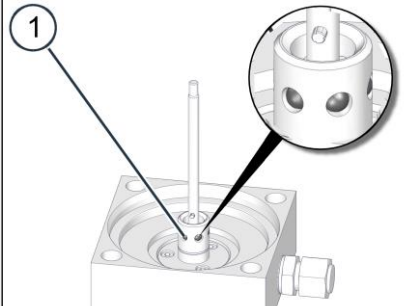
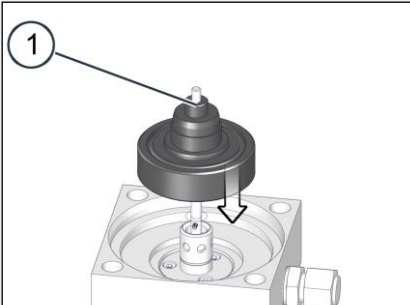
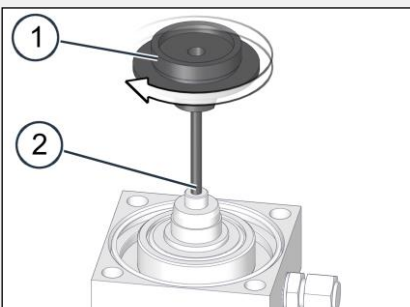
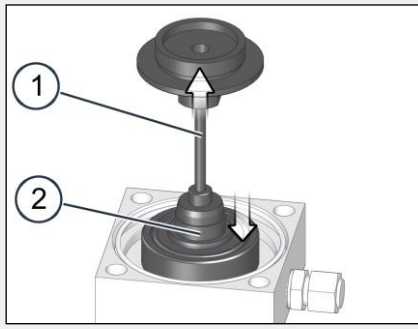
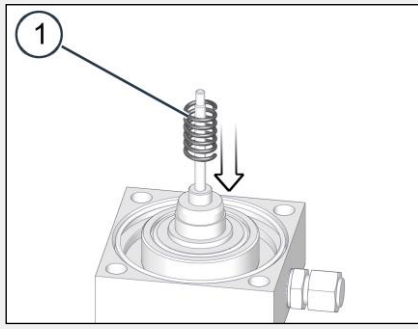
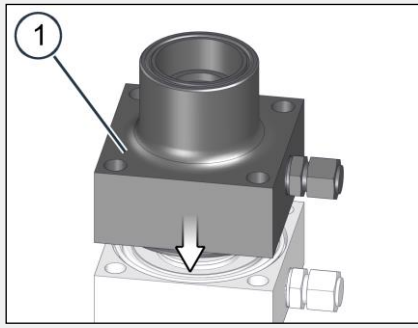
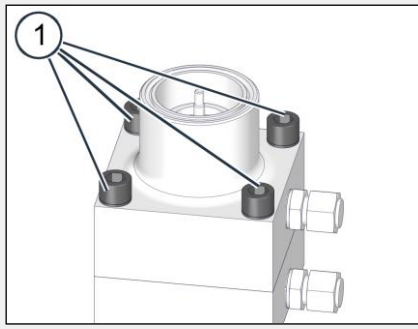
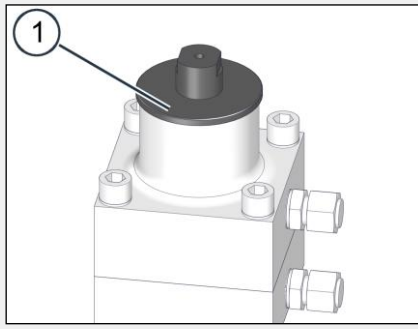
Figure	Step	Description
	4	Put the pressure piece (1) and the spring (2) in place.
	5	Tighten the pressure piece (1) finger tight.
	6	Put in the 6 balls (1).
	7	Put on the piston system (1).
	8	Screw the cover (1) onto the valve spindle (2).

Figure	Step	Description
	<p>9</p>	<p>Pull the valve spindle (1) upwards and press the piston system (2) all the way down, overcoming the resistance of the balls.</p>
	<p>10</p>	<p>Put the spring (1) in place.</p>
	<p>11</p>	<p>Put on the housing cover (1).</p>
	<p>12</p>	<p>Tighten the 4 screws (1) using a crosswise pattern. Tightening torque: 85 Nm</p>
	<p>13</p>	<p>Screw on the cover (1).</p>

Next task

Proceed as follows:
Completing the maintenance (see page 38)

4.6 Completing the maintenance

Mounting the controller on the actuator assembly

For instructions on how to install the controller on the actuator assembly with which it will operate, please refer to the user manual for the relevant gas pressure regulator. Keep in mind that it is always necessary to check the entire gas pressure regulator for internal and external leaks and fix them before putting it into operation for the first time or putting it back into operation.

Next task

Depending on what you want to do next, proceed as indicated in the relevant section:

- *Storing the device* (see page 39)
 - *Disposing of the device* (see page 40)
-

5 Storage and disposal

Contents

Topic	Page
Storing the device	39
Disposing of the device	40

5.1 Storing the device

Storage of the packing units

Observe the following rules:

- Do not store the device outdoors.
- Store the device in a dry and dust-free environment on a flat surface.
- Do not expose the device to any aggressive media, ozone or ionizing radiation or to direct heat sources.
- Storage conditions:
 - Temperature: 0 °C to 25 °C (32 °F to 77 °F)
 - Relative humidity: < 55%.
- Avoid mechanical vibrations.
- Storage periods:
 - When storing the device for up to one year:
Store the device in its original packaging and in the same condition it was delivered. All protective caps of the device must remain in place.
 - If the device is stored longer than 1 year (e.g., as a backup device):
Store the device in the original packaging as it was originally delivered and check it annually for damage and soiling. Consider the storage period in the maintenance cycles.

Note: Please also observe any storage information provided on the packaging.

Storage of spare parts

The following rules apply to the storage of spare parts:

- Apply an appropriate protective agent to assemblies at risk of corrosion.
 - If stored correctly, O-rings and gaskets should not be kept longer than 7 years.
 - Store the spare parts in the original package until they are used.
-

Storing devices that have already been in operation and that are intended to be put back into operation later on

Observe the following rules:

- All device openings and fittings must be sealed and protected from soiling and damage.
 - The device's maintenance condition must be indicated with a label:
 - Date when maintenance was last performed
 - Operating times and operation cycles since the last time maintenance was performed
 - Do not store the device outdoors.
 - Store the device in a dry and dust-free environment on a flat surface.
 - Do not expose the device to any aggressive media, ozone or ionizing radiation or to direct heat sources.
 - Storage conditions:
 - Temperature: 0 °C to 25 °C (32 °F to 77 °F)
 - Relative humidity: < 55%.
 - Avoid mechanical vibrations.
 - Storage periods: Check the device for damage and soiling at least annually. When it comes to maintenance cycles, take the preceding operating time into account in addition to the storage time.
-

5.2 Disposing of the device

Appropriate disposal

Comply with the legally stipulated disposal rules. Observe the following details pertaining to the appropriate disposal (not all of the items may be applicable to your device):

- Dispose of the metals according to their types and grades (steel scrap, cast iron scrap, light alloy scrap, nonferrous heavy metal scrap, synthetic rubber scrap, electronic scrap).
 - Recycle elements made of synthetic materials.
 - Dispose of any other components according to the quality of the materials.
-

6 Appendix

Contents

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Additional information regarding spare parts	41
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K10a, K11a/1, K11a/2: Spare part drawings	43
K10a, K11a/1, K11a/2: Spare parts list for accessories	45
Maintenance and servicing parts for the controllers	47
Lubricants, threadlockers, and special tools	49

6.1 Additional information regarding spare parts

Spare parts categories

Spare parts fall into the following categories:

Spare parts category	Definition
Maintenance part	Spare parts that always have to be replaced during maintenance.
Servicing parts	Spare parts that need to be checked during maintenance and that must be replaced if necessary due to their condition.
	Spare parts that qualified personnel employed by the company operating the device is allowed to replace in order to convert the device (e.g., when changing the pressure range).
Miscellaneous spare part	Spare parts that qualified personnel employed by the company operating the device is allowed to replace in the event of a fault or defect.
	Parts that are listed in the spare part drawings in addition to maintenance and servicing parts so as to improve communications between the customer and the manufacturer, but that are not allowed to be ordered or replaced without first contacting the manufacturer.

Maintenance and servicing parts for controller

- The spare parts always required for maintenance of the controller are grouped together into spare parts kits appropriate for the device in question. Each spare parts kit has its own part number (part no.).
- Individual maintenance and servicing parts can be ordered using the corresponding part number which is specified in the bill of materials for the controllers. The required number of maintenance or servicing parts is indicated under the relevant part number in the "Part No." column. If no quantity is specified, this means that only one unit is required.

Control ranges

The spare parts drawings for the HON 672 controller are divided into the following six control ranges:

For upper response pressure

- $W_{dso} = 50 - 1500$ mbar (K10a: diaphragm measuring unit)
- $W_{dso} = 40 - 4500$ mbar (K11a/1: diaphragm measuring unit)
- $W_{dso} = 2500 - 8000$ mbar (K11a/2: piston measuring unit)

For lower response pressure

- $W_{dsu} = 10 - 120$ mbar (K10a: diaphragm measuring unit)
- $W_{dsu} = 60 - 1000$ mbar (K11a/1: diaphragm measuring unit)

- $W_{dsu} = 800 - 2200$ mbar (K11a/2: piston measuring unit)

Overview of spare parts drawings

The spare parts drawings are subdivided as follows:

- K10a: Spare parts drawing for diaphragm measuring unit
 - Spare parts kits for NBR and FKM variants
- K11a/1: Spare parts drawing for diaphragm measuring unit
 - Spare parts kits for NBR and FKM variants
- K11a/2: Spare parts drawing for piston measuring unit
 - Spare parts kits for NBR and FKM variants

Overview of spare parts lists

The spare parts lists are subdivided as follows:

- K10a, K11a/1, K11a/2: Spare parts list for accessories
 - Installation on HON 402, HON 503, HON 530, HON 711 and HON 5020 DN 150
 - Installation on HON 711 DN 200 to DN 300 and HON 5020 DN 50 to DN 100

6.2 Re-engage differential

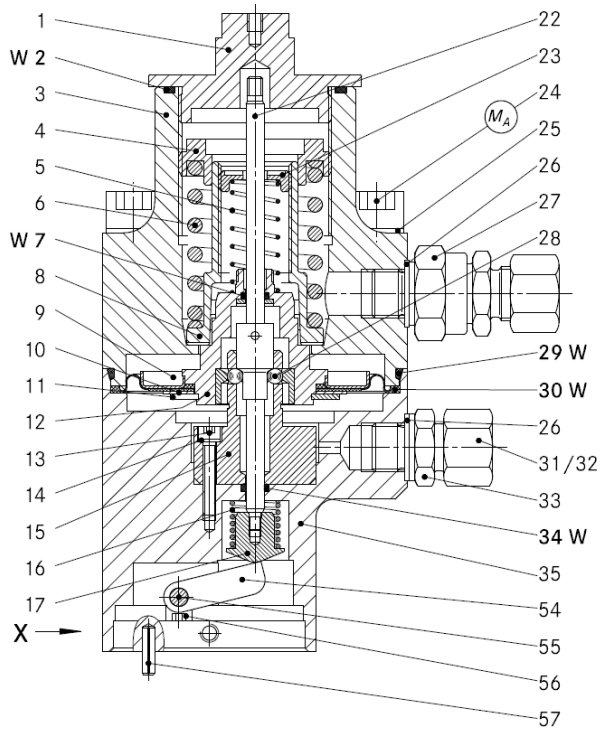
	Pilot spring			Overpressure		Underpressure		Accuracy group AG **
	Spring no.	Wire diameter (mm)	Color marking	Specific control range W_{dsu} (mbar)	Re-engage differential ΔP_{vo} between P_{dsu} and normal operating pressure (mbar)	Specific control range W_{dsu} (mbar)	Re-engage differential ΔP_{vu} between normal operating pressure and P_{dsu} (mbar)	
K10a	1	2.5 *	Yellow	50 - 100	30			10/5
	2	3.2	Light red	80 - 250	50			10/5
	3	3.6	Dark red	200 - 500	100			5/2.5
	4	4.75	White	400 - 1500	250			5/2.5
	5	1.1	light blue			10 - 15	12	15
	6	1.2	White			14 - 40	30	20/5
	7	1.4	black			35 - 120	60	5
K11a/1	1	3.2	Light red	400 - 800	100			10/5
	2	3.6	Dark red	600 - 1600	200			10/5
	3	4.75	White	1500 - 4500	300			5/2.5
	4	1.1	light blue			60 - 150	50	20/5
	5	1.4	black			120 - 400	80	5
	6	2.25	Light red			350 - 1000	100	5
K11a/2	3	4.75	White	2500 - 8000	500			10/5
	6	2.25	Light red			800 - 2200	400	20/5

*) Omitted on SAV HON 711, DN 25 to DN 150.

***) The better accuracy group applies for the 2nd half of the control range.

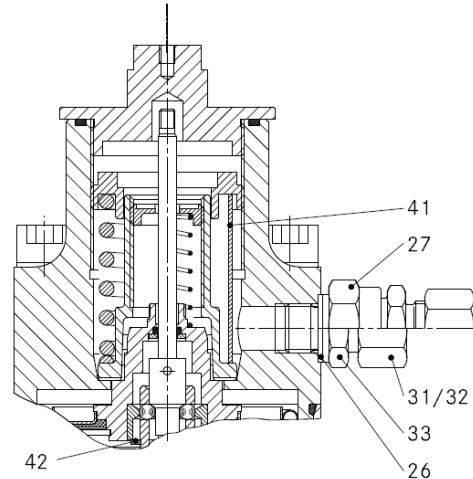
6.3 K10a, K11a/1, K11a/2: Spare part drawings

K10a

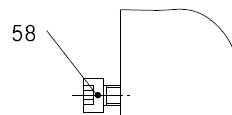


Design with upper or lower response pressure

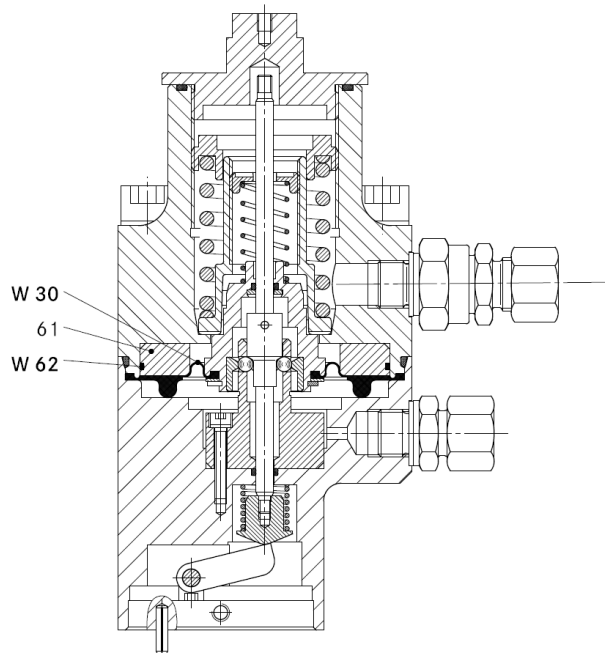
(left: design with upper response pressure, K10a and K11a/1 without diaphragm rupture protection; top right: design with lower response pressure)



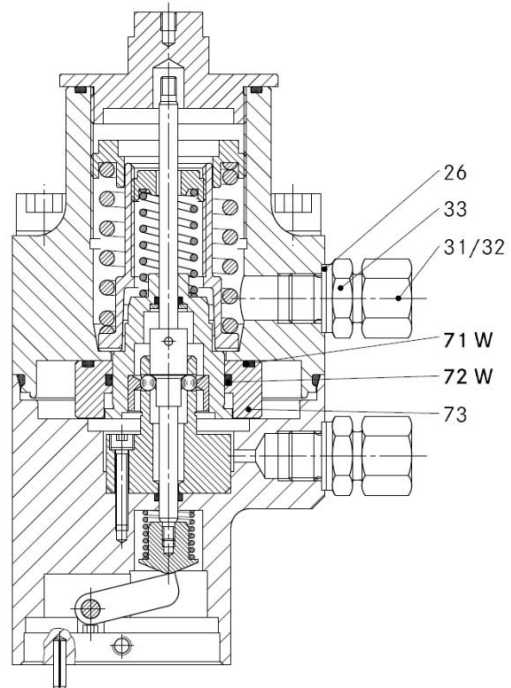
View X



K11a/1 (no item numbers, see K10a)



K11a/2 (no item numbers, see K10a)



Spare parts kits

K10a diaphragm measuring unit, NBR variant

Name	Description	Part no.
Spare parts kit K10a Diaphragm measuring unit NBR variant	Consisting of: <ul style="list-style-type: none"> ▪ 1 each of no. 2 ▪ 1 each of no. 7 ▪ 1 each of no. 29 ▪ 1 each of no. 30 ▪ 1 each of no. 34 ▪ 1 each of no. 36 to 2013 	K672-001

K10a diaphragm measuring unit, FKM variant

Name	Description	Part no.
Spare parts kit K10a Diaphragm measuring unit FKM variant	Consisting of: <ul style="list-style-type: none"> ▪ 1 each of no. 2 ▪ 1 each of no. 7 ▪ 1 each of no. 29 ▪ 1 each of no. 30 ▪ 1 each of no. 34 ▪ 1 each of no. 36 to 2013 	K672-002

K11a/1 diaphragm measuring unit, NBR variant

Name	Description	Part no.
Spare parts kit K11a/1 Diaphragm measuring unit NBR variant	Consisting of: <ul style="list-style-type: none"> ▪ 1 each of no. 2 ▪ 1 each of no. 7 ▪ 1 each of no. 29 ▪ 1 each of no. 30 ▪ 1 each of no. 34 ▪ 1 each of no. 62 	K672-003

K11a/1 diaphragm measuring unit, FKM variant

Name	Description	Part no.
Spare parts kit K11a/1 Diaphragm measuring unit FKM variant	Consisting of: <ul style="list-style-type: none"> ▪ 1 each of no. 2 ▪ 1 each of no. 7 ▪ 1 each of no. 29 ▪ 1 each of no. 30 ▪ 1 each of no. 34 ▪ 1 each of no. 62 	K672-004

K11a/2 piston measuring unit, NBR variant

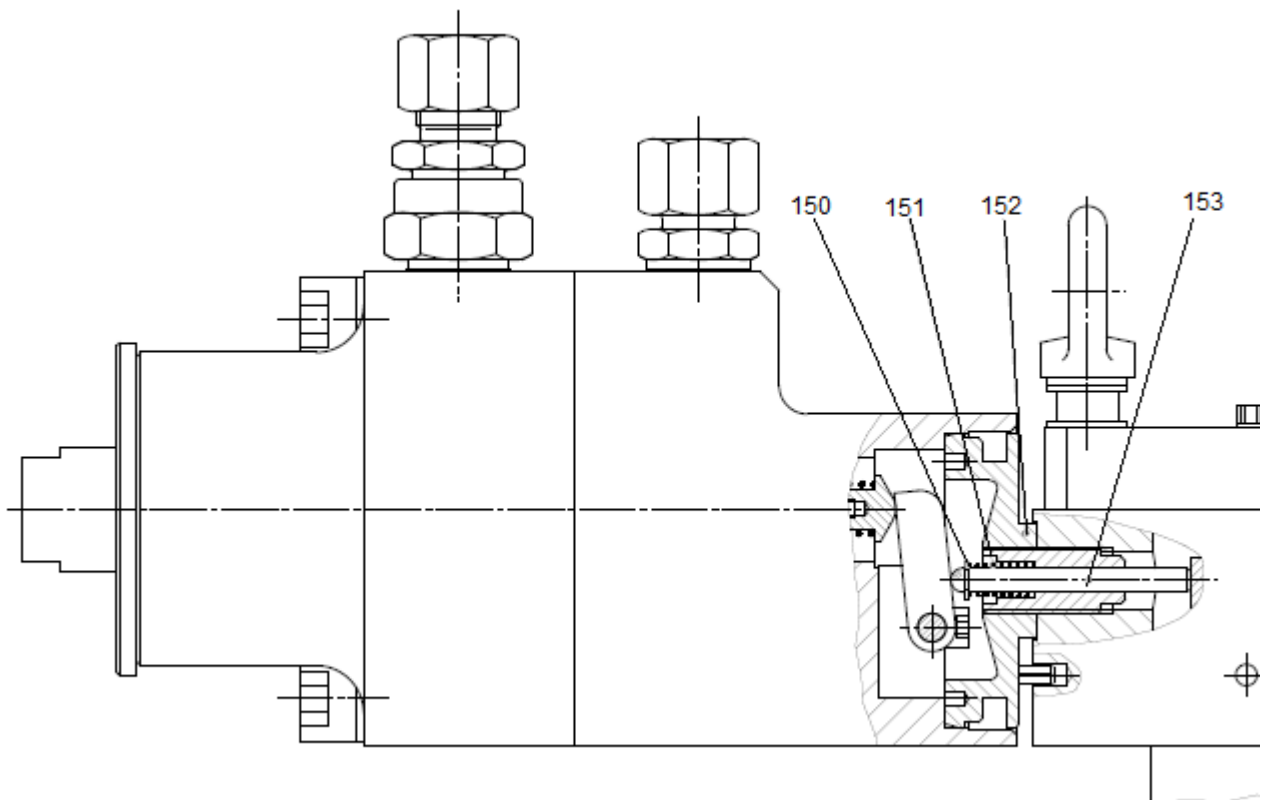
Name	Description	Part no.
Spare parts kit K11a/2 Piston measuring unit NBR variant	Consisting of: <ul style="list-style-type: none"> ▪ 1 each of no. 2 ▪ 1 each of no. 7 ▪ 1 each of no. 29 ▪ 1 each of no. 30 ▪ 1 each of no. 34 ▪ 1 each of no. 71 ▪ 1 each of no. 72 	K672-005

K11a/2 piston measuring unit, FKM variant

Name	Description	Part no.
Spare parts kit K11a/2 Piston measuring unit FKM variant	Consisting of: <ul style="list-style-type: none"> ▪ 1 each of no. 2 ▪ 1 each of no. 7 ▪ 1 each of no. 29 ▪ 1 each of no. 30 ▪ 1 each of no. 34 ▪ 1 each of no. 71 ▪ 1 each of no. 72 	K672-006

6.4 K10a, K11a/1, K11a/2: Spare parts list for accessories**Installation on:**

- HON 402
- HON 503
- HON 530
- HON 711 DN 25 to DN 150
- HON 5020 DN 150

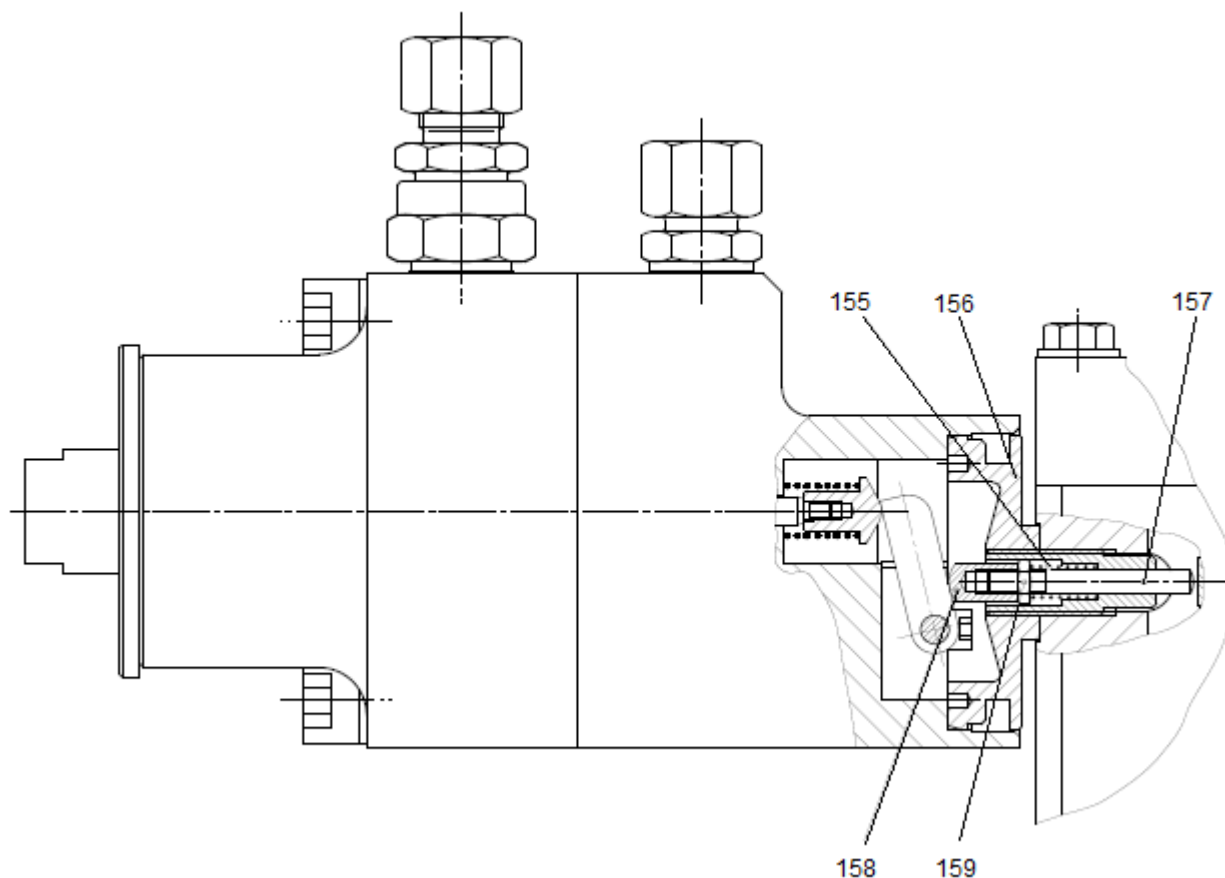


No. / Letter	Name	Qty.	M	Material	Part no.
150	Retaining ring	1		FSt	19101
151	Compression spring	1		FSt	10017639
152	Connecting piece, complete, optionally for:				
	HON 402	1		LM/brass	10022550
	HON 503 DN 25/50 and DN 50/100	1		LM/brass	10022545
	HON 530 DN 50/100	1		LM/brass	10022545

No. / Letter	Name	Qty.	M	Material	Part no.
	HON 711 DN 25 and DN 50	1		LM/brass	10022545
	HON 503 DN 80/150 and DN 100/200	1		LM/brass	10022550
	HON 530 DN 80/150 and DN 100/200	1		LM/brass	10022550
	HON 711 DN 80 and DN 100	1		LM/brass	10022550
	HON 503 DN 150/300	1		LM/brass	10022555
	HON 711 DN 150	1		LM/brass	10022555
	HON 5020 DN 150	1		LM/brass	10022555
153	Switch stem, optionally for:				
	HON 402	1		stainl.	10022548
	HON 503 DN 25/50 and DN 50/100	1		stainl.	10022543
	HON 530 DN 50/100	1		stainl.	10022543
	HON 711 DN 25 and DN 50	1		stainl.	10022543
	HON 503 DN 80/150 and DN 100/200	1		stainl.	10022548
	HON 530 DN 80/150 and DN 100/200	1		stainl.	10022548
	HON 711 DN 80 and DN 100	1		stainl.	10022548
	HON 503 DN 150/300	1		stainl.	10022553
	HON 711 DN 150	1		stainl.	10022553
	HON 5020 DN 150	1		stainl.	10022553

Installation on:

- HON 711 DN 200 to DN 300
- HON 5020 DN 50 to DN 100



No. / Letter	Name	Qty.	M	Material	Part no.
155	Compression spring	1		FSt	10017639
156	Connecting piece, complete	1		LM/brass	10030202
157	Switch stem	1		stainl.	10030204
158	Adjusting nut	1		brass	10030205
159	Hex nut	1		St	13046

6.5 Maintenance and servicing parts for the controllers

Maintenance parts for controllers

K10a	K11a/1	K11a/2	Name	NBR Part no.	FKM Part no.
No. / Letter	No. / Letter	No. / Letter			
2	2	2	O-ring	20244-RMK	20601
7	7	7	O-ring	21069-RMK	21249
29	29	29	O-ring	20518	21229
30	30		Diaphragm	10010610	18356876
34	34	34	O-ring	21143-RMK	20751-RMK

K10a	K11a/1	K11a/2	Name	NBR Part no.	FKM Part no.
	62		O-ring	21005	21038
		71	O-ring	20243	20598
		72	O-ring	21144-RMK	101222-RMK

Servicing parts for controllers

K10a	K11a/1	K11a/2	Name	Part no.
5			Spring for lower response pressure, optionally:	
			▪ Wdsu 10 mbar - 15 mbar	10000868
			▪ Wdsu 14 mbar - 40 mbar	10001837
			▪ Wdsu 35 mbar - 120	10001760
	5		Spring for lower response pressure, optionally:	
			▪ Wdsu 60 mbar - 150 mbar	10000868
			▪ Wdsu 120 mbar - 400 mbar	10001760
			▪ Wdsu 350 mbar - 1000 mbar	10001830
		5	Spring for lower response pressure, optionally:	
			▪ Wdsu 800 mbar - 2200 mbar	10001830
6			Spring for upper response pressure, optionally:	
			▪ Wdso 50 mbar - 100 mbar*	10001838
			▪ Wdso 80 mbar - 250 mbar	10000866
			▪ Wdso 200 mbar - 500 mbar	10000867
			▪ Wdso 400 mbar - 1500 mbar	10001839
	6		Spring for upper response pressure, optionally:	
			▪ Wdso 400 mbar - 800 mbar	10000866
			▪ Wdso 600 mbar - 1600 mbar	10000867
			▪ Wdso 1500 mbar - 4500 mbar	10001839
		6	Spring for upper response pressure	
			▪ Wdso 2500 mbar - 8000 mbar	10001839

*) Omitted on HON 711, DN 25 to DN 150.

6.6 Lubricants, threadlockers, and special tools

Lubricants

Important! All parts must be slightly greased.

Use the following lubricants:

Application	Lubricant	Part no.
<ul style="list-style-type: none"> ▪ All O-rings 	Silicone grease	27 081
<ul style="list-style-type: none"> ▪ Spring plate depression ▪ Thread of cover ▪ All fastening screws ▪ All fittings 	Assembly paste	27 091

Threadlocker

Important! All parts must be coated slightly.

Use the following threadlockers:

Application	Threadlocker	Part no.
<ul style="list-style-type: none"> ▪ Closing cap threads ▪ Hex nut threads 	LOCTITE	26 688

Special tools

You will need the following special tools for maintenance purposes:

Application	Special tools	Part no.
Topic: <ul style="list-style-type: none"> ▪ Conversion for a different response pressure 	SAV wrench	10004912

Subject to change without notice



Scan these QR Codes to see how Honeywell's integrated gas solutions can help you to better manage your gas assets and optimize your value chain.

Additional information

To learn more about Honeywell's product contact your Honeywell Process Solutions representative, or visit www.honeywellprocess.com or www.hongastec.de.

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June 2021 – REV -
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