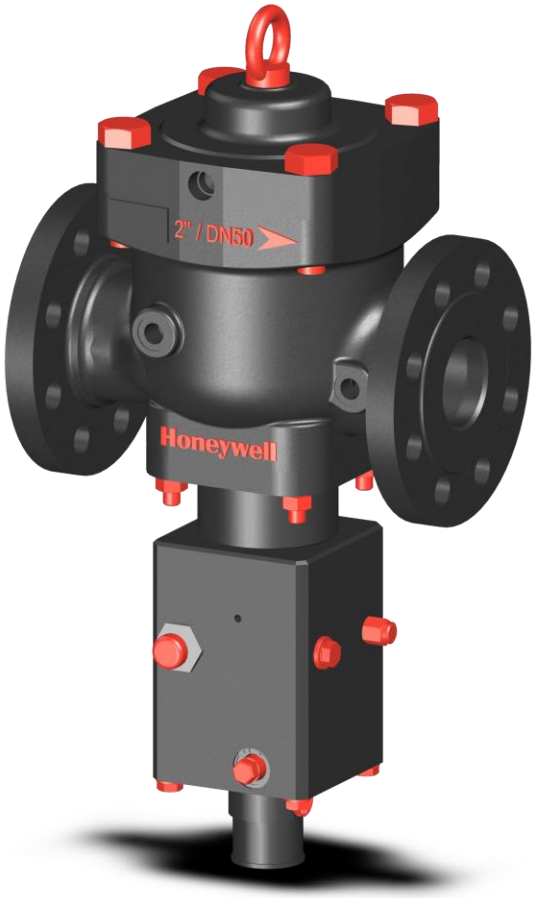
Honeywell

THE POWER OF **CONNECTED**



Actuator assembly for HON 5020 SAV gas pressure regulator with safety shut-off valve

Component documentation,
Maintenance manual and spare parts

Contents

1	**General considerations**	**4**
1.1	About this component documentation	5
1.2	About the safety notices	7
2	**Description**	**8**
2.1	Intended use	9
2.2	Labels/Markings	10
2.3	Identifying the actuator assembly	11
2.4	Layout and operation	12
2.5	Technical specifications	17
3	**Safety**	**21**
3.1	Basic safety rules	22
3.2	Requirements concerning the workforce, personal protective gear, workplaces	23
4	**Basics for installing the device in a pipe**	**24**
4.1	Installation examples	25
4.2	Meter run characteristics	28
4.3	Operating and measuring impulse lines	30
5	**Transport and installation**	**31**
5.1	Transporting the actuator assembly	32
5.2	Mounting the actuator assembly	34
6	**Maintenance**	**36**
6.1	Maintenance schedule	37
6.2	Preparing for the maintenance	38
6.3	Maintaining the actuator assembly	40
6.3.1	Removing the triggering unit - 1" size	41
6.3.2	Removing the triggering unit - 2", 3", 4" size	43
6.3.3	Removing the triggering unit - 6" size	45
6.3.4	Maintaining the actuator assembly - all sizes	51
6.3.5	Maintaining the triggering unit - 1" size	54
6.3.6	Maintaining the triggering unit - 2", 3", 4" size	58
6.3.7	Maintaining the triggering unit - 6" size	64
6.3.8	Maintaining the HON 910 push-button valve - 6" size	66
6.3.9	Installing the triggering unit - 1" size	69
6.3.10	Installing the triggering unit - 2", 3", 4" size	71
6.3.11	Installing the triggering unit - 6" size	73
7	**Storage and disposal**	**79**
7.1	Storing the device	80
7.2	Disposing of the device	81

8	Appendix	82
8.1	Spare parts for actuator assembly with triggering unit - 1" size	83
8.2	Spare parts for actuator assembly with triggering unit - 2", 3", 4" size	87
8.3	Spare parts for actuator assembly with triggering unit - 6" size	101
8.4	Spare parts for HON 910 push-button valve for actuator assembly with 6" size	104
8.5	Lubricants	105

1 General considerations

Contents

Topic	Page
About this component documentation	5
About the safety notices	7

1.1 About this component documentation

Validity and purpose

This component documentation applies to the actuator assembly for HON 5020 SAV gas pressure regulators with a safety shut-off valve.

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

- Transport
- Installation
- Maintenance
- Removal, storage, and disposal

Target group

This component documentation is intended for everyone working with or on the product:

- Transportation personnel
- Installation personnel
- Maintenance and service personnel

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

Copyright notice

Copyright	 Honeywell Process Solutions Honeywell Gas Technologies GmbH Osterholzstraße 45 34123 Kassel GERMANY Tel: +49 561 5007-0 Phone number for service: +49 561 5007-180 Fax: +49 561 5007-107 Fax number for service: +49 561 5007-108 E-mail: gas-ks@honeywell.com Website: www.honeywellprocess.com www.hongastec.de Printed in Germany
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	Changes and additions to the product must be approved by Honeywell Process Solutions in writing. 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: ▪ 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	⚠DANGER ⚠WARNING ⚠CAUTION
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

Topic	Page
Intended use	9
Labels/Markings	10
Identifying the actuator assembly	11
Layout and operation	12
Technical specifications	17

2.1 Intended use

Intended use

The HON 5020 SAV actuator assembly must be used and operated exclusively with a compatible pilot and a compatible monitoring device made by Honeywell. It is intended to be used, in combination with an appropriate pilot and an appropriate monitoring device, as a gas pressure regulator with a safety-shut off function in a regulating line. Depending on the pilot model used in combination with the actuator assembly, the latter can be used to maintain the outlet pressure of a gas constant within the regulating line, regardless of the influence of disturbance variables such as pressure changes and/or discharge changes. As a gas pressure regulator, it can also be used at transfer stations used in gas transportation networks, as well as in power plants and industrial facilities. The HON 5020 SAV actuator assembly unit can be used with natural gas or dry, non-aggressive industrial gases.

Note: The utilization limits of the device with regard to the medium, operating pressure and operating temperature can be gathered from the type plate attached on the device or the technical specifications.

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

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 Labels/Markings

Illegible labels

⚠WARNING

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

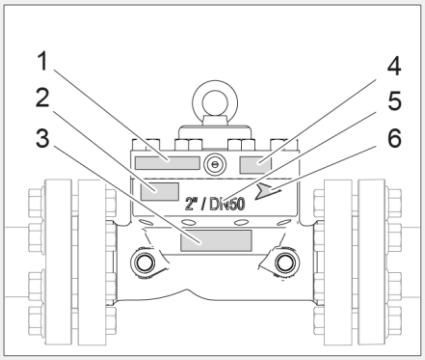
Labels, as well as inscriptions and stamping on the device, can eventually become soiled or otherwise unrecognizable to such an extent that users will not be warned effectively of hazards and may be unable to follow required operating instructions. This will pose a risk of injury.

⇨ Make sure to always keep all relevant labels in good condition so that they will be easily legible.

⇨ Immediately replace damaged and missing labels.

Labels on the HON 5020 actuator assembly

The following labels/markings can be found on the actuator assembly's casing:

Figure	No.	Meaning
	1	Nameplate
	2	Body part number
	3	▪ Batch number ▪ Foundry code
	4	CE PIN (only if the unit has been granted a CE type approval)
	5	Body nominal size
	6	Arrow indicating the direction of flow

Nameplate

For a detailed list of the information on the nameplate and what it means:

Identifying the actuator assembly (see page 11)

Labels on connection lines

Small labels must be used to color-code and explicitly name the actuator assembly's connection lines based on what the lines are intended for and their minimum nominal size.

2.3 Identifying the actuator assembly

Identifying the actuator assembly

Make sure you have the right component documentation for your actuator assembly.

To identify your actuator assembly, look at the nameplate.

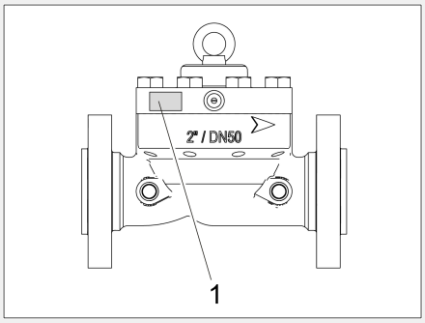
Verifying the technical specifications

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

Technical specifications (see page 17)

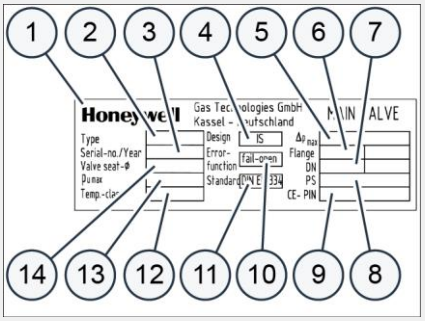
Locating the type plate of the actuator assembly

The type plate of the actuator assembly can be found here:

Figure	No.	Meaning
	1	Front of the actuator assembly

Interpreting the type plate of the actuator assembly

The details on the type plate have the following meaning:

Figure	No.	Meaning
	1	Manufacturer
	2	Model name
	3	Serial number of the device/ Manufacturing date (year)
	4	Device version (IS = version with integral overpressure protection)
	5	Maximum allowable pressure differential
	6	Flange type
	7	Nominal size
	8	Maximum allowable pressure
	9	CE marking
	10	Failure function (fail-open)
	11	Standard (EN 334)
	12	Temperature class
	13	Maximum allowable inlet pressure
	14	Valve seat diameter

2.4 Layout and operation

How the actuator assembly works

In combination with an appropriate Honeywell pilot and Honeywell monitoring device, the HON 5020 SAV actuator assembly can be used as a gas pressure regulator with a safety shut-off function in order to maintain the outlet pressure of a gas constant within the regulating line regardless of the influence of disturbance variables such as pressure changes and/or discharge changes.

The pressure that needs to be regulated is fed to the pilot via the sensing line. The diaphragm system in the pilot determines the pressure process value as a force on the measuring diaphragm and compares it with the force of the pilot spring, which is used as reference variable. If control deviations are detected based on the results from this comparison, the opening position of the actuator assembly's regulating diaphragm will be changed by adjusting the set pressure so that the pressure being regulated (process value) will change to match the setpoint. When there is zero pressure flow, the device seals tightly.

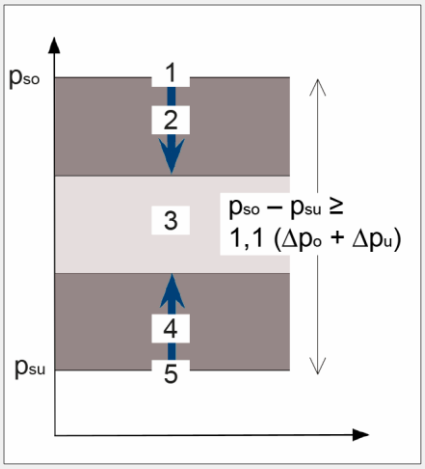
How the integrated safety shut-off valve works

While the pilot is performing its regulating function, the gas pressure being monitored will be present at the monitoring device. This monitoring device will compare the current gas pressure with the preset response pressure. Depending on the specific monitoring device being used, the monitoring device will trigger the switching device if the current pressure exceeds and/or falls below the set response pressure. This, in turn, will cause the safety shut-off valve to be closed. The specific closing mechanisms will vary depending on the size of the assembly. The valve disc will seal off the inlet pressure area in the actuator assembly and stop the flow of gas.

It will not be possible to reopen the safety shut-off valve until the gas pressure in the downstream system decreases by the re-engage differential in the direction of the setpoint range. The safety shut-off valve needs to be opened manually.

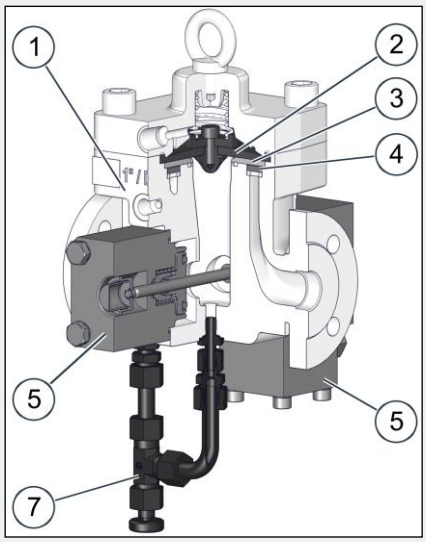
Re-engage differential

The term "re-engage differential" (Δp_u and Δp_l) refers to the minimum pressure differential between the upper response value (p_{su}) and the lower response value (p_{sl}). This re-engage differential specifies the minimum value by which the pressure needs to decrease towards the setpoint (after the safety shut-off valve has closed) so that it will be possible to reopen the safety shut-off valve manually.

Figure	No.	Meaning
	1	Upper response pressure p_{su}
	2	Re-engage differential Δp_u (pressure drop required in order to be able to re-engage after a shut-off caused by excess pressure)
	3	Pressure range within which it is possible for the safety shut-off valve to engage safely
	4	Re-engage differential Δp_l (pressure increase required in order to be able to re-engage after a shut-off caused by insufficient pressure)
	5	Lower response pressure p_{sl}

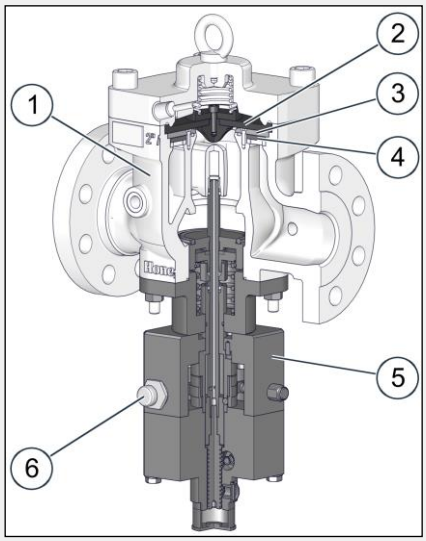
Configuration of an actuator assembly with a size of 1"

Assembly components:

Figure	No.	Description
	1	Actuator body
	2	Diaphragm assembly
	3	Flow restrictor
	4	Noise reduction element
	5	Safety shut-off valve triggering unit
	7	Pressure compensating valve (on 1" and 6" sizes only)

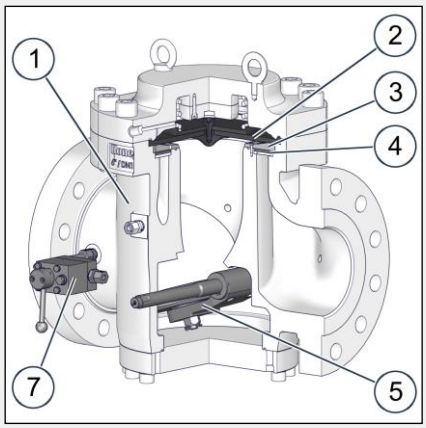
Configuration of an actuator assembly with a size of 2", 3", or 4"

Assembly components:

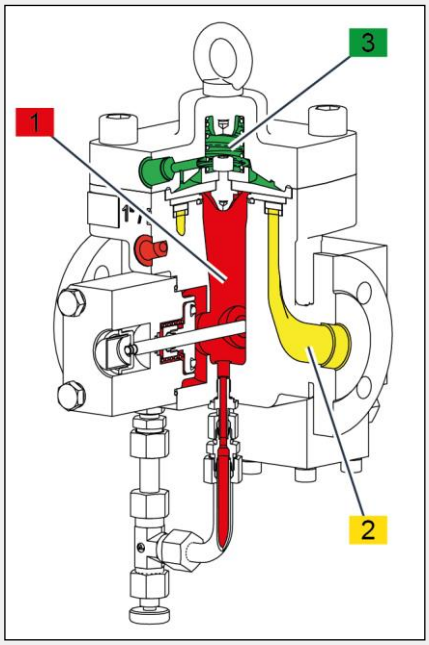
Figure	No.	Description
	1	Actuator body
	2	Diaphragm assembly
	3	Flow restrictor
	4	Noise reduction element
	5	Safety shut-off valve triggering unit
	6	Safety shut-off valve manual trigger (on 2", 3", and 4" sizes only)

Configuration of an actuator assembly with a size of 6"

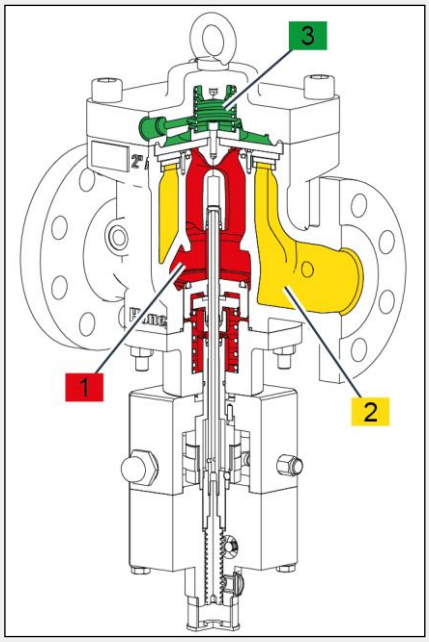
Assembly components:

Figure	No.	Description
	1	Actuator body
	2	Diaphragm assembly
	3	Flow restrictor
	4	Noise reduction element
	5	Safety shut-off valve triggering unit
	7	Pressure compensating valve (on 1" and 6" sizes only)

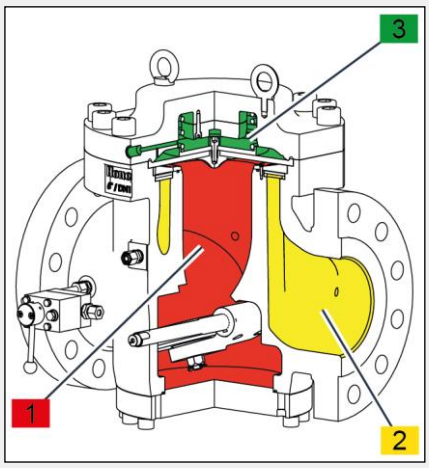
Pressure sections of an actuator assembly with a size of 1"

Figure	Color No.	Meaning
	1	Inlet pressure
	2	Outlet pressure
	3	Motorization pressure

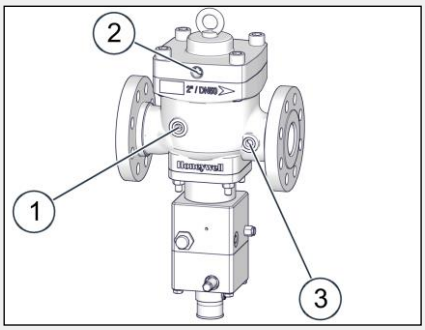
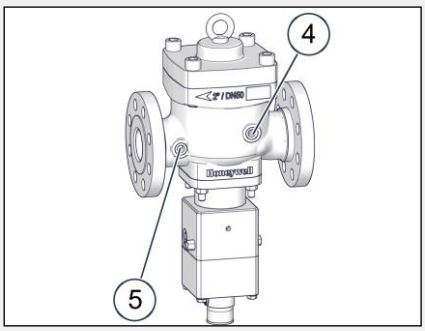
Pressure sections of an actuator assembly with a size of 2", 3", 4"

Figure	Color No.	Meaning
	1	Inlet pressure
	2	Outlet pressure
	3	Motorization pressure

Pressure sections of an actuator assembly with a size of 6"

Figure	Color No.	Meaning
	1	Inlet pressure
	2	Outlet pressure
	3	Motorization pressure

Actuator assembly connection lines

Figure (similar for all sizes)	No.	Connection
Front: 	1	Inlet pressure
	2	Motorization pressure
	3	Outlet pressure / outlet flow
Back: 	4	Inlet pressure
	5	Outlet pressure / outlet flow

The actuator assembly's connections have the following dimensions:

- **M 14 x 1.5** if the pilot being connected uses the metric system

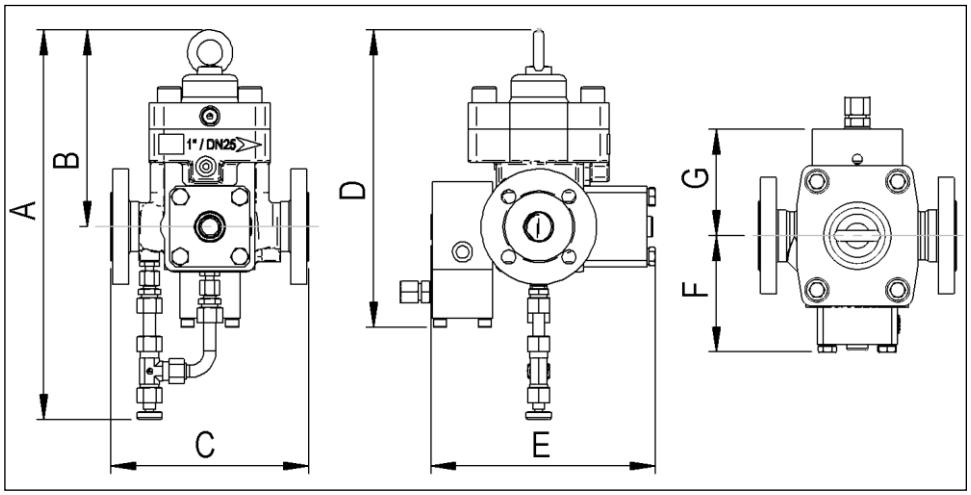
2.5 Technical specifications

Pressure rating and flange facing standards

There are various flange facings for the nominal diameters of 1" (DN 25); 2" (DN 50); 3" (DN 80); 4" (DN 100), and 6" (DN 150), as specified in the following standards:

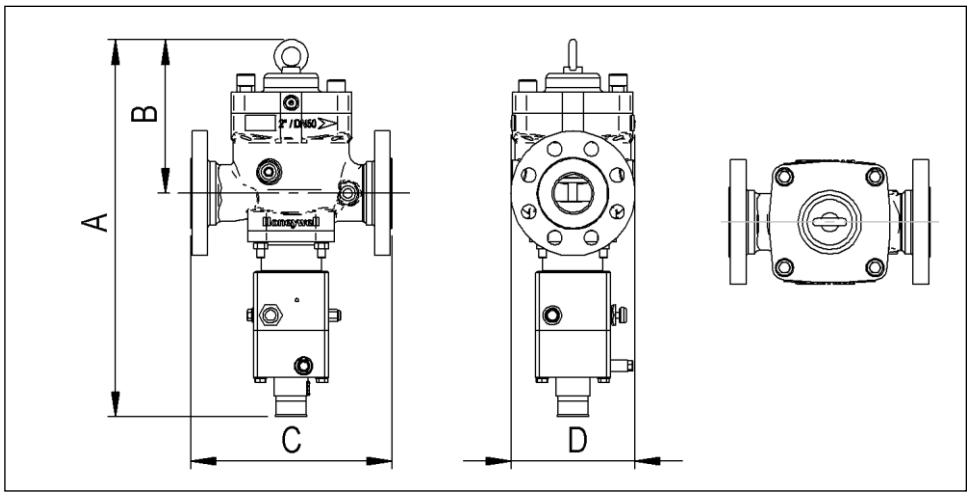
- **ASME B16.5**
  Pressure rating as per Class 150; 300; 600 / Class 150 = 20 bar; Class 300 = 51 bar; Class 600 = 102 bar
  Flange facing: Raised face
- **DIN EN 1092-1**
  Pressure rating as per PN 16; 25; 40 / PN 16 = 16 bar; PN 25 = 25 bar; PN 40 = 40 bar
  Flange facing: B flange

Dimensions and weights for a HON 5020 SAV with a size of 1"



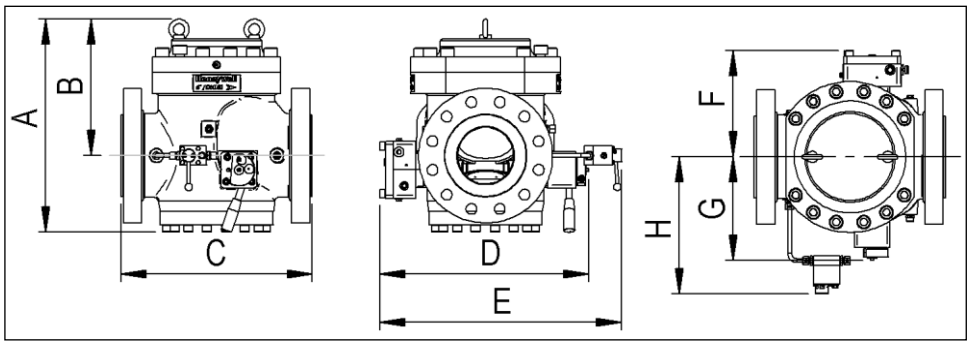
Size	PN	Class	A inches (mm)	B inches (mm)	C inches (mm)	D inches (mm)	E inches (mm)	F inches (mm)	G inches (mm)	Weight lbs (kg)
1″ (DN 25)	16	150	15.28 (388)	7.56 (192)	7.24 (184)	11.61 (295)	8.74 (222)	4.92 (125)	3.6 (91.5)	37.5 (17)
1″ (DN 25)	25 / 40	300	15.28 (388)	7.56 (192)	7.76 (197)	11.61 (295)	8.74 (222)	4.92 (125)	3.6 (91.5)	37.5 (17)
1″ (DN 25)		600	15.28 (388)	7.56 (192)	8.27 (210)	11.61 (295)	8.74 (222)	4.92 (125)	3.6 (91.5)	39.7 (18)

Dimensions and weights for a HON 5020 SAV with a size of 2", 3", or 4"



Size	PN	Class	A inches (mm)	B inches (mm)	C inches (mm)	D inches (mm)	Weight lbs (kg)
2″ (DN 50)	16	150	19.69 (500)	7.87 (200)	10 (254)	6.46 (164)	68.3 (31)
2″ (DN 50)	25 / 40	300	19.69 (500)	7.87 (200)	10.51 (267)	6.46 (164)	70.5 (32)
2″ (DN 50)		600	19.69 (500)	7.87 (200)	11.26 (286)	7.87 (200)	82.9 (37.6)
3″ (DN 80)	16	150	21.42 (544)	9.06 (230)	11.73 (298)	9.53 (242)	98.5 (44.7)
3″ (DN 80)	25 / 40	300	21.42 (544)	9.06 (230)	12.45 (317)	9.53 (242)	109.1 (49.5)
3″ (DN 80)		600	21.42 (544)	9.06 (230)	13.27 (337)	9.84 (250)	120.2 (54.5)
4″ (DN 100)	16	150	22.76 (578)	10.47 (266)	13.86 (352)	11.26 (286)	166.2 (75.4)
4″ (DN 100)	25 / 40	300	22.76 (578)	10.47 (266)	14.49 (368)	11.42 (290)	191.8 (87)
4″ (DN 100)		600	22.76 (578)	10.47 (266)	15.51 (394)	11.42 (290)	220.5 (100)

Dimensions and weights for a HON 5020 SAV with a size of 6"



Size	PN	Class	A inches (mm)	B inches (mm)	C inches (mm)	D inches (mm)	E inches (mm)	F inches (mm)	G inches (mm)	H inches (mm)	Weight lbs (kg)
6″ (DN 150)	16	150	21.93 (557)	13.43 (341)	17.76 (451)	21.5 (546)	25.28 (642)	10.83 (275)	10.83 (275)	14.25 (362)	460.8 (209)
6″ (DN 150)	25 / 40	300	21.93 (557)	13.43 (341)	18.62 (473)	21.5 (546)	25.28 (642)	10.83 (275)	10.83 (275)	14.25 (362)	500.4 (227)
6″ (DN 150)		600	21.93 (557)	13.43 (341)	20 (508)	21.5 (546)	25.28 (642)	10.83 (275)	10.83 (275)	14.25 (362)	608.5 (276)

Operating pressure, Class 150

Criterion	Value
Nominal diameter	1″ (DN 25), 2″ (DN 50), 3″ (DN 80), 4″ (DN 100), 6″ (DN 150)
Maximum operating pressure	290 psi (20 bar)

Operating pressure, Class 300

Criterion	Value
Nominal diameter	1″ (DN 25), 2″ (DN 50), 3″ (DN 80), 4″ (DN 100), 6″ (DN 150)
Maximum operating pressure	725 psi (50 bar)

Operating pressure, Class 600

Criterion	Value
Nominal diameter	1″ (DN 25), 2″ (DN 50), 3″ (DN 80), 4″ (DN 100), 6″ (DN 150)
Maximum operating pressure	1450 psi (100 bar)

Operating pressure, PN 16

Criterion	Value
Nominal diameter	1″ (DN 25), 2″ (DN 50), 3″ (DN 80), 4″ (DN 100), 6″ (DN 150)
Maximum operating pressure	232 psi (16 bar)

Operating pressure, PN 25

Criterion	Value
Nominal diameter	1″ (DN 25), 2″ (DN 50), 3″ (DN 80), 4″ (DN 100), 6″ (DN 150)
Maximum operating pressure	362 psi (25 bar)

Operating pressure, PN 40

Criterion	Value
Nominal diameter	1″ (DN 25), 2″ (DN 50), 3″ (DN 80), 4″ (DN 100), 6″ (DN 150)
Maximum operating pressure	580 psi (40 bar)

Environmental conditions

Criterion	Value
Maximum temperature range	-40 °F – +175 °F (-40 °C – +79 °C)

ATEX specifications

The mechanical components of the device do not have any potential ignition sources. Consequently, they are not subject to the requirements of the ATEX 95 Equipment Directive (94/9/EU).

3 Safety

Contents

Topic	Page
Basic safety rules	22
Requirements concerning the workforce, personal protective gear, workplaces	23

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

Observe the following rules:

- 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

Observe the following rules:

- 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

Personnel must meet the following requirements:

- 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	▪ Mechanical removal and installation ▪ Maintenance and servicing	▪ 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	▪ 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
▪ Maintenance, repairs ▪ Storage ▪ Disposal	All around the device, depending on the task

4 Basics for installing the device in a pipe

Contents

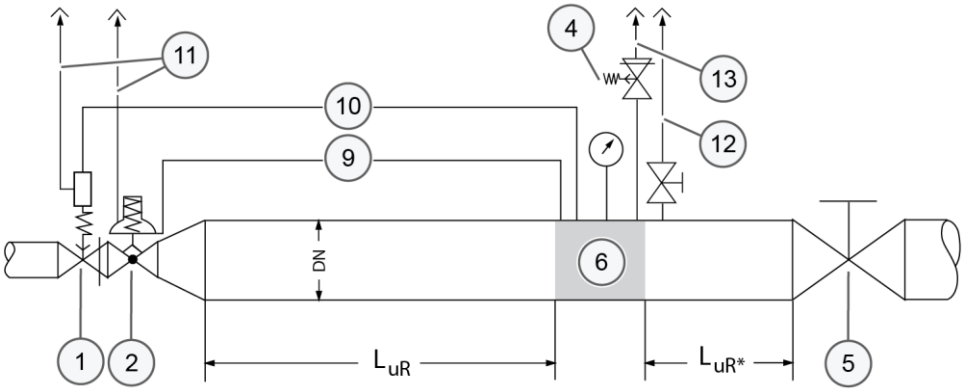
Topic	Page
Installation examples	25
Meter run characteristics	28
Operating and measuring impulse lines	30

4.1 Installation examples

Gas pressure regulating line - example 1

Configuration:

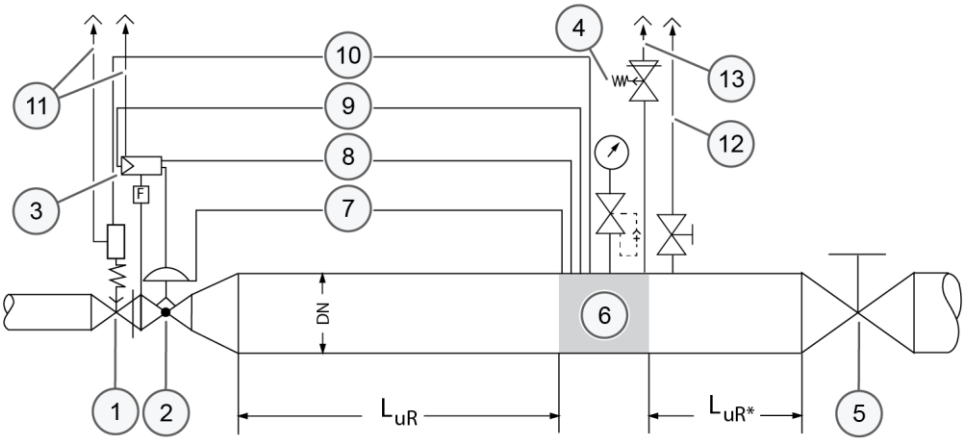
- Direct acting gas pressure regulator (non-piloted)
- With expander without noise reduction element downstream of the gas pressure regulator



Gas pressure regulating line - example 2

Configuration:

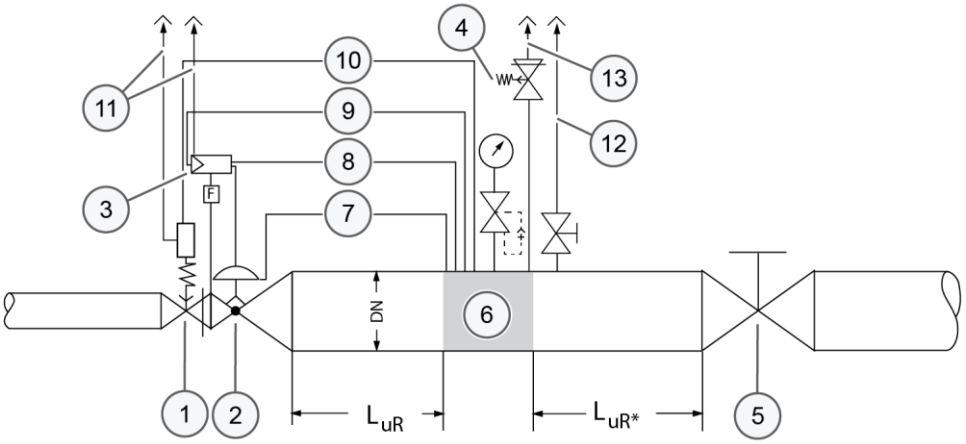
- Indirect acting gas pressure regulator (pilot-operated)
- With expander without noise reduction element downstream of the gas pressure regulator
- Outlet pressure gauge with protection against overpressure



Gas pressure regulating line - example 3

Configuration:

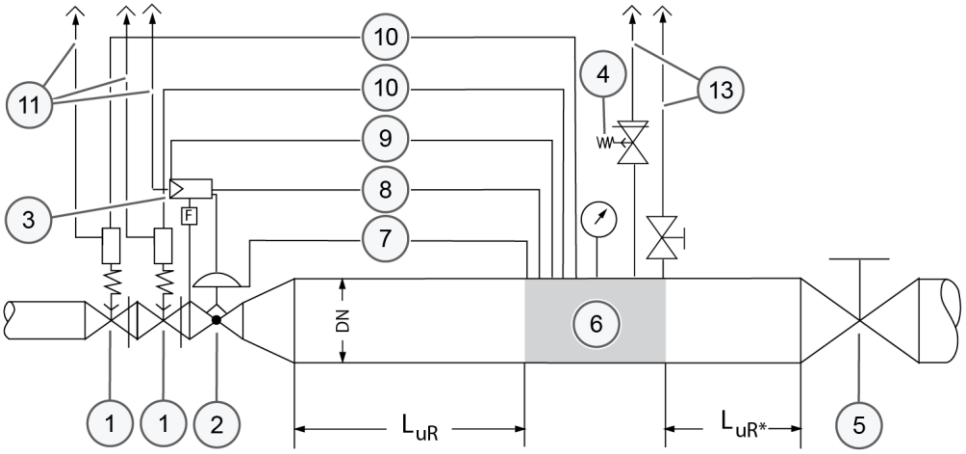
- Indirect acting gas pressure regulator (pilot-operated)
- With expander and integrated noise reduction element
- Outlet pressure gauge with protection against overpressure



Gas pressure regulating line - example 4

Configuration:

- Indirect acting gas pressure regulator (pilot-operated)
- Indirect acting slam-shut device (pilot-operated) (two)
- With expander without noise reduction element downstream of the gas pressure regulator



Legend

The numbers have the following meaning:

No.	Meaning
1	Safety Shut-Off Valve
2	Gas pressure regulator
3	Pilot
4	Safety relief valve
5	Outlet stop valve armature
6	Sensing point for connection lines (gray area)
7	Return line
8	Bleed line
9	Gas pressure regulator measuring impulse line
10	Slam-shut device measuring impulse line
11	Vent line

No.	Meaning
12	Relief line
13	Blowdown line

Following is the meaning of the acronyms:

Acr.	Meaning
DN	Nominal size of pipe
L_{uR}	Undisturbed length of pipe

* Shut-off device with undisturbed flow pattern (ball valve) can be incorporated

4.2 Meter run characteristics

Standards used as a basis

The following recommendations are based on the measuring impulse line connection conditions set forth in standards (DIN) EN 334 and (DIN) EN 14382. The company operating the system is the sole party responsible for the meter run working properly.

Conditions for the meter run

- A pipe area with a steady flow pattern must be selected for the sensing point. There must not be any components that disturb the flow directly upstream and downstream of the sensing point, e.g., orifice plates, expanders, bends, junctions, shut-off devices, etc.
- The flow rate at the sensing point should not exceed approx. 25 m/s, depending on the system conditions.
- In the case of specific system circuits (such as gas regulating lines for gas engines) and in the case of gas burners, flow rates higher than 25 m/s may be allowed following consultation with the manufacturer.
- Within a low-pressure range of up to approx. 250 mbar, a maximum flow rate of approx. 15 to 20 m/s is recommended at the sensing point. On a case-by-case basis, and following consultation with the manufacturer, even lower flow rates may be allowed.

Upstream of the sensing point

Depending on the specific system design, the L_{uR} lengths of the undisturbed pipes upstream of the sensing point must be (2.5 to 5) x DN of the pipe, with the specifics depending on the gas pressure regulator model and whether or not there is a pipe expander downstream:

If ...	and...	then...
A gas pressure regulator with an expander that is part of the device is used	The nominal size of the pipe is equal to the outlet-side nominal size of the gas pressure regulator	L_{uR} min. 2.5 x DN
	The nominal size of the pipe is the next larger standard nominal size	L_{uR} min. 3 x DN
	The nominal size of the pipe is two standard nominal size increments larger	L_{uR} min. 4 x DN
	The nominal size of the pipe is more than two standard nominal size increments larger	L_{uR} min. 5 x DN
A gas pressure regulator with the same outlet nominal size as the inlet nominal size is used	The nominal size of the pipe is the next larger standard nominal size	L_{uR} min. 4 x DN
	The nominal size of the pipe is two standard nominal size increments larger	L_{uR} min. 5 x DN

Downstream of the sensing point

Depending on the specific system design, the L_{uR} lengths of the undisturbed pipes downstream of the sensing point must be (1.5 to 4) x DN of the pipe:

Undisturbed length of pipe	for
L_{uR} min. 1.5 x DN	Thermowells
L_{uR} min. 1.5 x DN	Reducers and expanders, depending on the specific system conditions
L_{uR} min. 3 x DN	Shut-off devices (gate valves, check valves, and reduced bore ball valves)
L_{uR} min. 4 x DN	Tees

Details

- Shut-off devices with an undisturbed flow pattern (such as full bore ball valves) and, if applicable, pipe bends (depending on the design) are considered to be non-disturbing elements in terms of measuring impulse line connections.
- For gas meters (turbine gas meters including quantometers, ultrasonic gas meters, and vortex flow meters, but NOT rotary piston gas meters), there are no restrictions in terms of measuring impulse line configurations, as these meters are not considered to be flow-disturbing within this context.
- The following applies to rotary piston gas meters: Minimum distance between gas pressure regulator or reducer / expander and gas meter: **L_{uR} min. 3 x DN**.
- Measuring impulse line connections downstream of gas meters must be at a distance of **L_{uR} min. 2 x DN**.
- If shut-off valves are used (reduced bore), the recommended distance downstream of a measuring impulse line is **L_{uR} min. 3 x DN**.
- Gas meter pressure losses must be taken into account based on system conditions if applicable.

4.3 Operating and measuring impulse lines

Connection lines between device and gas regulating line

The lines must be arranged and sized in such a way that the devices' intended function will be ensured.

- **Measuring impulse line**
  - The measuring impulse line transmits the pressure process value from the sensing point to the measuring diaphragm of a controller or the pilot of a gas pressure regulator or safety relief valve or to the measuring diaphragm of the monitoring device of a slam-shut device. It needs to be connected to the pipe sideways or upwards separately for each device. In the case of safety equipment, the measuring impulse line must be connected upstream of the first outlet-side shut-off device in such a way that it cannot be shut off. If the measuring impulse line is additionally connected downstream of the first outlet-side shut-off device, 3-way ball valves with negative overlap must be used for switching. These ball valves do not have a valve position in which both measuring impulse lines can be fully closed at the same time.
- **Vent line**
  - The vent line is used to connect a measuring diaphragm to the atmosphere. If the measuring unit becomes damaged (e.g., diaphragm rupture), it can start conveying gas. Under certain operating conditions, and following consultation with the manufacturer, vent lines can be omitted if vent valves (HON 915) or safety diaphragm configurations can be used instead.
- **Blowdown line**
  - The blowdown line in a safety relief valve is used to divert gas (leaking gas, for example) into the atmosphere.

Grouping vent lines or blowdown lines (into a header) is permissible if it does not have a negative impact on the individual devices' operation. Within this context, it is recommended to have the cross-sectional area of the header be at least five times as large as the total of the individual lines' cross-sectional areas.

For primary slam-shut devices, it is recommended to route the slam-shut devices' vent lines separately. Vent lines must not be grouped together with blowdown lines.

- **Bleed line**
  - When using indirect acting (pilot-operated) slam-shut devices, the bleed line is used to divert the exhaust gas from the pilot into the system's outlet chamber. On certain devices, the bleed line will be grouped with the return line.
- **Return line**
  - When using indirect acting (pilot-operated) slam-shut devices, the return line is used to return the outlet pressure to the actuator.

5 Transport and installation

Contents

Topic	Page
Transporting the actuator assembly	32
Mounting the actuator assembly	34

5.1 Transporting the actuator assembly

Heavy transport units

⚠WARNING

Risk of serious injury posed by heavy loads when using cranes for transportation

Transporting heavy devices or components with a crane may result in serious impact and crush injuries if the loads start moving in an uncontrolled manner.

⇨ Loads may only be transported with a crane by a duly qualified person.
⇨ Markings and information about the center of gravity of the load (if applicable) must be observed.
⇨ Loads may only be moved under supervision.

Suspended loads

⚠WARNING

Risk of serious injury in the event that load handling attachments break while holding a suspended load

Heavy loads picked up or transported with hoisting and slinging gear may result in serious impact and crush injuries if the load handling attachments fail.

⇨ Only fasten the device at the positions intended for the transport.
⇨ The load-bearing capacity of the appropriate hoisting equipment must correspond at least to the weight of the load to be transported.
⇨ Always stand clear of suspended loads.
⇨ Ensure that no person is within the danger zone.

Selecting the hoisting equipment and slings

A mobile workshop crane is suitable for use as hoisting equipment.

The following are adequate for use as slings:

- Ropes
- Belts
- Chains

The hoisting equipment and slings must meet the following criteria:

- The load capacity must be sufficient for the total weight of the equipment being transported.
- The hoisting height is adequate for the mounting position at the installation site.

Transporting the actuator assembly

Proceed as follows:

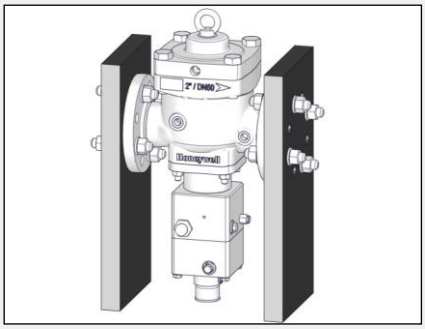
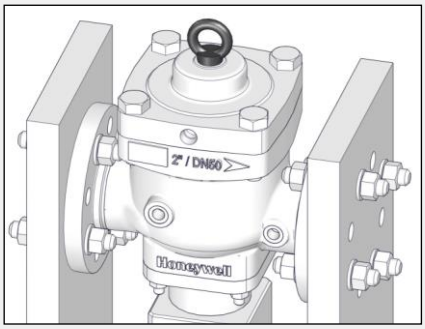
Figure	Step	Description
	1	Leave the flange protective plates on the assembly during transport.

Figure	Step	Description
	2	Hook the sling into the eye bolt.
	3	Lift the device. Slowly and carefully transport the device to the location where it will be installed.

5.2 Mounting the actuator assembly

Preparing the materials

Prepare the following materials:

- Flange gaskets
- Threaded bolts
- Washers
- Nuts

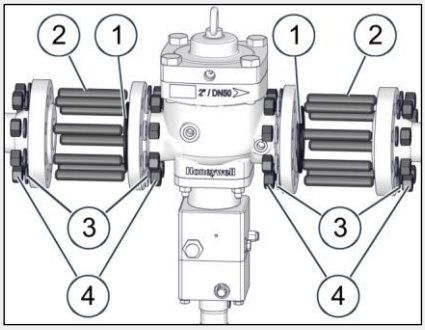
The quantity and size are dependent on the following criteria:

- Design and size of the flange

Assessing the situation

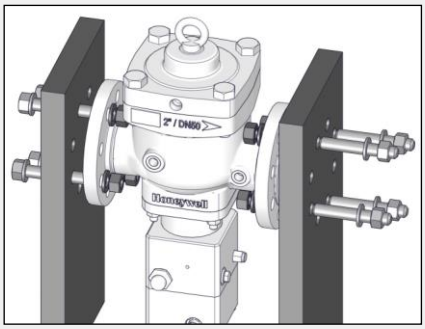
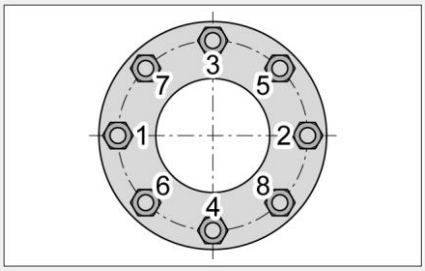
Assess the installation situation.

The numbers have the following meaning:

Figure	No.	Meaning
	1	Flange gasket
	2	Threaded bolts
	3	Washer
	4	Nut

Mounting the actuator assembly

Proceed as follows:

Figure	Step	Description
	1	Remove the protective plates from the flange.
	2	Transport the device to the location where it will be installed. ▪ The device needs to be installed in the piping in a horizontal and level position. If you want to use a different installation position, consult with the manufacturer first. ▪ Pay attention to the direction of flow for the gaseous fluid as marked on the body.
	3	Secure and support the device's position in such a way that the device can be installed in the piping without any stress and that the piping's weight will be supported as well.
	4	Install the flange gaskets.
	5	Screw down the flange crosswise in the specified order. When doing so, make sure to observe the torques specified by the flange gaskets' manufacturer.

Final inspection

Conduct a final inspection to check whether the following criteria are met:

- All screwed connections on the device and supply lines are securely fastened.

If ...	then ...
at least one criterion is not met	you should correct the error before proceeding with the next task.
all criteria are met	you may proceed with the next task.

6 Maintenance

Contents

Topic	Page
Maintenance schedule	37
Preparing for the maintenance	38
Maintaining the actuator assembly	40

6.1 Maintenance schedule

Meaning

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.

Maintenance schedule

Perform the following maintenance and repairs within the specified time intervals:

Task	See section	Interval			
		as needed	every 3 months	every year	every 5 years
Maintaining the actuator assembly	*Maintaining the actuator assembly* (see page 51)			●	

6.2 Preparing for the maintenance

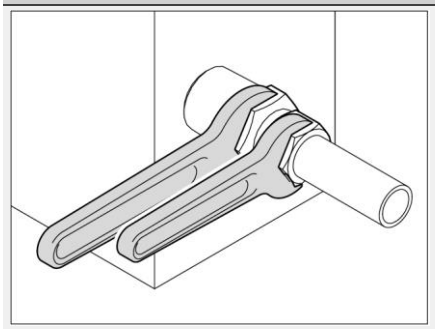
Spare parts categories

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).
	Spare parts that qualified personnel employed by the company operating the device is allowed to replace in the event of a fault or defect.

Protecting the pipe connections from being twisted

When conducting work involving the pipework, please always observe the following:

Figure	Description
	Do not twist the pipe connections in the assemblies. Use a second spanner wrench for securing when loosening and tightening pipe joints.

Preparation work for pilot maintenance

Proceed as follows:

Step	Description	Explanation
1	Have the maintenance and servicing parts ready	Please refer to the drawings and lists in the *appendix* (see page 82) to find out which spare parts correspond your specific actuator assembly and have the corresponding maintenance parts and servicing parts ready to go before maintenance. ▪ The spare parts that are always required for the actuator assembly's maintenance are grouped together in the spare parts kits in the *appendix* (see page 82). ▪ If components are damaged or are not working properly or at all due to heavy soiling that cannot be removed, contact the manufacturer in order to clarify the situation before putting the device back into operation. After clarifying the situation, you can order the relevant servicing parts from the manufacturer.

Step	Description	Explanation
2	Have the required lubricants and threadlockers ready	For specifications concerning the lubricants that must be used, please refer to the *Lubricants* (see page 105) section. If threadlockers are required, you will be able to find the corresponding information in the table before the relevant section in the maintenance manual.
3	Have the required tools ready	If special tools are required, you will be able to find the corresponding information at the beginning of the relevant section in the maintenance manual.
4	Removal and disassembly	**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: ▪ Close all connections leading to the gas-carrying line. ▪ Establish a depressurized status. Residual amounts of energy must be depressurized as well. If the actuator assembly is already installed in a pipe system, it can remain in the regulating line during maintenance. Operating the actuator assembly as a gas pressure regulator with a safety-shut off function is possible only in combination with an appropriate pilot and an appropriate monitoring device. If required, the pilot and the monitoring device need to be removed before starting the maintenance work. For instructions on how to remove the pilot, 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 pilot and monitoring device) and purge all gas-conveying lines with nitrogen before removal.

Sample maintenance instructions

The maintenance instructions below are provided as examples for the various actuator assembly designs and versions. In other words, it does not explicitly describe every single version and design. Use the bills of materials to make sure that you replace all the maintenance parts relevant to your specific device model during maintenance.

If you have trouble understanding the information in this documentation, contact the manufacturer without fail before starting any work on the device.

6.3 Maintaining the actuator assembly

Contents

Topic	Page
Removing the triggering unit - 1" size	41
Removing the triggering unit - 2", 3", 4" size	43
Removing the triggering unit - 6" size	45
Maintaining the actuator assembly - all sizes	51
Maintaining the triggering unit - 1" size	54
Maintaining the triggering unit - 2", 3", 4" size	58
Maintaining the triggering unit - 6" size	64
Maintaining the HON 910 push-button valve - 6" size	66
Installing the triggering unit - 1" size	69
Installing the triggering unit - 2", 3", 4" size	71
Installing the triggering unit - 6" size	73

6.3.1 Removing the triggering unit – 1" size

Moving heavy weights

⚠WARNING

Risk of injury due to improper lifting

When lifting and handling device components, the weight of the components and assemblies can result in injury, especially in the torso area.

⇨ Make sure to always have enough people lifting heavy device components (guideline using metric units: 15 - max. 55 kg / guideline using imperial units: 30 - max. 120 lbs, depending on age and gender). Comply with all the occupational health and safety regulations and instructions that apply at the installation location!

⇨ Use suitable hoisting equipment and slings in order to handle heavy device components. Make sure to take into account the device components' center of gravity and to attach the slings only to the secure device component locations intended for this purpose.

⇨ Wear the required personal protective equipment.

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.

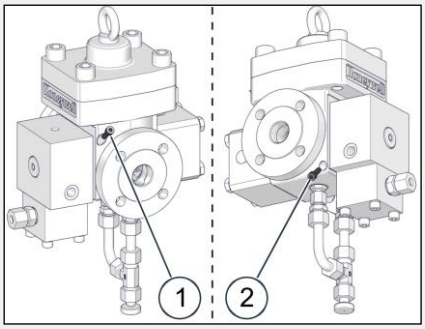
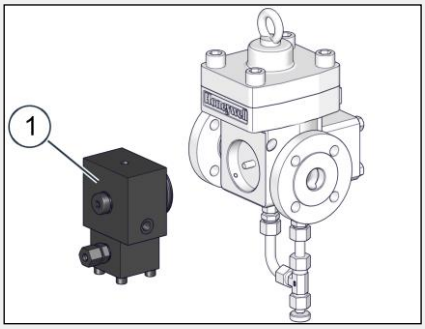
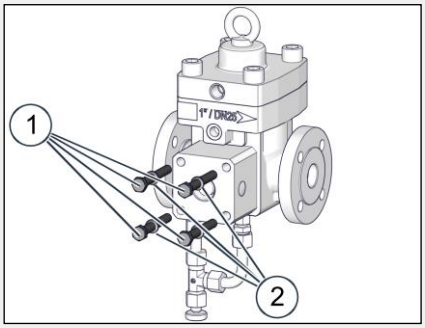
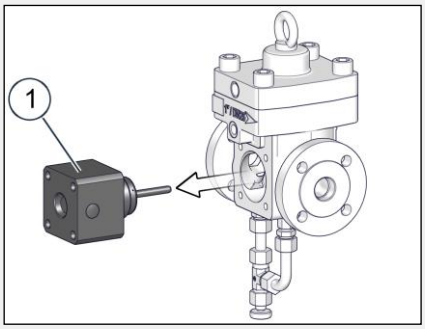
Requirements

Make sure that the following requirements are met:

- The safety shut-off valve must have been triggered and must accordingly be closed.
- The system must be depressurized and all gas-conveying lines must have been purged with nitrogen.
  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:
  - Close all connections leading to the gas-carrying line.
  - Establish a depressurized status. Residual amounts of energy must be depressurized as well.

Removing the triggering unit from the actuator assembly

Proceed as follows:

Figure	Step	Description
	1	There are two screws (1, 2) that are inserted in an inclined direction into the assembly, one on the right side and the other on the left side. Unscrew both of them.
	2	Remove the switching unit (1) from the actuator assembly.
	3	▪ Unscrew the screws (1) on the shut-off unit. ▪ Take the screws (1) and washers (2) and set them aside.
	4	Remove the shut-off unit (1) from the actuator assembly in a straight horizontal line.

Next task

Proceed as follows:

- *Maintaining the actuator assembly* (see page 51)
- *Maintaining the triggering unit - 1" size* (see page 54)

6.3.2 Removing the triggering unit - 2", 3", 4" size

Moving heavy weights

⚠WARNING

Risk of injury due to improper lifting

When lifting and handling device components, the weight of the components and assemblies can result in injury, especially in the torso area.

⇨ Make sure to always have enough people lifting heavy device components (guideline using metric units: 15 - max. 55 kg / guideline using imperial units: 30 - max. 120 lbs, depending on age and gender). Comply with all the occupational health and safety regulations and instructions that apply at the installation location!

⇨ Use suitable hoisting equipment and slings in order to handle heavy device components. Make sure to take into account the device components' center of gravity and to attach the slings only to the secure device component locations intended for this purpose.

⇨ Wear the required personal protective equipment.

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.

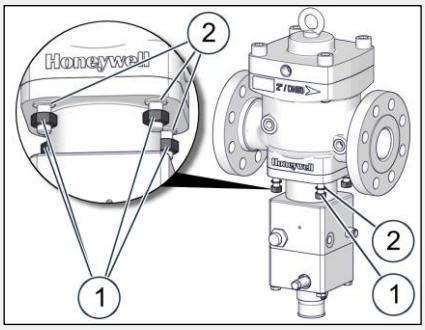
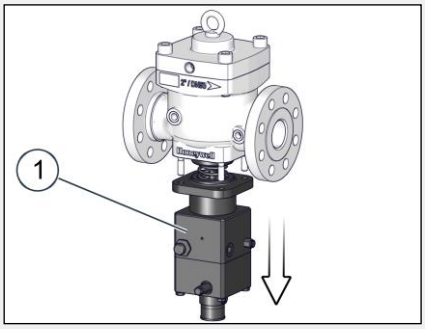
Requirements

Make sure that the following requirements are met:

- The safety shut-off valve must have been triggered and must accordingly be closed.
- The system must be depressurized and all gas-conveying lines must have been purged with nitrogen.
  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:
  - Close all connections leading to the gas-carrying line.
  - Establish a depressurized status. Residual amounts of energy must be depressurized as well.

Removing the triggering unit from the actuator assembly

Proceed as follows:

Figure	Step	Description
	1	Unscrew the nuts (1) on the connection flange. **Caution!** The triggering unit is spring-loaded. Risk of injury due to the triggering unit being hurled quickly in one direction when the nuts are unscrewed. Secure the triggering unit in place when unscrewing the nuts. Set the nuts (1) and washers (2) aside.
	2	Remove the triggering unit (1) from the actuator assembly.

Next task

Proceed as follows:

- *Maintaining the actuator assembly* (see page 51)
- *Maintaining the triggering unit - 2", 3", 4" size* (see page 58)

6.3.3 Removing the triggering unit – 6" size

Moving heavy weights

⚠WARNING

Risk of injury due to improper lifting

When lifting and handling device components, the weight of the components and assemblies can result in injury, especially in the torso area.

⇨ Make sure to always have enough people lifting heavy device components (guideline using metric units: 15 - max. 55 kg / guideline using imperial units: 30 - max. 120 lbs, depending on age and gender). Comply with all the occupational health and safety regulations and instructions that apply at the installation location!

⇨ Use suitable hoisting equipment and slings in order to handle heavy device components. Make sure to take into account the device components' center of gravity and to attach the slings only to the secure device component locations intended for this purpose.

⇨ Wear the required personal protective equipment.

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.

Requirements

Make sure that the following requirements are met:

- The safety shut-off valve must have been triggered and must accordingly be closed.
- The system must be depressurized and all gas-conveying lines must have been purged with nitrogen.
  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:
  - Close all connections leading to the gas-carrying line.
  - Establish a depressurized status. Residual amounts of energy must be depressurized as well.

Removing the trigger-ring unit from the actuator assembly

Proceed as follows:

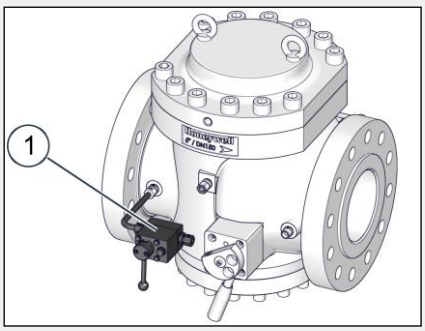
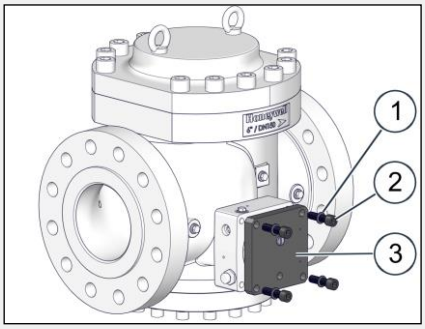
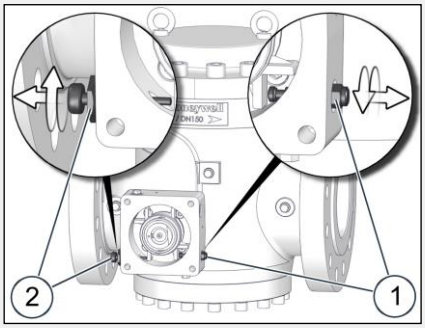
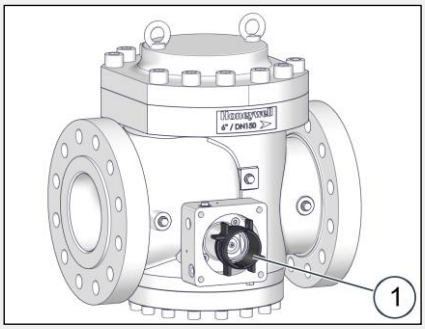
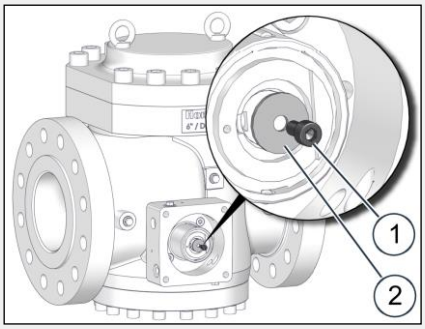
Figure	Step	Description
	1	Remove the pressure compensating valve (1).
	2	▪ Unscrew the screws (2) on the switching unit housing's cover and remove the cover (3). ▪ Take the screws (2), washers (1), and cover (3) and set them aside.
	3	Unscrew the manual trigger (2) and the spring-loaded pressure piece (1) from the switching unit housing.
	4	Pull out the star wheel (1) from the plain bearing on the guiding cylinder.
	5	Inside the switching unit housing, unscrew the screw (1) on the valve rod and remove the washer (2).

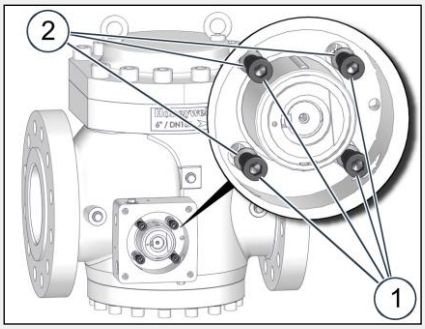
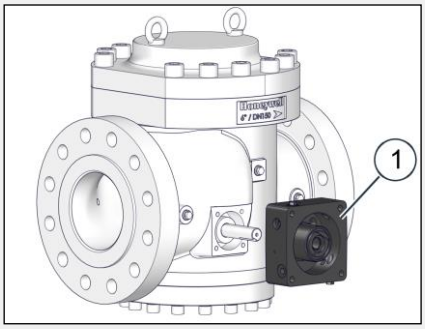
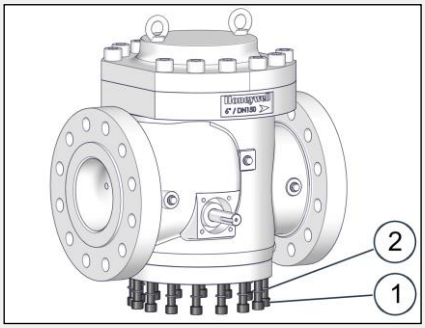
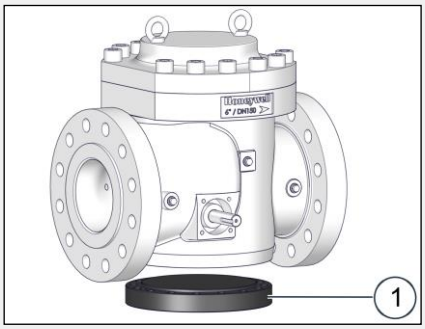
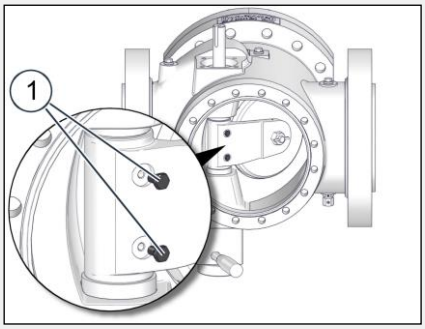
Figure	Step	Description
	6	▪ Unscrew the screws (1) used to secure the switching unit housing. ▪ Take the screws (1) and washers (2) and set them aside.
	7	Remove the remaining switching unit assembly (1) from the valve rod and from the actuator assembly by pulling it out in a straight horizontal line.
	8	▪ Unscrew the screws (1) on the actuator assembly's bottom cover. ▪ Take the screws (1) and washers (2) and set them aside.
	9	Remove the bottom cover (1) from the actuator assembly.
	10	Unscrew the screws (1) for the flap valve inside the actuator assembly body.

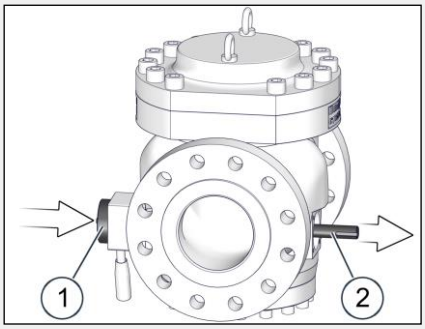
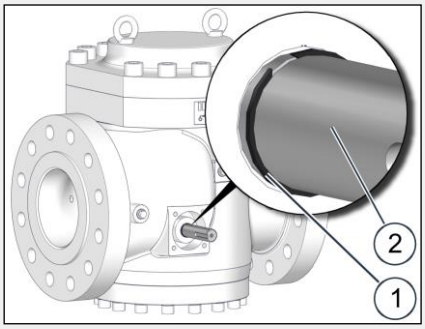
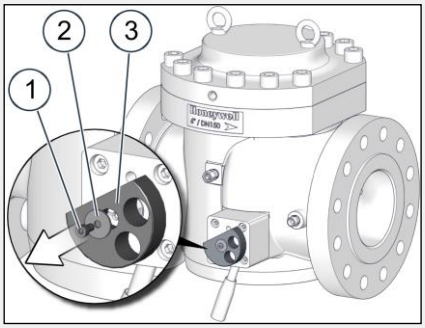
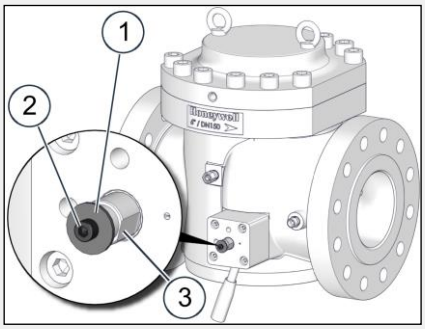
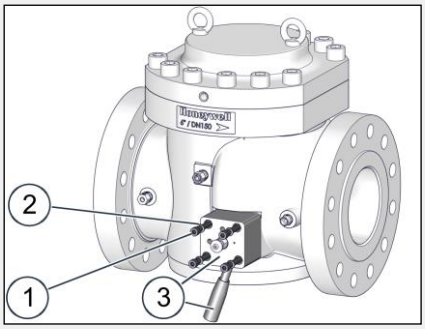
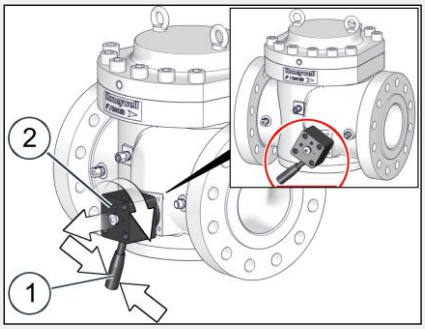
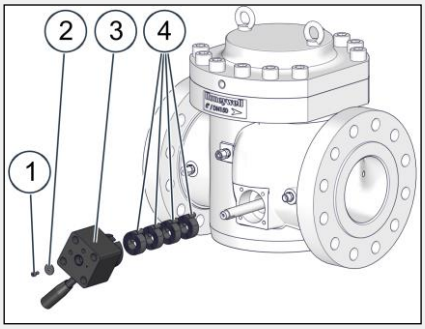
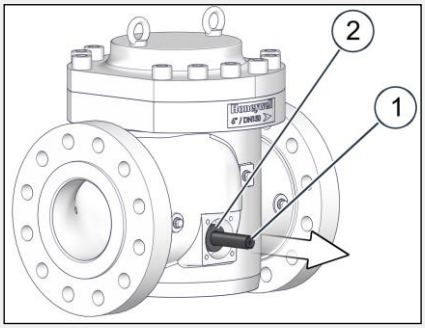
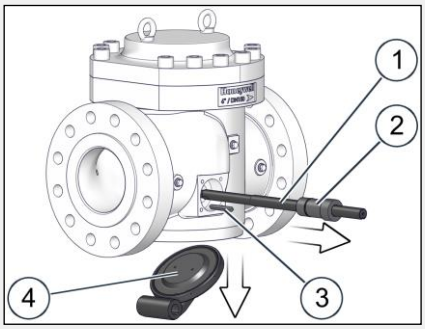
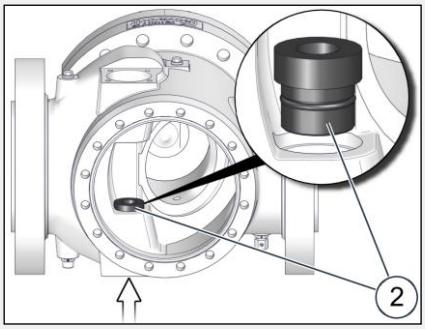
Figure	Step	Description
	11	Push the valve rod (2) with the opening element (1) as far as possible in the direction shown.
	12	On the switching unit's side, remove the retaining ring (1) on the valve rod (2).
	13	▪ On the opening element (3), unscrew the screw (1) on the valve rod and remove the washer (2). ▪ Set the opening element aside.
	14	Use the screw (2) to secure the washer (1) back on the valve rod (3).
	15	▪ Unscrew the four screws (1) on the spring housing. Before unscrewing the last two screws, use the re-engaging lever (3) to hold the spring housing (3) in position. **CAUTION!** Springs that are under tension can cause the spring housing to jump suddenly, resulting in hand injuries. ▪ Take the screws (1) and washers (2) and set them aside.

Figure	Step	Description
	16	▪ Hold the spring housing (2) with the re-engaging lever (1). ▪ Pull the spring housing (2) away from the milled-out area inside the actuator assembly body while holding it so that it will not rotate by itself. ▪ Now carefully turn the spring housing (2) with the re-engaging lever (1) in order to relieve the tension from the closing springs.
	17	▪ On the spring housing (3), unscrew the screw (1) on the valve rod and remove the washer (2). ▪ Then pull the spring housing (3) from the valve rod. ▪ Remove the closing springs. Check the condition of the closing springs (4) after cleaning. If they are damaged, replace the closing springs with new ones.
	18	On the switching unit side, pull the sleeve (2) with the valve rod (1) out from the actuator assembly in a straight horizontal line. **CAUTION!** The flap valve inside the actuator assemble will come loose, and may result in injuries if it falls. Hold the flap valve in place and secure its position.
	19	▪ Remove the valve rod (1) with the sleeve (2). ▪ Remove the key (3). ▪ Remove the flap valve (4) from the actuator assembly.
	20	Remove the remaining sleeve (2) on the spring housing side from the inside of the actuator assembly.

Next task

Proceed as follows:

- *Maintaining the actuator assembly* (see page 51)
- *Maintaining the triggering unit - 6" size* (see page 64)

6.3.4 Maintaining the actuator assembly – all sizes

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

Tightening torques of the bolts securing the regulator **top cover** are as follows:

Nominal size	Pressure rating	Screw specifications	Tightening torque
1″ (DN 25)	Class 150/300/600 PN 16/25/40	M16	203 Nm (150 ft lbs)
2″ (DN 50)	Class 150/300/600 PN 16/25/40	M16	203 Nm (150 ft lbs)
3″ (DN 80)	Class 150 PN 16	M16	203 Nm (150 ft lbs)
3″ (DN 80)	Class 300/600 PN 25/40	M20	353 Nm (260 ft lbs)
4″ (DN 100)	Class 150 PN 16	M16	203 Nm (150 ft lbs)
4″ (DN 100)	Class 300/600 PN 25/40	M20	353 Nm (260 ft lbs)
6″ (DN 150)	Class 150 PN 16	M16	203 Nm (150 ft lbs)
6″ (DN 150)	Class 300 PN 25/40	M20	353 Nm (260 ft lbs)
6″ (DN 150)	Class 600	M24	705 Nm (520 ft lbs)

In addition, observe the tightening torque and threadlocker specifications below when following the instructions in this section:

Part	Tightening torque	Threadlocker	Step
Diaphragm unit screw	27 Nm (20 ft lbs)	LOCTITE 221	7
Flow restrictor screws	6 Nm (4.5 ft lbs)	LOCTITE 221	8

Maintaining the actuator assembly

Proceed as follows:

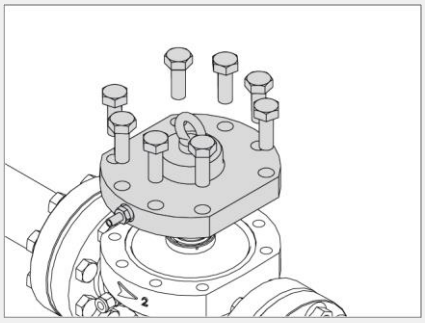
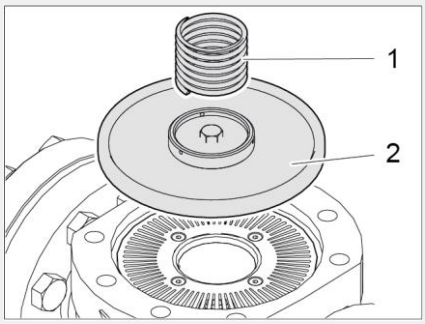
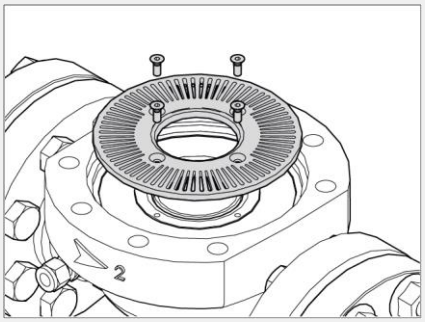
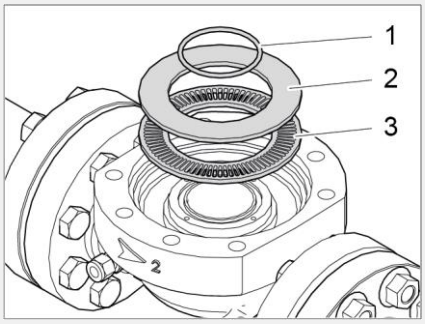
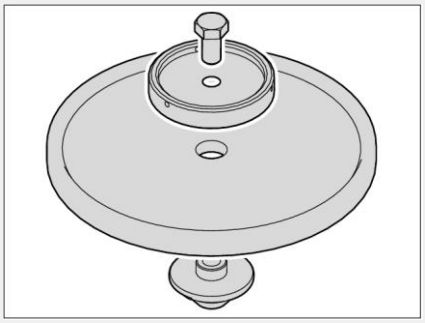
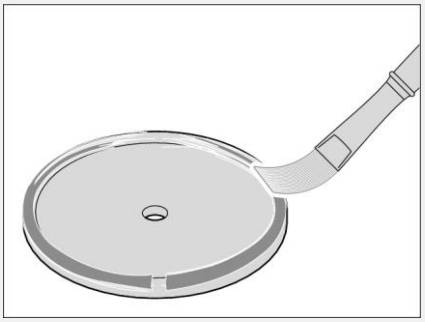
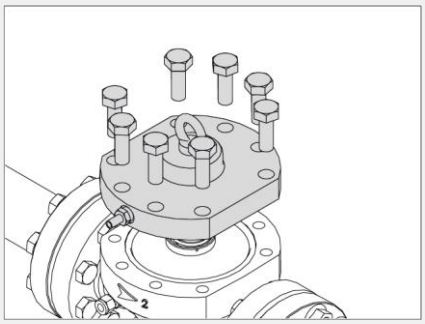
Figure	Step	Description
	1	Disassemble the lid. **CAUTION!** The lid is spring-loaded. Risk of injury due to bouncing up when the screws are unscrewed. Push the lid down when unscrewing the screws.
	2	Remove the closing spring (1) and the diaphragm unit (2).
	3	▪ Remove the flow restrictor. ▪ If the flow restrictor is damaged: Replace the flow restrictor with a new one.
	4	▪ Replace the O-ring (1) with a new, greased O-ring. ▪ Remove the noise reduction element (2) and the supporting shim (3) if these optional parts are installed in your device. ▪ Check the noise reduction element and the support disc for damage and replace them if necessary.

Figure	Step	Description
	5	If the diaphragm is damaged: Dismantle the diaphragm unit. Replace the diaphragm with a new diaphragm.
	6	Lightly grease the inside and outside edge of the new diaphragm.
	7	Re-assemble the diaphragm unit. Observe the additional tightening torque and threadlocker specifications provided in the table before this section.
	8	Re-assemble the regulator unit. ▪ For the flow restrictor screws, observe the additional tightening torque and threadlocker specifications provided in the table before this section. ▪ Push the lid down when screwing down the screws until they are completely secured. Tighten the screws in a criss-cross sequence step by step. Observe the tightening torque information provided in the table before this section.

6.3.5 Maintaining the triggering unit – 1" size

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
Screws	20 Nm (15 ft lbs)	14

Maintaining the triggering unit

Proceed as follows:

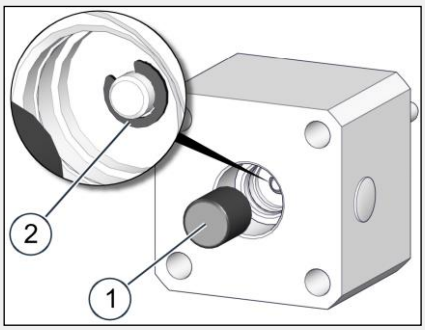
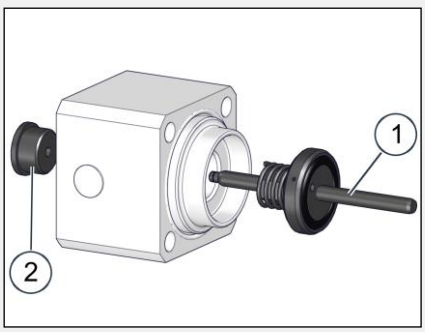
Figure	Step	Description
	1	Take the shut-off unit: ▪ Remove the cap (1). ▪ Remove the retaining ring (2).
	2	Remove the valve rod unit (1) and the guide sleeve (2), moving each of them away from the shut-off unit housing in the right direction.

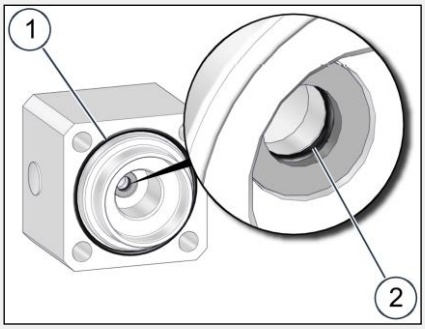
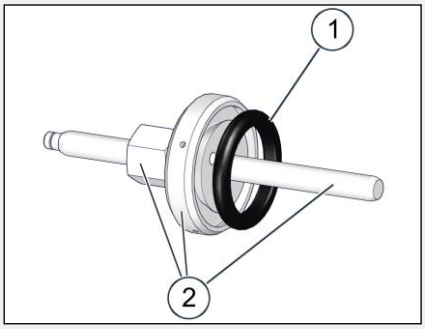
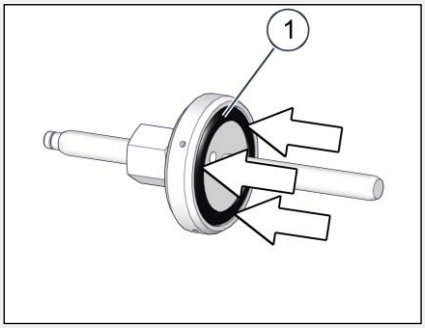
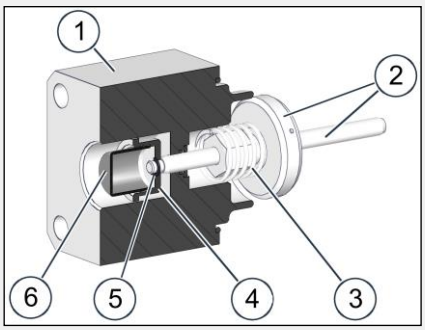
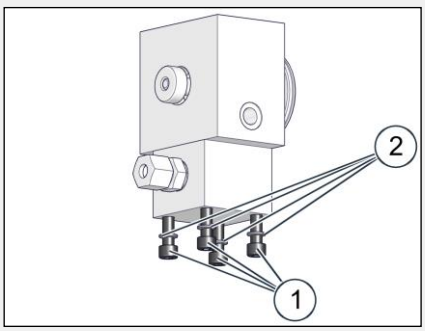
Figure	Step	Description
	3	Take the shut-off unit housing: ▪ Replace the O-ring (1) with a new, greased O-ring. ▪ Replace the O-ring (2) with a new, greased O-ring.
	4	Take the valve rod unit: ▪ Check the condition of the valve rod unit (2) after cleaning. If the valve rod unit is damaged, replace it with a new one. ▪ Lightly grease the valve rod, making sure to observe the lubricant table in the appendix. ▪ Remove the used O-ring (1) from the valve disc.
	5	▪ Insert a new, greased O-ring (1) into the valve disc's groove. ▪ Press on the O-ring at several points evenly distributed along the circumference in order to push it into the groove. ▪ Then press everywhere on the O-ring in order to fully push it in.
	6	Reassemble the shut-off unit: ▪ Put the spring (3) back on the valve rod unit (2). ▪ Thread the valve rod unit (2) through the hole in the shut-off unit housing (1). ▪ Slide the guide sleeve (4) inside the housing onto the valve rod. ▪ Use the retaining ring (5) to secure the guide sleeve (4) on the valve rod. ▪ Put the cap (6) back in place.
	7	Take the switching unit: ▪ Unscrew the screws (1) on the switching unit housing's cover. ▪ Take the screws (1) and washers (2) and set them aside.

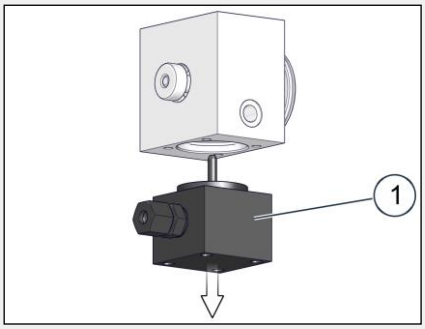
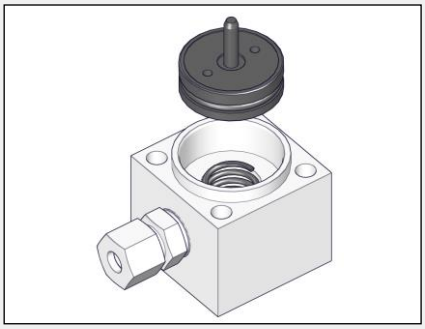
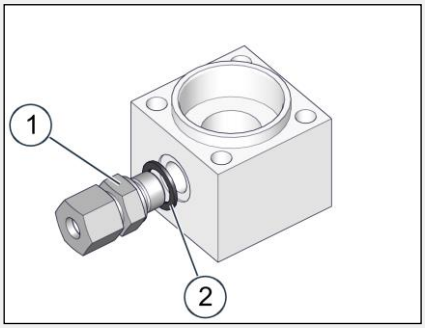
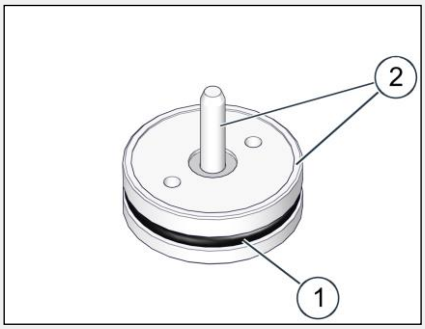
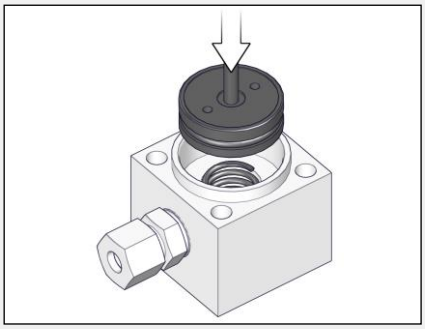
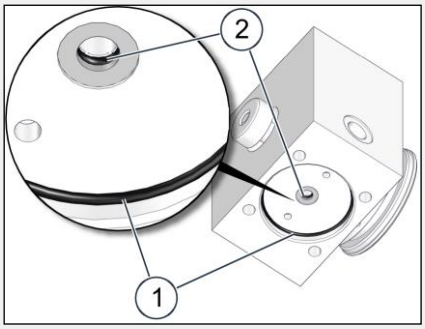
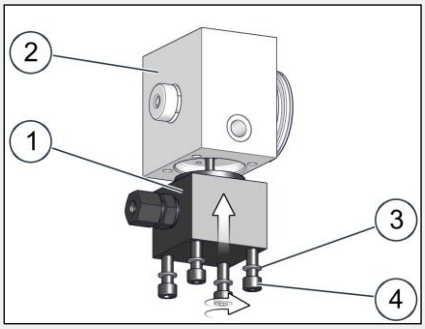
Figure	Step	Description
	8	Remove the switching unit housing's cover (1) directly downward and away from the switching unit housing.
	9	Remove the switching disc unit and the compression spring from the switching unit housing's cover.
	10	▪ Replace the sealing ring (2) inside the switching unit housing's cover with a new, greased sealing ring. ▪ Lubricate the thread surfaces before screwing the fitting (1) back in.
	11	Replace the O-ring (1) on the switching disc unit (2) with a new, greased O-ring.
	12	Place the compression spring and the switching disc unit back in the switching unit housing's cover.

Figure	Step	Description
	13	Take the switching unit housing: ▪ Replace the O-ring (1) with a new, greased O-ring. ▪ Replace the O-ring (2) with a new, greased O-ring.
	14	Use the screws (3) and washers (4) to mount the reassembled switching unit housing cover (1) back on the switching unit housing (2). Observe the tightening torque information provided in the table before this section.

Next task

Proceed as follows:

- *Installing the triggering unit - 1" size* (see page 69)

6.3.6 Maintaining the triggering unit – 2", 3", 4" size

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.

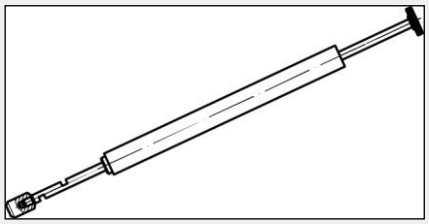
Cleaning

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.

Special tools

Prepare the following special tools in addition to the standard tools:

Figure	Description
	Assembly aid (10026350)

Tightening torques

Observe the tightening torque and threadlocker specifications below when following the instructions in this section:

Part	Tightening torque	Threadlocker	Step
Cylinder screws	16 Nm (12 ft lbs)	-	14
Pinion shaft / valve rod	16 Nm (12 ft lbs)	LOCTITE 241	19
Screws	16 Nm (12 ft lbs)	-	20

Maintaining the triggering unit

Proceed as follows:

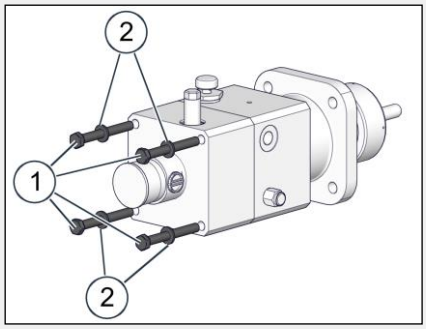
Figure	Step	Description
	1	▪ Unscrew the screws (1) on the switching unit housing's cover. ▪ Take the screws (1) and washers (2) and set them aside.

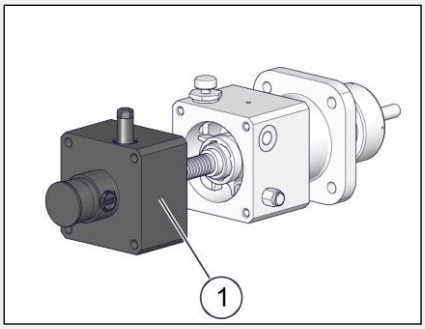
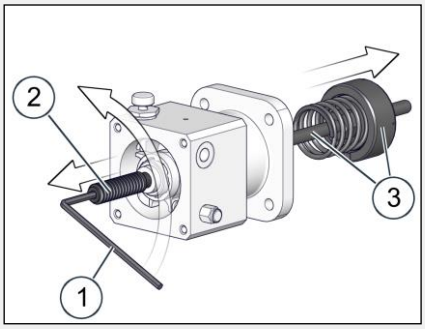
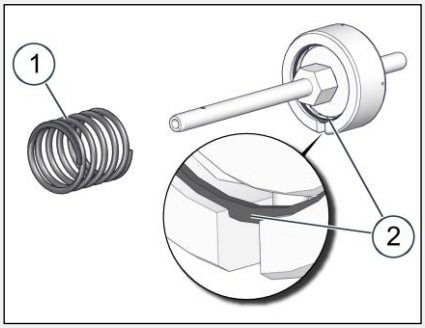
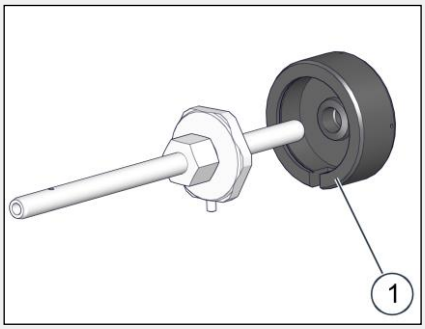
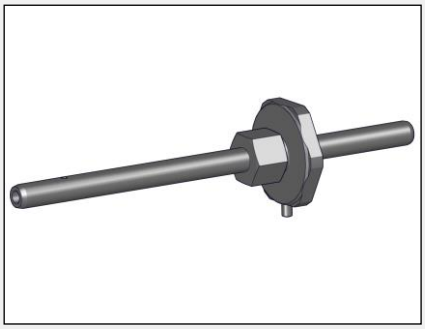
Figure	Step	Description
	2	Remove the switching unit housing's cover (1).
	3	▪ Remove the valve rod unit (3). To do this, use an Allen key (1) to unscrew the pinion shaft (2) from the valve rod unit. ▪ Remove the valve rod unit and the pinion shaft, moving each of them away from the switching unit housing in the right direction.
	4	Remove the spring (1) and the circlip (2) from the valve rod unit.
	5	Remove the valve disc (1) from the valve rod.
	6	▪ Replace the entire remaining valve rod unit with a new one. ▪ Lightly grease the new valve rod, making sure to observe the information in the lubricant table in the appendix.

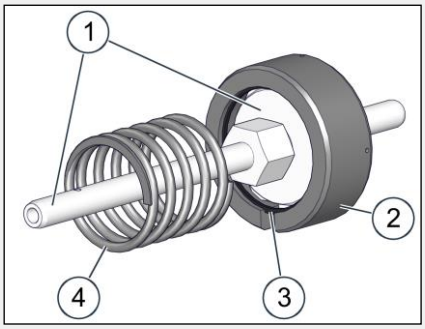
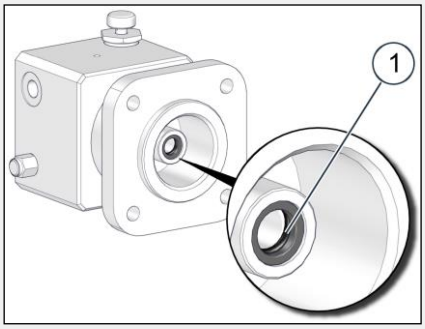
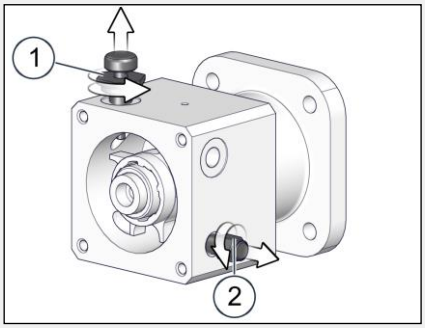
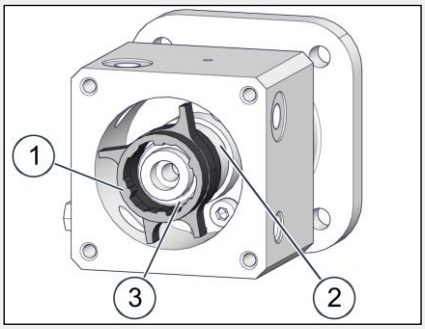
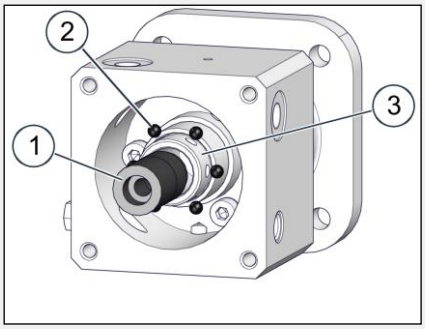
Figure	Step	Description
	7	Reassemble the valve rod unit: ▪ Slide the valve disc (2) onto the new valve rod unit (1). ▪ Use a new circlip (3) to secure the valve disc. ▪ Put the spring (4) in place.
	8	▪ Take the switching unit housing. ▪ Replace the O-ring (1) with a new, greased O-ring. Use the assembly aid intended for this purpose.
	9	Unscrew the manual trigger (1) and the spring-loaded pressure piece (2) from the switching unit housing.
	10	▪ Pull out the star wheel (1) from the plain bearing (2) on the guiding cylinder (3). ▪ Check the condition of the star wheel (1) after cleaning. If the star wheel is damaged, replace it with a new one.
	11	▪ Pull the detent bushing (1) off from the guiding cylinder (3) and remove all the balls (2). ▪ Check the condition of the detent bushing (1) and the balls (2) after cleaning. Replace any damaged parts with new ones.

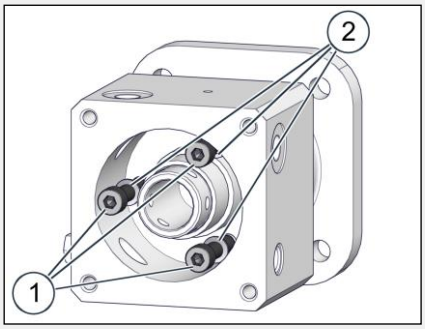
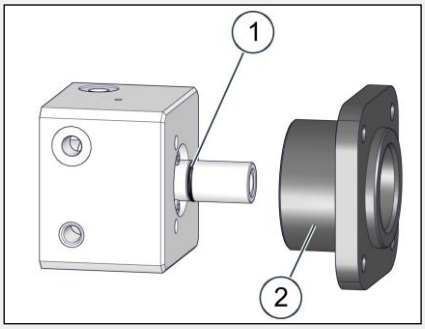
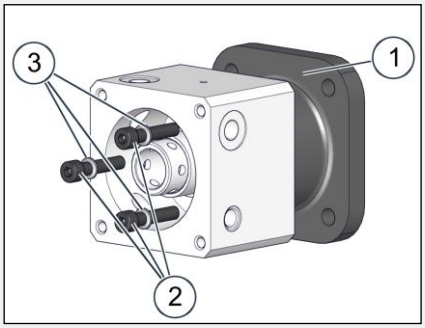
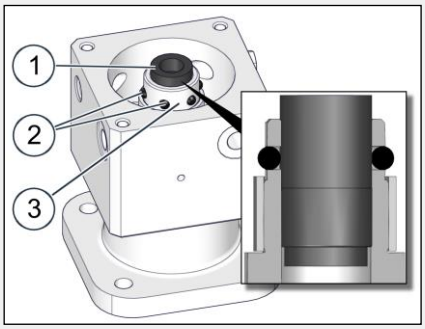
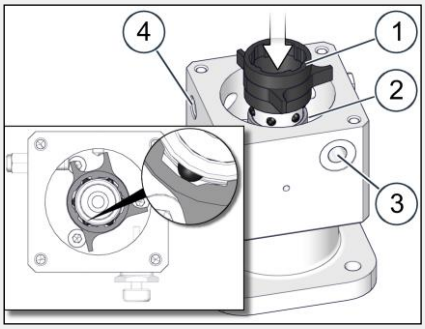
Figure	Step	Description
	12	▪ Unscrew the screws (1) inside the switching unit housing. ▪ Take the screws (1) and washers (2) and set them aside.
	13	▪ Remove the connection flange (2) from the switching unit housing. ▪ Replace the O-ring (1) with a new, greased O-ring.
	14	Use the screws (2) and washers (3) to mount the connection flange (1) back on the switching unit housing. Observe the tightening torque information provided in the table before this section.
	15	▪ Insert the lightly greased detent bushing (1) back into the guiding cylinder (3). Make sure that the detent bushing (1) is aligned correctly. The offset on the detent bushing's outside surface must point inwards into the guiding cylinder. ▪ Insert the greased balls (2) into the corresponding recesses on the guiding cylinder (3).
	16	Move the star wheel (1) over and beyond the inserted balls in order to put it back on the plain bearing (2) Slide the star wheel (1) as far as it will go. When doing so, make sure to observe the correct alignment of the star wheel (1) inside the switching unit housing and relative to the balls as shown in the diagram to the left. Opening (3) is the position for the manual trigger. Opening (4) is the position for the spring-loaded pressure piece.

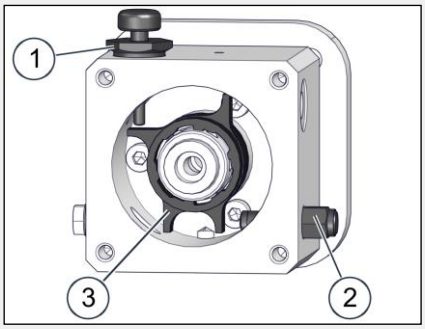
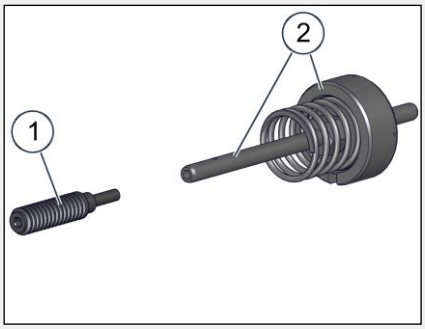
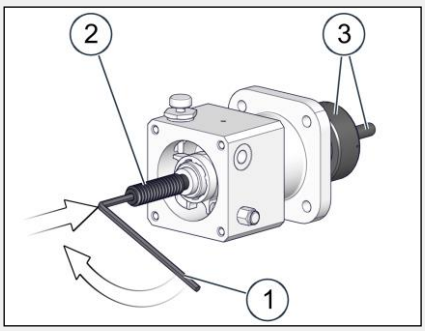
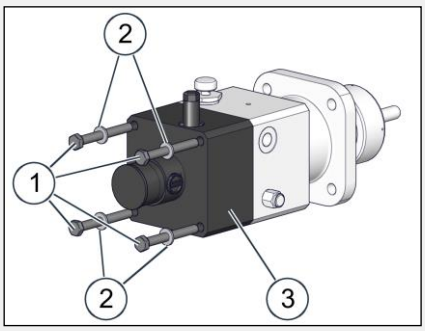
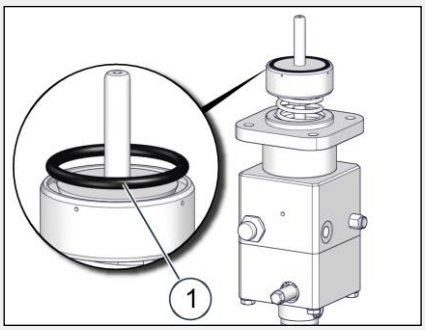
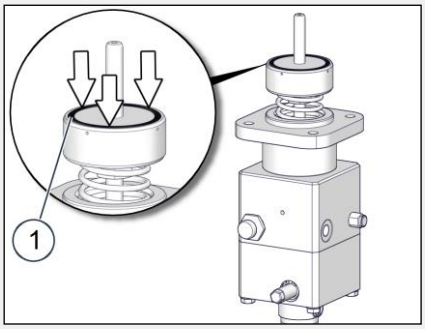
Figure	Step	Description
	17	Install the manual trigger (1) and the spring-loaded pressure piece (2) back inside the switching unit housing. Make sure to observe the correct alignment of the star wheel (3) inside the switching unit housing. **IMPORTANT!** The manual trigger's (1) control rod must not bear against the star wheel (3). Instead, there must be a gap between the manual trigger's control rod and the star wheel.
	18	Take the valve rod unit (2) and the pinion shaft (1) and thread both components into the switching unit housing from the appropriate side.
	19	Use an Allen key (1) to screw the pinion shaft (2) and the valve rod unit (3) together. Observe the additional tightening torque and threadlocker specifications provided in the table before this section.
	20	Use the screws (1) and washers (2) to mount the switching unit housing's cover (3) back on the switching unit housing. Observe the tightening torque information provided in the table before this section.
	21	Remove the used O-ring from the valve disc.

Figure	Step	Description
	22	▪ Insert a new, greased O-ring into the valve disc's groove. ▪ Press on the O-ring at several points evenly distributed along the circumference in order to push it into the groove. ▪ Then press everywhere on the O-ring in order to fully push it in.

Next task

Proceed as follows:

- *Installing the triggering unit - 2", 3", 4" size* (see page 71)

6.3.7 Maintaining the triggering unit – 6" size

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.

Maintaining the triggering unit

Proceed as follows:

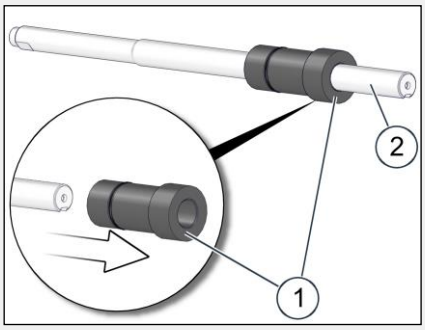
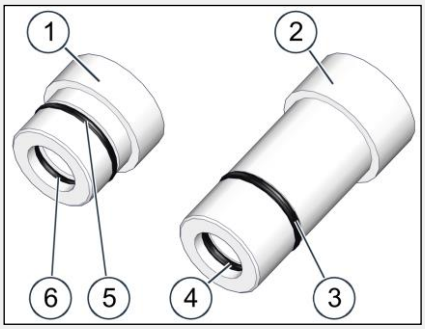
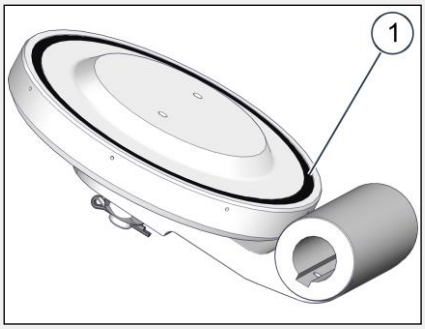
Figure	Step	Description
	1	▪ Remove the sleeve (1) from the valve rod (2). ▪ Clean the valve rod and then grease it lightly, making sure to observe the lubricant table in the appendix.
	2	▪ Take the two sleeves (1, 2). ▪ Replace the O-rings (3, 4, 5, 6) with new, lubricated O-rings.

Figure	Step	Description
	3	Take the flap valve. Replace the O-ring (1) with a new, greased O-ring. ▪ To do so, insert the new, greased O-ring into the valve disc's groove. ▪ Press on the O-ring at several points evenly distributed along the circumference in order to push it into the groove. ▪ Then press everywhere on the O-ring in order to fully push it in.

Next task

Proceed as follows:

- *Maintaining the HON 910 push-button valve - 6" size* (see page 66)
- *Installing the triggering unit - 6" size* (see page 73)

6.3.8 Maintaining the HON 910 push-button valve - 6" size

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
Hex bolts	8 Nm (5.9 ft lbs)	10

Maintaining the HON 910 push-button valve

Proceed as follows:

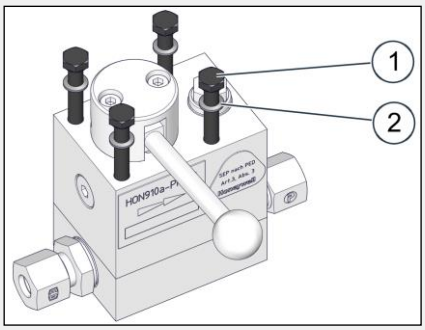
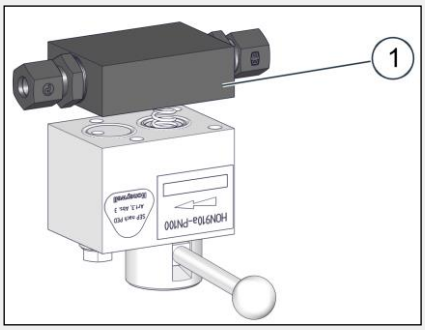
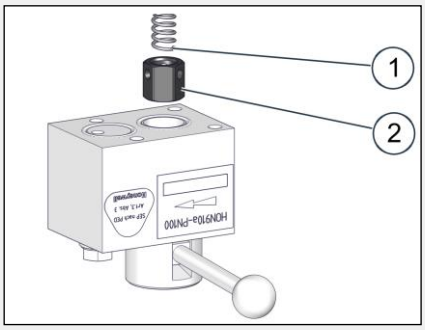
Figure	Step	Description
	1	▪ Unscrew the screws (1) on the push-button valve's housing. ▪ Take the screws (1) and washers (2) and set them aside.
	2	Remove the adapter plate (1) from the housing.
	3	▪ Remove the compression spring (1) and the piston (2) from the housing. ▪ Replace the piston (2) with a new one.

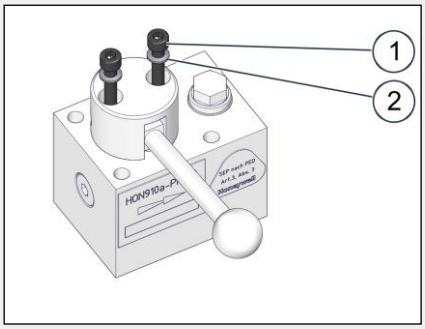
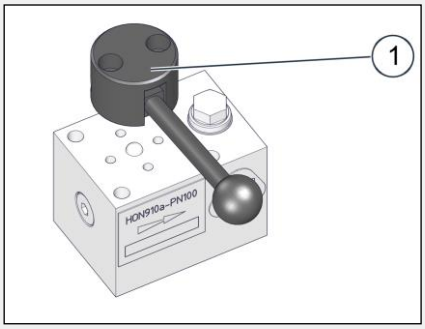
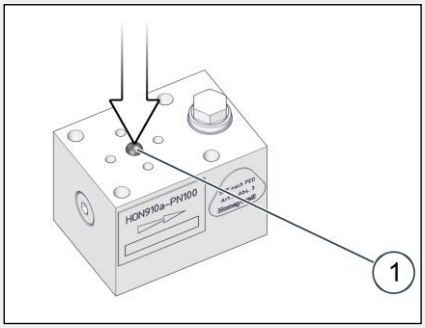
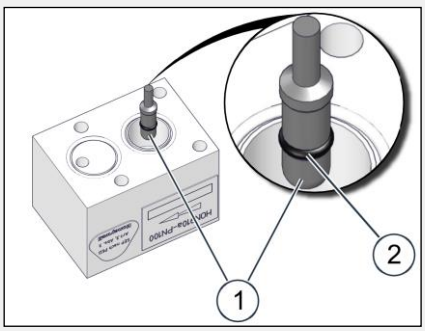
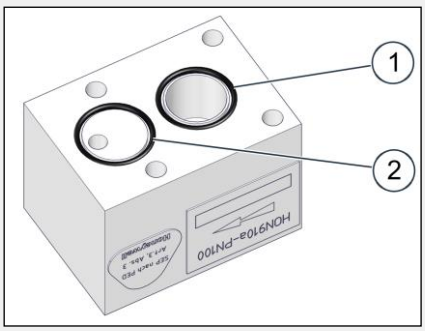
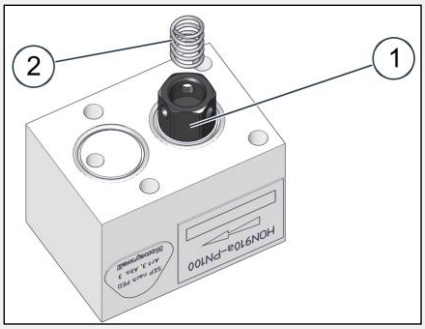
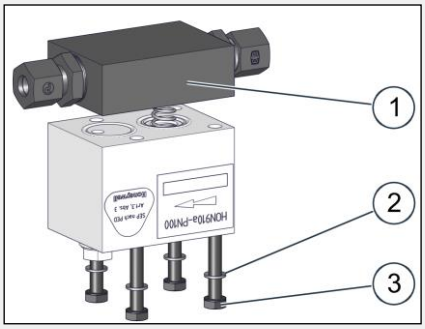
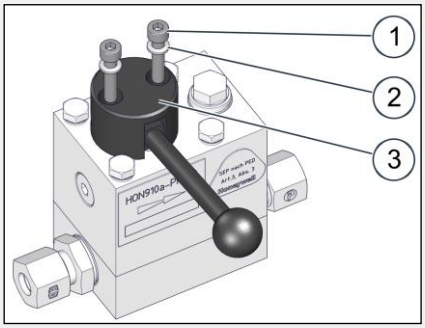
Figure	Step	Description
	4	▪ Unscrew the screws (1) on the push-button valve's control lever. ▪ Take the screws (1) and washers (2) and set them aside.
	5	Remove the push-button valve's control lever (1).
	6	Push the pin (1) out of the housing.
	7	▪ Remove the pin (1) from the other side of the housing. ▪ Replace the O-ring (2) with a new, greased O-ring. ▪ Slide the pin (1) back into the hole on the housing as far as it will go.
	8	Replace the O-rings (1, 2) with new, lubricated O-rings.

Figure	Step	Description
	9	▪ Insert the new piston (1) into the housing. ▪ Insert the compression spring (2) into the hole on the piston (1).
	10	Use the screws (3) and washers (2) to mount the adapter plate (1) back on the housing. Observe the tightening torque information provided in the table before this section.
	11	Use the screws (1) and washers (2) to mount the control lever (3) back on the housing.

6.3.9 Installing the triggering unit - 1" size

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
Screws	35 Nm (26 ft lbs)	3

Installing the triggering unit on the actuator assembly

Proceed as follows:

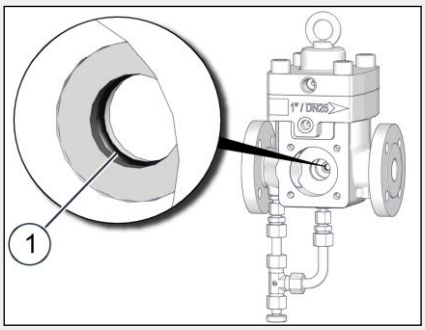
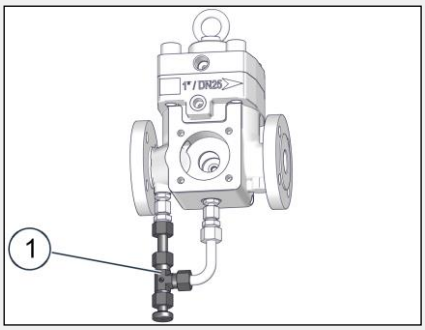
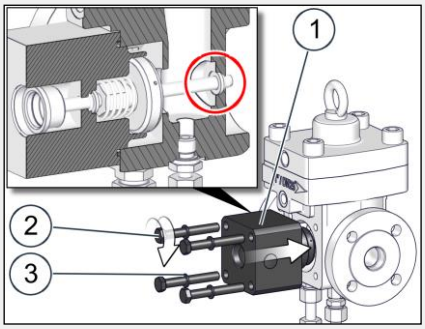
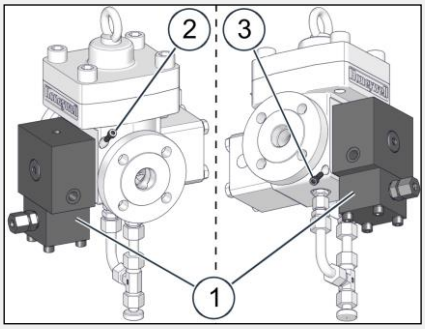
Figure	Step	Description
	1	Look into the actuator assembly from the side shown in the diagram to the left. Replace the O-ring (1) on the valve rod guide with a new, greased O-ring.
	2	Replace the pressure compensating valve (1) with a new one.

Figure	Step	Description
	3	▪ Take the shut-off unit (1) and place it against the actuator assembly in a straight horizontal line. When doing so, make sure that the valve rod is threaded through the circled hole in the actuator assembly. ▪ Tighten the screws (2) with the washers (3) in a criss-cross sequence. Observe the tightening torque information provided in the table before this section.
	4	▪ Take the switching unit (1) and place it against the actuator assembly. ▪ Use the screws (2, 3) to fasten the switching unit back on the actuator assembly.

6.3.10 Installing the triggering unit - 2", 3", 4" size

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.

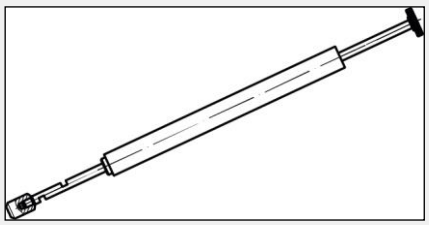
Cleaning

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.

Special tools

Prepare the following special tools in addition to the standard tools:

Figure	Description
	Assembly aid (10026350)

Tightening torques

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

Part	Tightening torque	Step
Hex nuts	30 Nm (22 ft lbs)	3

Installing the triggering unit on the actuator assembly

Proceed as follows:

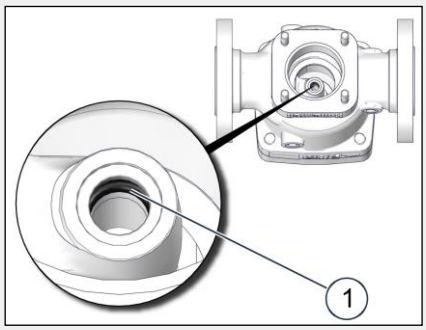
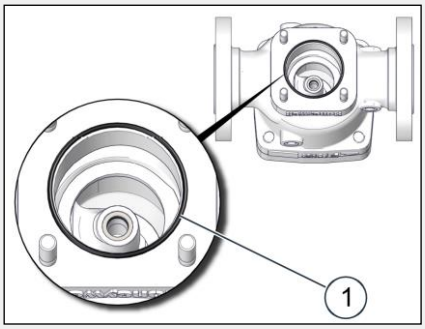
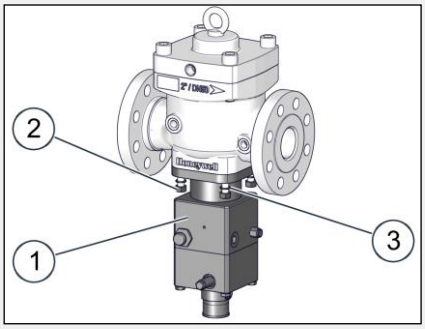
Figure	Step	Description
	1	Look into the actuator assembly from below. Replace the O-ring (1) on the valve rod guide with a new, greased O-ring. Use the assembly aid intended for this purpose.

Figure	Step	Description
	2	Replace the O-ring (1) facing the connection flange with a new, greased O-ring.
	3	▪ Take the triggering unit (1) and place it against the actuator assembly. ▪ Tighten the nuts (2) with the washers (3) in a criss-cross sequence. Observe the tightening torque information provided in the table before this section.

6.3.11 Installing the triggering unit - 6" size

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.

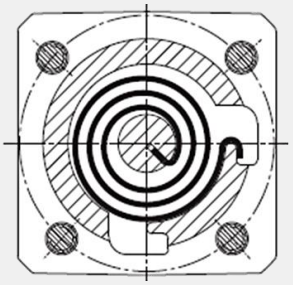
Cleaning

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.

Installation position for closing springs

The spring housing has two grooves, for the closing springs, cast into it. These grooves are required in order to be able to hold the closing springs as needed for the “operating side on the right” and “operating side on the left” configurations. When installing the closing springs, observe the layouts in the following table:

Front cross-section view: Installation position for “operating side on the left”	Front cross-section view: Installation position for “operating side on the right”
	

Note: The standard configuration for the assembly is “operating side on the left.” The illustrations in this document use this configuration.

Tightening torques

Observe the tightening torque and threadlocker specifications below when following the instructions in this section:

Part	Tightening torque	Threadlocker	Step
Hex bolts	10 Nm (7.4 ft lbs)	-	5
Cylinder screws	40 Nm (29.5 ft lbs)	LOCTITE 221	7
Cylinder screws	40 Nm (29.5 ft lbs)	LOCTITE 221	13
Socket cap screw	-	LOCTITE 221	14
Screws	-	LOCTITE 221	17
Screws	350 Nm (258 ft lbs)	-	19
Fittings	-	LOCTITE 221	23

Installing the triggering unit on the actuator assembly

Proceed as follows:

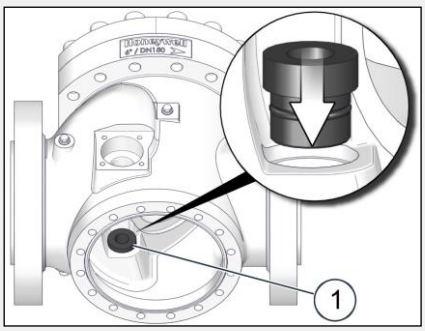
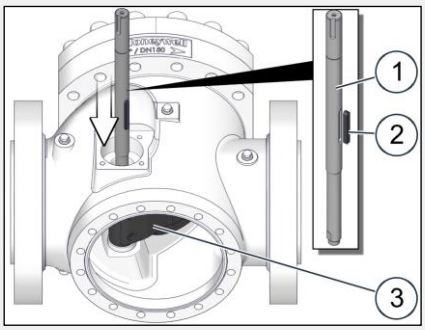
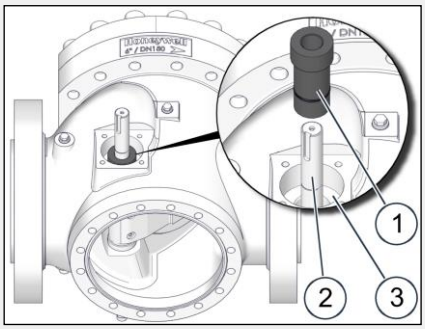
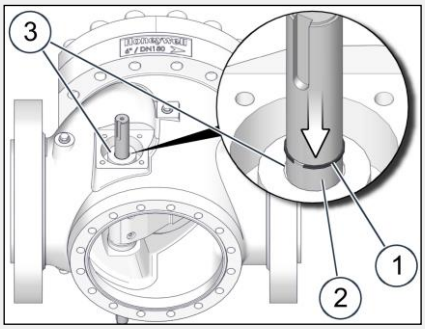
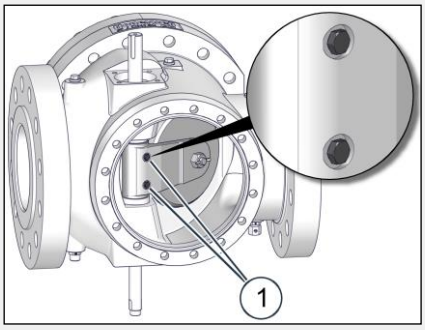
Figure	Step	Description
	1	▪ Look into the actuator assembly from below. ▪ Take the shorter of the two sleeves (1) and insert it into the appropriate hole inside the actuator assembly on the spring housing side.
	2	▪ Insert the key (2) into the valve rod (1). ▪ Move the flap valve (3) to the closed position inside the actuator assembly. ▪ Starting from the switching unit side, slide the valve rod with the key through the actuator assembly body, the flap valve, and the sleeve. While doing so, make sure that the valve rod and the key are aligned correctly.
	3	▪ Slide the sleeve (1) onto the valve rod (2) on the switching unit side. ▪ Slide the sleeve further until it is solidly seated in the corresponding recess (3) inside the actuator assembly body.
	4	▪ On the switching unit side, install the retaining ring (1) on the valve rod (2). ▪ Then move the valve rod (2) until the retaining ring (1) is solidly seated in the recess (3) on the sleeve.
	5	Screw in the screws (1) for the flap valve inside the actuator assembly body. Observe the tightening torque information provided in the table before this section.

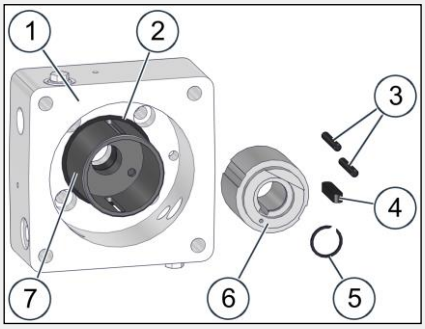
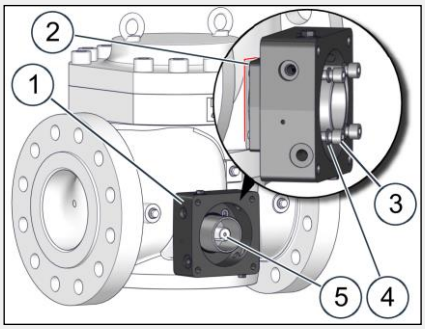
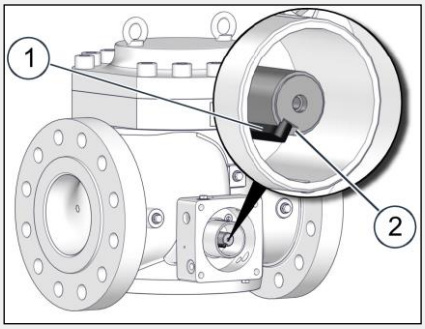
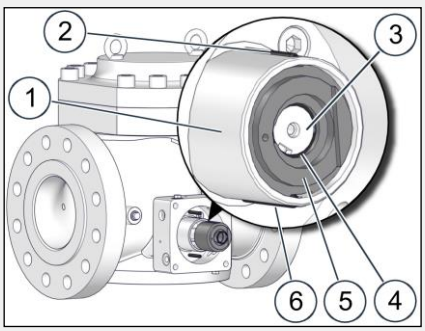
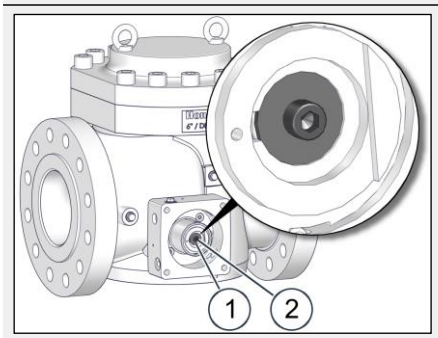
Figure	Step	Description
	6	▪ Take the cleaned switching unit housing (1) together with its components: ▪ Ring (2) ▪ Rollers (3) ▪ Key (4) ▪ Retaining ring (5) ▪ Detent bushing (6) ▪ Slide the ring (2) over the guiding cylinder (7) and as far as it will go inside the switching unit housing.
	7	▪ Slide the switching unit housing (1) from the appropriate side onto the valve rod (5). ▪ Place the switching unit housing (1) against the surface that is milled flat (2) on the actuator assembly body. ▪ Use the four screws (3) and washers (4) to fasten the switching unit housing (1) onto the actuator assembly body. Observe the additional tightening torque and threadlocker specifications provided in the table before this section.
	8	Insert the key (1), with a bit of grease, into the corresponding recess on the valve rod (2).
	9	▪ Slide the detent bushing (5) into the guiding cylinder (1) and onto the valve rod (3) as far as it will go. ▪ Insert the retaining ring (4) into the corresponding recess on the detent bushing (5). ▪ Insert the greased rollers (2) into the corresponding recesses on the guiding cylinder (1).
	10	Use the screw (2) to secure the washer (1) back on the valve rod (3) inside the switching unit housing.

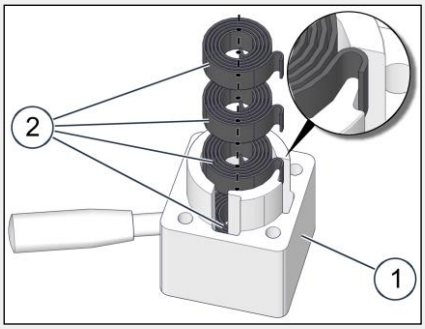
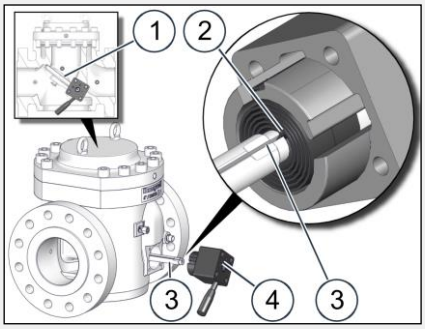
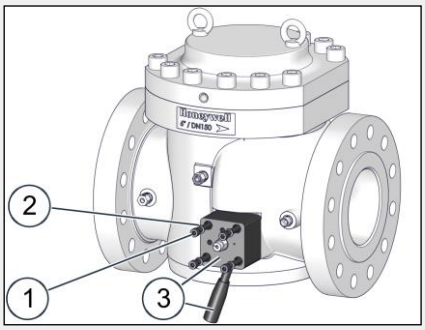
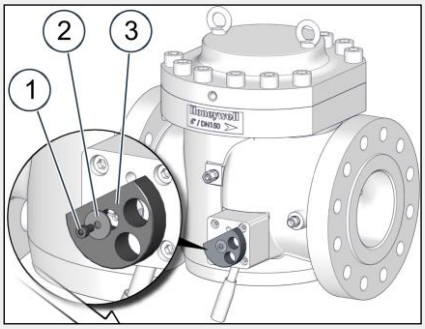
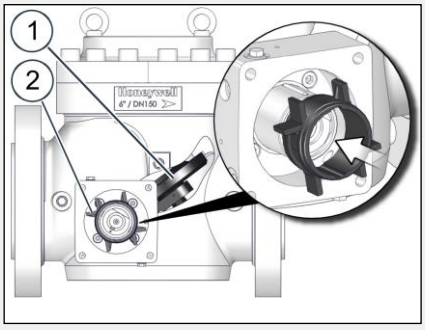
Figure	Step	Description
	11	Take the spring housing (1) and insert the closing springs (2) as shown in the diagram to the left. Observe the additional closing spring alignment specifications provided in the table before this section.
	12	▪ Hold the flap valve (1) in its closed position. ▪ Take the spring housing (4) and hold it in a slightly turned position as shown in the diagram to the left. ▪ Thread the closing springs' inner straight ends into the corresponding groove (3) on the valve rod while sliding the spring housing onto the valve rod.
	13	▪ Use the re-engaging lever (3) to rotate the spring housing (3) approx. one quarter of a turn counterclockwise. ▪ Slide the spring housing, in the required rotated position, all the way against the surface milled flat on the actuator assembly body. ▪ Tighten the screws (1) with the washers (2) in a criss-cross sequence. Observe the additional tightening torque and threadlocker specifications provided in the table before this section.
	14	▪ Place the opening element (3) on the valve rod in the position shown in the diagram to the left. ▪ Use the screw (1) to secure the washer (2) back on the valve rod. Observe the additional threadlocker specifications provided in the table before this section.
	15	▪ Check the condition of the star wheel (2) after cleaning. If the star wheel is damaged, replace it with a new one. ▪ Hold the flap valve (1) in its closed position. ▪ Slide the star wheel (2) over the inserted rollers and onto the plain bearing as far as it will go. When doing so, make sure to observe the correct alignment of the star wheel (2) inside the switching unit housing.

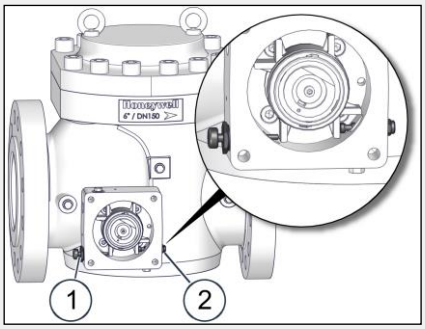
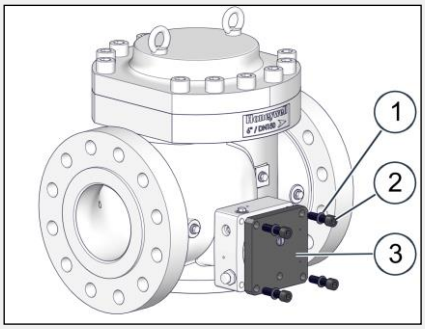
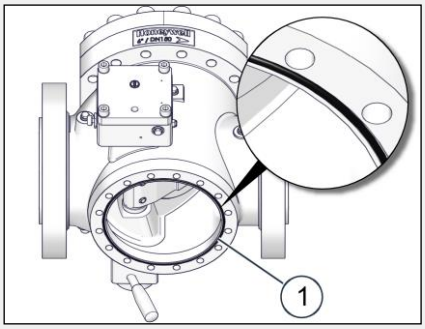
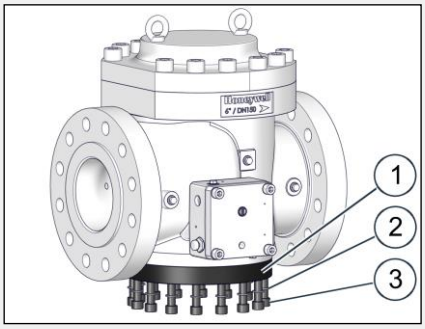
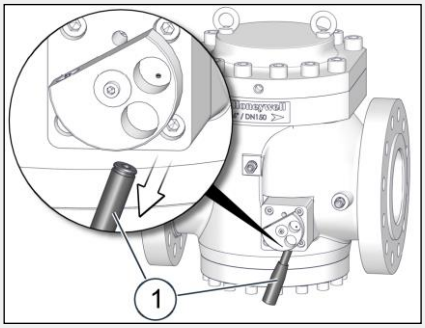
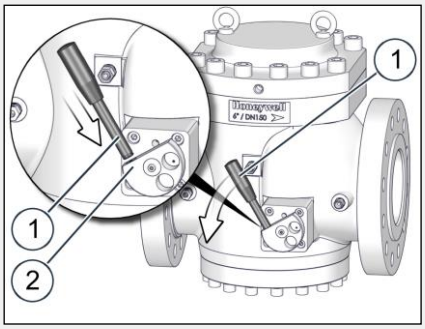
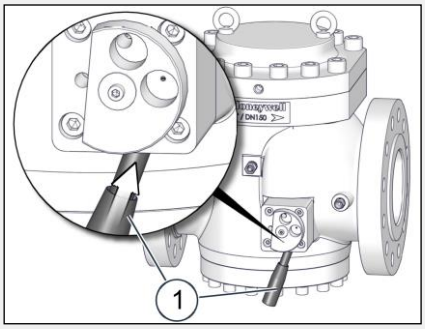
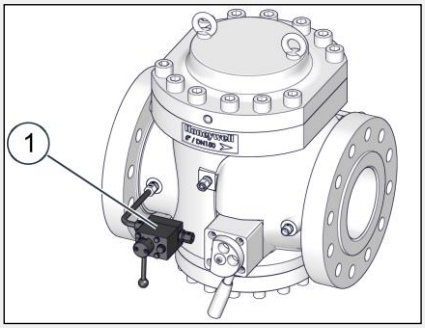
Figure	Step	Description
	16	Install the manual trigger (1) and the spring-loaded pressure piece (2) back inside the switching unit housing. Make sure to observe the correct alignment of the star wheel inside the switching unit housing. **IMPORTANT!** The manual trigger's (1) control rod must not bear against the star wheel. Instead, there must be a gap between the manual trigger's control rod and the star wheel.
	17	Use the screws (2) and washers (1) to mount the switching unit housing's cover (3) back on the switching unit housing. Observe the additional threadlocker specifications provided in the table before this section.
	18	Look at the actuator assembly from below. Replace the O-ring (1) with a new, greased O-ring.
	19	Use the screws (3) and washers (2) to mount the bottom cover (1) back onto the actuator assembly. Observe the tightening torque information provided in the table before this section.
	20	Pull the re-engaging lever (1), against the slight resistance that will be produced, downwards and out from the spring housing.

Figure	Step	Description
	21	▪ Insert the re-engaging lever (1) into the opening on the opening element (2). ▪ Turn the re-engaging lever (1) counterclockwise until you feel the flap valve lock into place.
	22	Insert the re-engaging lever (1), against the slight resistance that will be produced, back into the opening on the spring housing.
	23	Install the maintained or new pressure compensating valve (1). Observe the additional threadlocker specifications provided in the table before this section.

7 Storage and disposal

Contents

Topic	Page
Storing the device	80
Disposing of the device	81

7.1 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: 32 °F to 77 °F (0 °C to 25 °C)
  - 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.
  - When storing the device for more than one year (e.g., as a backup device):
    Store the device in its original packaging and in the same condition it was 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.

7.2 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.

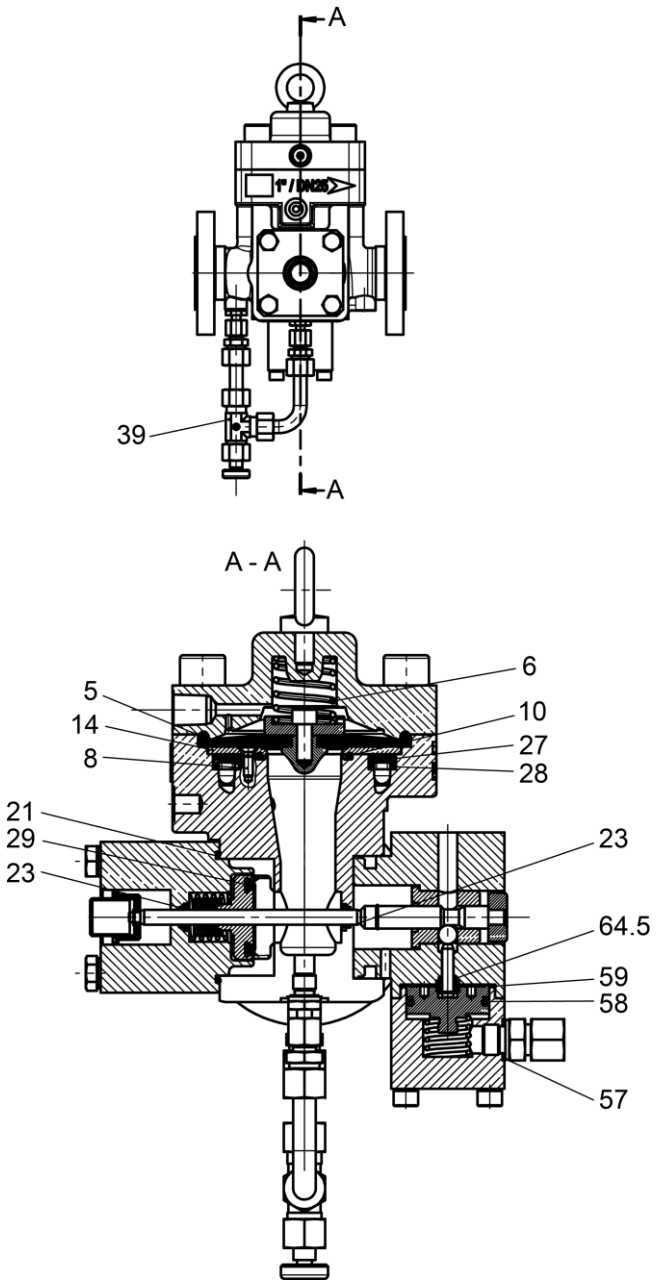
8 Appendix

Contents

Topic	Page
Spare parts for actuator assembly with triggering unit - 1" size	83
Spare parts for actuator assembly with triggering unit - 2", 3", 4" size	87
Spare parts for actuator assembly with triggering unit - 6" size	101
Spare parts for HON 910 push-button valve for actuator assembly with 6" size	104
Lubricants	105

8.1 Spare parts for actuator assembly with triggering unit – 1" size

Spare parts drawing for actuator assembly with triggering unit – 1" size



Maintenance and servicing parts for actuator assembly with triggering unit – 1" size

Nominal size	No. / Letter	Qty	Name	Part no.
1″	5	1	Diaphragm, up to 50 / 70 DP	201/MJ/001
1″	6	1	Closing spring	18358049
1″	8	4	Screws	710BCFE03010
1″	10	1		
			O-ring NBR	730OAVN224
			Low-temperature NBR O-ring	730ODVN224
			O-ring FKM	730OMVV224

Nominal size	No. / Letter	Qty	Name	Part no.
1″	14	1		
			Flow restrictor, 100%	201/MZ/001
			Flow restrictor, 75%	201/MZ/004
			Flow restrictor, 50%	201/MZ/006
			Flow restrictor 25%	201/MZ/008
1″	21	1		
			O-ring NBR	20461-RMK
			O-ring FKM	20750
			Low-temperature NBR O-ring	20758
1″	23	2		
			O-ring	20658-RMK
			Low-temperature O-ring	100445
1″	27	1	Carrier plate	201/MN/001
1″	28	1	Metal foam	201/MF/001
1″	29	1		
			O-ring	20572
			Low-temperature O-ring	20757
1″	39	1		
			HON 913A push-button valve, standard, NBR	10005200
			HON 913A push-button valve, stainless steel, NBR	18356919
			HON 913A push-button valve, low-temperature, stainless steel	18361700
			HON 913A push-button valve, low-temperature, standard	18361701
1″	57	1	Gasket	18842-RMK
1″	58	1		
			O-ring NBR	20336
			O-ring FKM	20599
			Low-temperature O-ring	100967-RMK
1″	59	1		
			O-ring NBR	20398
			O-ring FKM	21114-RMK
			Low-temperature O-ring	100968-RMK

Nominal size	No. / Letter	Qty	Name	Part no.
1″	64.5	1		
			O-ring NBR	20226-RMK
			O-ring FKM	20751-RMK
			Low-temperature O-ring	100991-RMK

Spare parts kits for actuator assembly with triggering unit - 1" size

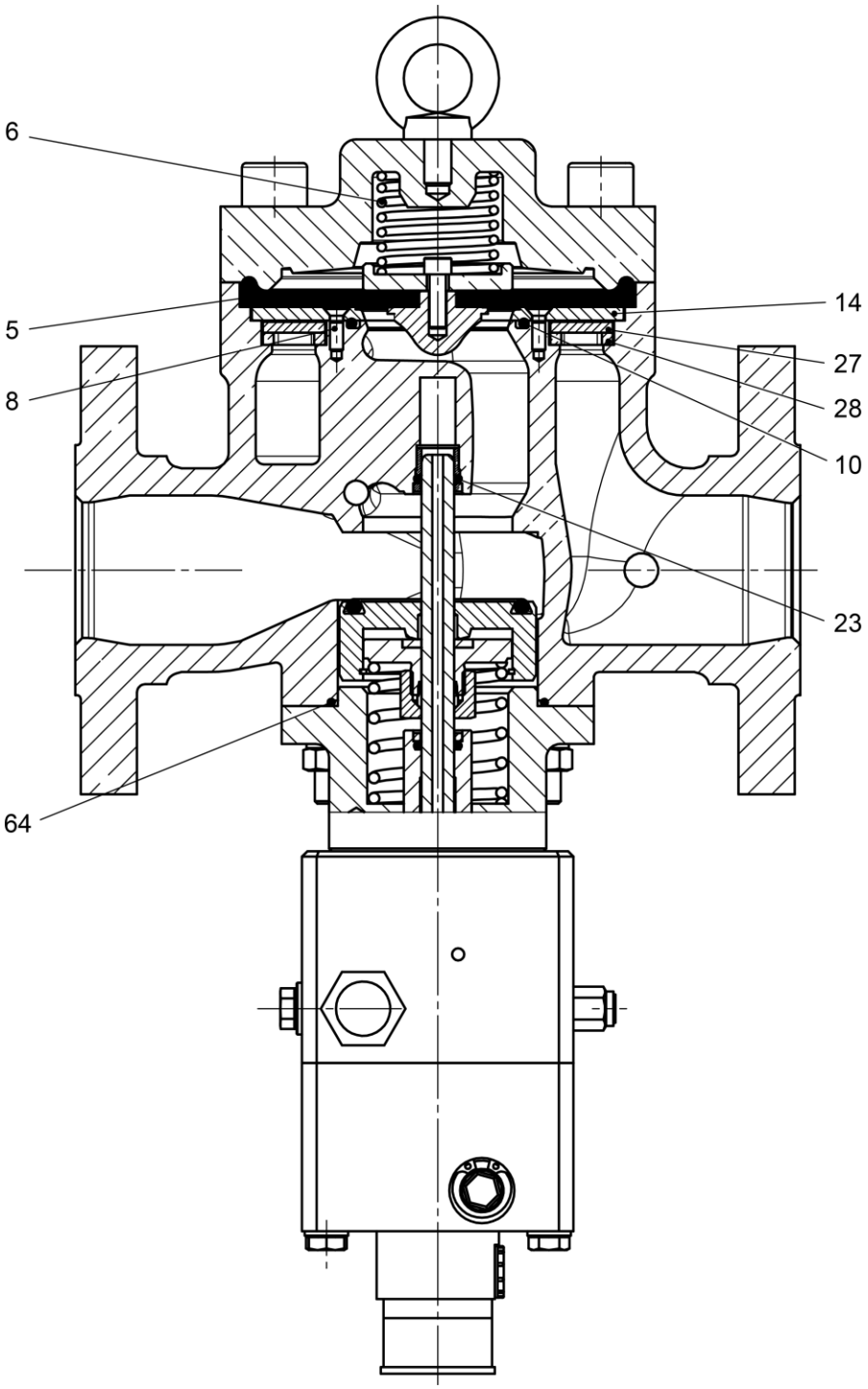
Nominal size	No. / Letter	Qty	Name	Part no.
1″			1" 5020 R300 series spare parts kit (standard model) -NBR Class 300/600	K5020-001
	5	1	Diaphragm, up to 50 / 70 DP	201/MJ/001
	10	1	O-ring NBR	730OAVN224
	21	1	O-ring NBR	20461-RMK
	23	2	O-ring	20658-RMK
	29	1	O-ring	20572
	57	1	Gasket	18842-RMK
	58	1	O-ring NBR	20336
	59	1	O-ring NBR	20398
	64.5	1	O-ring NBR	20226-RMK

Nominal size	No. / Letter	Qty	Name	Part no.
1″			1" 5020 R300 series spare parts kit (FKM/NBR model) Class 300/600	K5020-003
	5	1	Diaphragm, up to 50 / 70 DP	201/MJ/001
	10	1	O-ring FKM	730OMVV224
	21	1	O-ring FKM	20750
	23	2	O-ring	20658-RMK
	29	1	O-ring	20572
	57	1	Gasket	18842-RMK
	58	1	O-ring FKM	20599
	59	1	O-ring FKM	21114-RMK
	64.5	1	O-ring FKM	20751-RMK

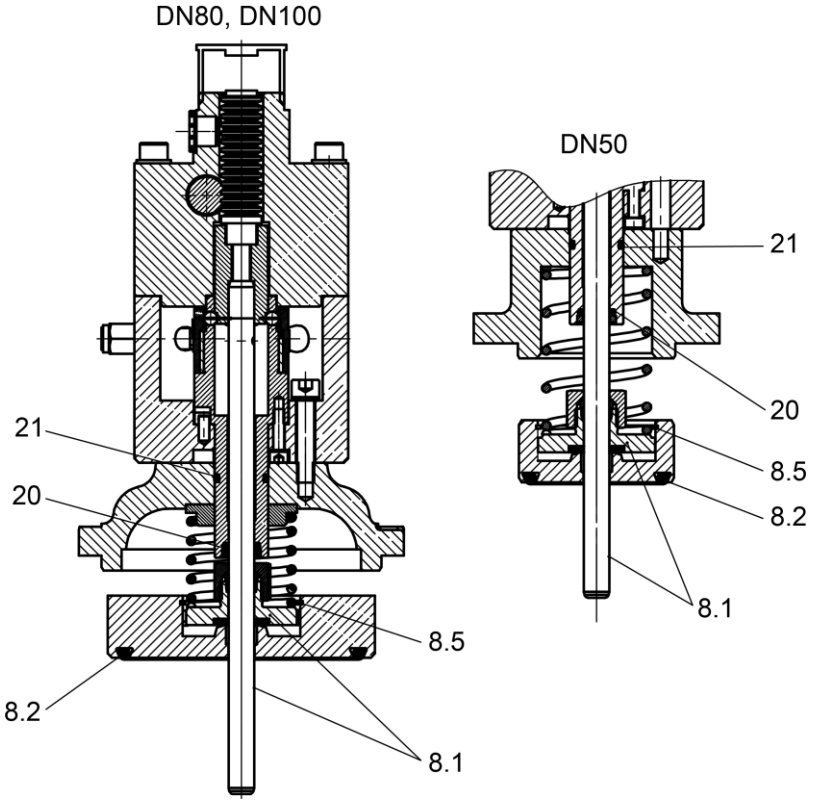
Nominal size	No. / Letter	Qty	Name	Part no.
1″			1" 5020 R300 series spare parts kit (low-temperature model) Class 300/600	K5020-002
	5	1	Diaphragm, up to 50 / 70 DP	201/MJ/001
	10	1	Low-temperature NBR O-ring	730ODVN224
	21	1	Low-temperature NBR O-ring	20758
	23	2	O-ring	100445
	29	1	O-ring	20752
	57	1	Gasket	18842-RMK
	58	1	Low-temperature O-ring	100967-RMK
	59	1	Low-temperature O-ring	100968-RMK
	64.5	1	Low-temperature O-ring	100991-RMK

8.2 Spare parts for actuator assembly with triggering unit – 2", 3", 4" size

Spare parts drawing for actuator assembly without triggering unit – size of 2", 3", or 4"



Spare parts drawing for triggering unit for actuator assembly – size of 2", 3", or 4"



Maintenance and servicing parts for actuator assembly with triggering unit – size of 2", 3", or 4"

Nominal size	No. / Letter	Qty	Name	Part no.
2″	5	1		
			Diaphragm, up to 50 bar DP	202/MJ/012
			Diaphragm, up to 70 bar DP	202/MJ/013
2″	10	1		
			O-ring NBR	730OAVN229
			Low-temperature O-ring	730ODVN229
			O-ring FKM	730OMVV229
2″	6	1	Closing spring	SS1075
2″	8	4	Screws	710BCFE03010
2″	14	1		
			Flow restrictor, 100%	202/MZ/011
			Flow restrictor, 75%	202/MZ/019
			Flow restrictor, 50%	202/MZ/013
			Flow restrictor 25%	202/MZ/020
2″	27	1	Carrier plate	202/MN/001
2″	28	1	Metal foam	202/MF/001

Nominal size	No. / Letter	Qty	Name	Part no.
2″	23	1		
			Standard O-ring	20752-RMK
			Low-temperature O-ring	101461
2″	64	1		
			Low-temperature O-ring, DN50	102063-RMK
			O-ring NBR DN50	20246-RMK
			O-ring FKM DN50	20655-RMK
2″	8.1	1	Pre-assembled valve rod, DN50	10032454
2″	8.2	1		
			O-ring NBR DN50	20596-RMK
			O-ring FKM DN50	20377
			Low-temperature O-ring, DN50	101566-RMK
2″	8.5	1	SB 55 circlip	19127
2″	20	1		
			Standard O-ring	20752-RMK
			Low-temperature O-ring	101461
2″	21	1		
			O-ring NBR	20383
			O-ring FKM	20913
			Low-temperature O-ring	101462-RMK
3″	5	1		
			Diaphragm, up to 50 bar DP	203/MJ/013
			Diaphragm, up to 70 bar DP	203/MJ/014
3″	10	1		
			O-ring NBR	730OAVN238
			Low-temperature O-ring	730ODVN238
			O-ring FKM	730OMVV238
3″	6	1	Closing spring	SS1293
3″	8	6	Screws	710BCFE03010
3″	14	1		
			Flow restrictor, 100%	203/MZ/010
			Flow restrictor, 75%	203/MZ/018
			Flow restrictor, 50%	203/MZ/012
			Flow restrictor 25%	203/MZ/019

Nominal size	No. / Letter	Qty	Name	Part no.
3″	27	1	Carrier plate	203/MN/001
3″	28	1	Metal foam	203/MF/001
3″	23	1		
			Standard O-ring	20752-RMK
			Low-temperature O-ring	101461
3″	64	1		
			Low-temperature O-ring, DN80/100	101460-RMK
			O-ring NBR DN80/100	20427
			O-ring FKM DN80/100	20910-RMK
3″	8.1	1	Pre-assembled valve rod, DN80/100	10032455
3″	8.2	1		
			O-ring NBR DN80/100	20268-RMK
			O-ring FKM DN80/100	20640-RMK
			Low-temperature O-ring, DN80/100	101341-RMK
3″	8.5	1	SB 55 circlip	19127
3″	20	1		
			Standard O-ring	20752-RMK
			Low-temperature O-ring	101461
3″	21	1		
			O-ring NBR	20383
			O-ring FKM	20913
			Low-temperature O-ring	101462-RMK
4″	5	1		
			Diaphragm, up to 50 bar DP	204/MJ/003
			Diaphragm, up to 70 bar DP	204/MJ/004
4″	10	1		
			O-ring NBR	730OAVN244
			Low-temperature O-ring	730ODVN244
			O-ring FKM	730OMVV244
4″	6	1	Closing spring	10024055
4″	8	6	Screws	710BCFE03010

Nominal size	No. / Letter	Qty	Name	Part no.
4″	14	1		
			Flow restrictor, 100%	204/MZ/010
			Flow restrictor, 75%	204/MZ/016
			Flow restrictor, 50%	204/MZ/012
			Flow restrictor 25%	204/MZ/017
4″	27	1	Carrier plate	204/MN/002
4″	28	1	Metal foam	204/MF/001
4″	23	1		
			Standard O-ring	20752-RMK
			Low-temperature O-ring	101461
4″	64	1		
			Low-temperature O-ring, DN80/100	101460-RMK
			O-ring NBR DN80/100	20427
			O-ring FKM DN80/100	20910-RMK
4″	8.1	1	Pre-assembled valve rod, DN80/100	10032455
4″	8.2	1		
			O-ring NBR DN80/100	20268-RMK
			O-ring FKM DN80/100	20640-RMK
			Low-temperature O-ring, DN80/100	101341-RMK
4″	8.5	1	SB 55 circlip	19127
4″	20	1		
			Standard O-ring	20752-RMK
			Low-temperature O-ring	101461
4″	21	1		
			O-ring NBR	20383
			O-ring FKM	20913
			Low-temperature O-ring	101462-RMK

Spare parts kits for actuator assembly with triggering unit – size of 2", 3", or 4"

Nominal size	No. / Letter	Qty	Name	Part no.
2"			2" 5020 R300 series spare parts kit (standard model) -NBR Class 150/300, PN 16/25/40	K5020-004
	5	1	Diaphragm, up to 50 bar DP	202/MJ/012
	10	1	O-ring NBR	730OAVN229
	23	1	Standard O-ring	20752-RMK
	64	1	O-ring NBR DN50	20246-RMK
	8.1	1	Pre-assembled valve rod, DN50	10032454
	8.2	1	O-ring NBR DN50	20596-RMK
	8.5	1	SB 55 circlip	19127
	20	1	Standard O-ring	20752-RMK
	21	1	O-ring NBR	20383

Nominal size	No. / Letter	Qty	Name	Part no.
2"			2" 5020 R300 series spare parts kit (low-temperature model) Class 150/300, PN 16/25/40	K5020-005
	5	1	Diaphragm, up to 50 bar DP	202/MJ/012
	10	1	Low-temperature O-ring	730ODVN229
	23	1	Low-temperature O-ring	101461
	64	1	Low-temperature O-ring, DN50	102063-RMK
	8.1	1	Pre-assembled valve rod, DN50	10032454
	8.2	1	Low-temperature O-ring, DN50	101566-RMK
	8.5	1	SB 55 circlip	19127
	20	1	Low-temperature O-ring	101461
	21	1	Low-temperature O-ring	101462-RMK

Nominal size	No. / Letter	Qty	Name	Part no.
2"			2" 5020 R300 series spare parts kit (FKM/NBR model) Class 150/300, PN 16/25/40	K5020-006
	5	1	Diaphragm, up to 50 bar DP	202/MJ/012
	10	1	O-ring FKM	7300MVV229
	23	1	Standard O-ring	20752-RMK
	64	1	O-ring FKM DN50	20655-RMK
	8.1	1	Pre-assembled valve rod, DN50	10032454
	8.2	1	O-ring FKM DN50	20377
	8.5	1	SB 55 circlip	19127
	20	1	Standard O-ring	20752-RMK
	21	1	O-ring FKM	20913

Nominal size	No. / Letter	Qty	Name	Part no.
2"			2" 5020 R300 series spare parts kit (standard model) -NBR Class 600	K5020-007
	5	1	Diaphragm, up to 70 bar DP	202/MJ/013
	10	1	O-ring NBR	7300AVN229
	23	1	Standard O-ring	20752-RMK
	64	1	O-ring NBR DN50	20246-RMK
	8.1	1	Pre-assembled valve rod, DN50	10032454
	8.2	1	O-ring NBR DN50	20596-RMK
	8.5	1	SB 55 circlip	19127
	20	1	Standard O-ring	20752-RMK
	21	1	O-ring NBR	20383

Nominal size	No. / Letter	Qty	Name	Part no.
2"			2" 5020 R300 series spare parts kit (low-temperature model) Class 600	K5020-008
	5	1	Diaphragm, up to 70 bar DP	202/MJ/013
	10	1	Low-temperature O-ring	730ODVN229
	23	1	Low-temperature O-ring	101461
	64	1	Low-temperature O-ring, DN50	102063-RMK
	8.1	1	Pre-assembled valve rod, DN50	10032454
	8.2	1	Low-temperature O-ring, DN50	101566-RMK
	8.5	1	SB 55 circlip	19127
	20	1	Low-temperature O-ring	101461
	21	1	Low-temperature O-ring	101462-RMK

Nominal size	No. / Letter	Qty	Name	Part no.
2"			2" 5020 R300 series spare parts kit (FKM/NBR model) Class 600	K5020-009
	5	1	Diaphragm, up to 70 bar DP	202/MJ/013
	10	1	O-ring FKM	730OMVV229
	23	1	Standard O-ring	20752-RMK
	64	1	O-ring FKM DN50	20655-RMK
	8.1	1	Pre-assembled valve rod, DN50	10032454
	8.2	1	O-ring FKM DN50	20377
	8.5	1	SB 55 circlip	19127
	20	1	Standard O-ring	20752-RMK
	21	1	O-ring FKM	20913

Nominal size	No. / Letter	Qty	Name	Part no.
3″			3" 5020 R300 series spare parts kit (standard model) -NBR Class 150/300, PN 16/25/40	K5020-010
	5	1	Diaphragm, up to 50 bar DP	203/MJ/013
	10	1	O-ring NBR	730OAVN238
	23	1	Standard O-ring	20752-RMK
	64	1	O-ring NBR DN80/100	20427
	8.1	1	Pre-assembled valve rod, DN80/100	10032455
	8.2	1	O-ring NBR DN80/100	20268-RMK
	8.5	1	SB 55 circlip	19127
	20	1	Standard O-ring	20752-RMK
	21	1	O-ring NBR	20383

Nominal size	No. / Letter	Qty	Name	Part no.
3″			3" 5020 R300 series spare parts kit (low-temperature model) Class 150/300, PN 16/25/40	K5020-011
	5	1	Diaphragm, up to 50 bar DP	203/MJ/013
	10	1	Low-temperature O-ring	730ODVN238
	23	1	Low-temperature O-ring	101461
	64	1	Low-temperature O-ring	101460-RMK
	8.1	1	Pre-assembled valve rod, DN80/100	10032455
	8.2	1	Low-temperature O-ring	101341-RMK
	8.5	1	SB 55 circlip	19127
	20	1	Low-temperature O-ring	101461
	21	1	Low-temperature O-ring	101462-RMK

Nominal size	No. / Letter	Qty	Name	Part no.
3″			3" 5020 R300 series spare parts kit (FKM/NBR model) Class 150/300, PN 16/25/40	K5020-012
	5	1	Diaphragm, up to 50 bar DP	203/MJ/013
	10	1	O-ring FKM	730OMVV238
	23	1	Standard O-ring	20752-RMK
	64	1	O-ring FKM DN80/100	20910-RMK
	8.1	1	Pre-assembled valve rod, DN80/100	10032455
	8.2	1	O-ring FKM DN80/100	20640-RMK
	8.5	1	SB 55 circlip	19127
	20	1	Standard O-ring	20752-RMK
	21	1	O-ring FKM	20913

Nominal size	No. / Letter	Qty	Name	Part no.
3″			3" 5020 R300 series spare parts kit (standard model) -NBR Class 600	K5020-013
	5	1	Diaphragm, up to 70 bar DP	203/MJ/014
	10	1	O-ring NBR	730OAVN238
	23	1	Standard O-ring	20752-RMK
	64	1	O-ring NBR DN80/100	20427
	8.1	1	Pre-assembled valve rod, DN80/100	10032455
	8.2	1	O-ring NBR DN80/100	20268-RMK
	8.5	1	SB 55 circlip	19127
	20	1	Standard O-ring	20752-RMK
	21	1	O-ring NBR	20383

Nominal size	No. / Letter	Qty	Name	Part no.
3″			3" 5020 R300 series spare parts kit (low-temperature model) Class 600	K5020-014
	5	1	Diaphragm, up to 70 bar DP	203/MJ/014
	10	1	Low-temperature O-ring	730ODVN238
	23	1	Low-temperature O-ring	101461
	64	1	Low-temperature O-ring	101460-RMK
	8.1	1	Pre-assembled valve rod, DN80/100	10032455
	8.2	1	Low-temperature O-ring	101341-RMK
	8.5	1	SB 55 circlip	19127
	20	1	Low-temperature O-ring	101461
	21	1	Low-temperature O-ring	101462-RMK

Nominal size	No. / Letter	Qty	Name	Part no.
3″			3" 5020 R300 series spare parts kit (FKM/NBR model) Class 600	K5020-015
	5	1	Diaphragm, up to 70 bar DP	203/MJ/014
	10	1	O-ring FKM	730OMVV238
	23	1	Standard O-ring	20752-RMK
	64	1	O-ring FKM DN80/100	20910-RMK
	8.1	1	Pre-assembled valve rod, DN80/100	10032455
	8.2	1	O-ring FKM DN80/100	20640-RMK
	8.5	1	SB 55 circlip	19127
	20	1	Standard O-ring	20752-RMK
	21	1	O-ring FKM	20913

Nominal size	No. / Letter	Qty	Name	Part no.
4″			4" 5020 R300 series spare parts kit (standard model) -NBR Class 150/300, PN 16/25/40	K5020-016
	5	1	Diaphragm, up to 50 bar DP	204/MJ/003
	10	1	O-ring NBR	730OAVN244
	23	1	Standard O-ring	20752-RMK
	64	1	O-ring NBR DN80/100	20427
	8.1	1	Pre-assembled valve rod, DN80/100	10032455
	8.2	1	O-ring NBR DN80/100	20268-RMK
	8.5	1	SB 55 circlip	19127
	20	1	Standard O-ring	20752-RMK
	21	1	O-ring NBR	20383

Nominal size	No. / Letter	Qty	Name	Part no.
4″			4" 5020 R300 series spare parts kit (low-temperature model) Class 150/300, PN 16/25/40	K5020-017
	5	1	Diaphragm, up to 50 bar DP	204/MJ/003
	10	1	Low-temperature O-ring	730ODVN244
	23	1	Low-temperature O-ring	101461
	64	1	Low-temperature O-ring	101460-RMK
	8.1	1	Pre-assembled valve rod, DN80/100	10032455
	8.2	1	Low-temperature O-ring	101341-RMK
	8.5	1	SB 55 circlip	19127
	20	1	Low-temperature O-ring	101461
	21	1	Low-temperature O-ring	101462-RMK

Nominal size	No. / Letter	Qty	Name	Part no.
4″			4" 5020 R300 series spare parts kit (FKM/NBR model) Class 150/300, PN 16/25/40	K5020-018
	5	1	Diaphragm, up to 50 bar DP	204/MJ/003
	10	1	O-ring FKM	730OMVV244
	23	1	Standard O-ring	20752-RMK
	64	1	O-ring FKM DN80/100	20910-RMK
	8.1	1	Pre-assembled valve rod, DN80/100	10032455
	8.2	1	O-ring FKM DN80/100	20640-RMK
	8.5	1	SB 55 circlip	19127
	20	1	Standard O-ring	20752-RMK
	21	1	O-ring FKM	20913

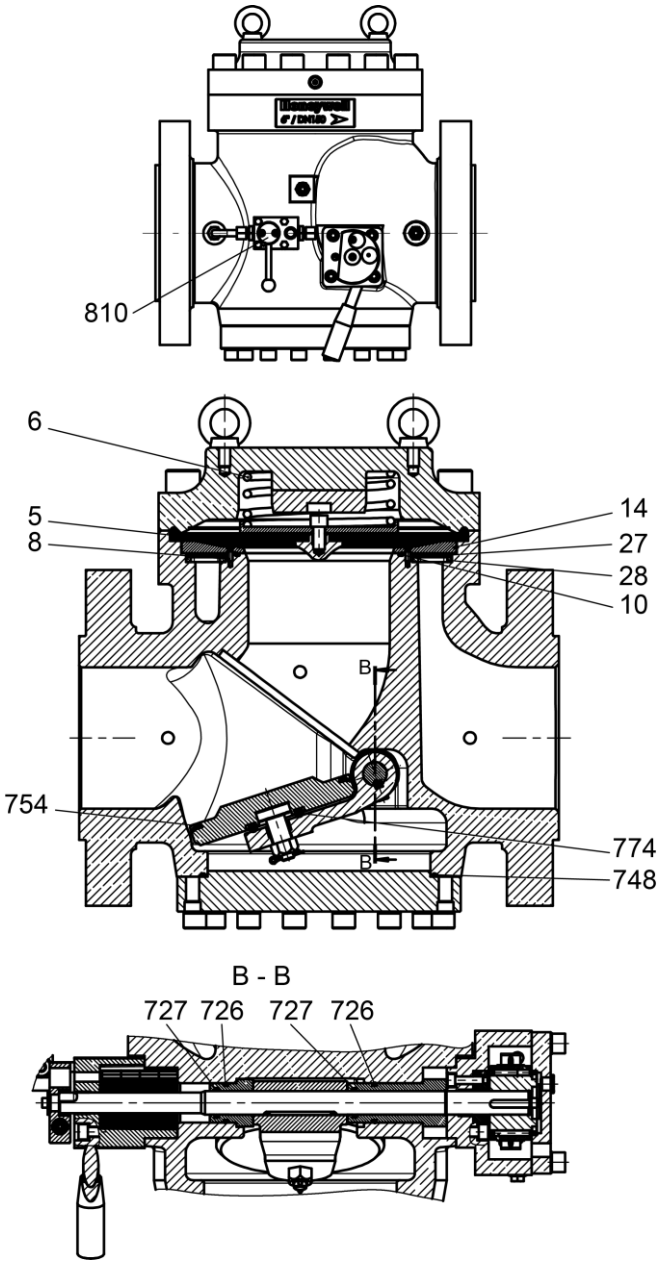
Nominal size	No. / Letter	Qty	Name	Part no.
4″			4" 5020 R300 series spare parts kit (standard model) -NBR Class 600	K5020-019
	5	1	Diaphragm, up to 70 bar DP	204/MJ/004
	10	1	O-ring NBR	730OAVN244
	23	1	Standard O-ring	20752-RMK
	64	1	O-ring NBR DN80/100	20427
	8.1	1	Pre-assembled valve rod, DN80/100	10032455
	8.2	1	O-ring NBR DN80/100	20268-RMK
	8.5	1	SB 55 circlip	19127
	20	1	Standard O-ring	20752-RMK
	21	1	O-ring NBR	20383

Nominal size	No. / Letter	Qty	Name	Part no.
4″			4" 5020 R300 series spare parts kit (low-temperature model) Class 600	K5020-020
	5	1	Diaphragm, up to 70 bar DP	204/MJ/004
	10	1	Low-temperature O-ring	730ODVN244
	23	1	Low-temperature O-ring	101461
	64	1	Low-temperature O-ring	101460-RMK
	8.1	1	Pre-assembled valve rod, DN80/100	10032455
	8.2	1	Low-temperature O-ring	101341-RMK
	8.5	1	SB 55 circlip	19127
	20	1	Low-temperature O-ring	101461
	21	1	Low-temperature O-ring	101462-RMK

Nominal size	No. / Letter	Qty	Name	Part no.
4″			4" 5020 R300 series spare parts kit (FKM/NBR model) Class 600	K5020-021
	5	1	Diaphragm, up to 70 bar DP	204/MJ/004
	10	1	O-ring FKM	730OMVV244
	23	1	Standard O-ring	20752-RMK
	64	1	O-ring FKM DN80/100	20910-RMK
	8.1	1	Pre-assembled valve rod, DN80/100	10032455
	8.2	1	O-ring FKM DN80/100	20640-RMK
	8.5	1	SB 55 circlip	19127
	20	1	Standard O-ring	20752-RMK
	21	1	O-ring FKM	20913

8.3 Spare parts for actuator assembly with triggering unit – 6" size

Spare parts drawing for actuator assembly with triggering unit – 6" size



Maintenance and servicing parts for actuator assembly with triggering unit – 6" size

Nominal size	No. / Letter	Qty	Name	Part no.
6″	5	1	Diaphragm 50/70 bar DP	10011307
6″	10	1		
			O-ring NBR	730ODVN261
			Low-temperature O-ring	730ODVN261
			O-ring FKM	730OMVV261
6″	6	1	Closing spring	10011249
6″	8	6	Screws	710BCFE03010

Nominal size	No. / Letter	Qty	Name	Part no.
6″	14	1		
			Flow restrictor, 100%	206/MZ/002
			Flow restrictor, 75%	206/MZ/010
			Flow restrictor, 50%	206/MZ/006
			Flow restrictor 25%	206/MZ/011
6″	27	1	Carrier plate	206/MN/001
6″	28	1	Metal foam	206/MF/001
6″	726	2		
			O-ring NBR	20336
			Low-temperature O-ring	100967-RMK
			O-ring FKM	20599
6″	727	2		
			O-ring NBR	20251-RMK
			Low-temperature O-ring	101036-RMK
			O-ring FKM	20600-RMK
6″	748	1		
			O-ring NBR	21193
			Low-temperature O-ring	101037-RMK
			O-ring FKM	21223-RMK
6″	754	1		
			O-ring NBR	20338
			Low-temperature O-ring	101035-RMK
			O-ring FKM	20610
6″	774	1	O-ring	100399-RMK
6″	810	1	HON 910 push-button valve	89100210

Spare parts kits for actuator assembly with triggering unit – 6" size

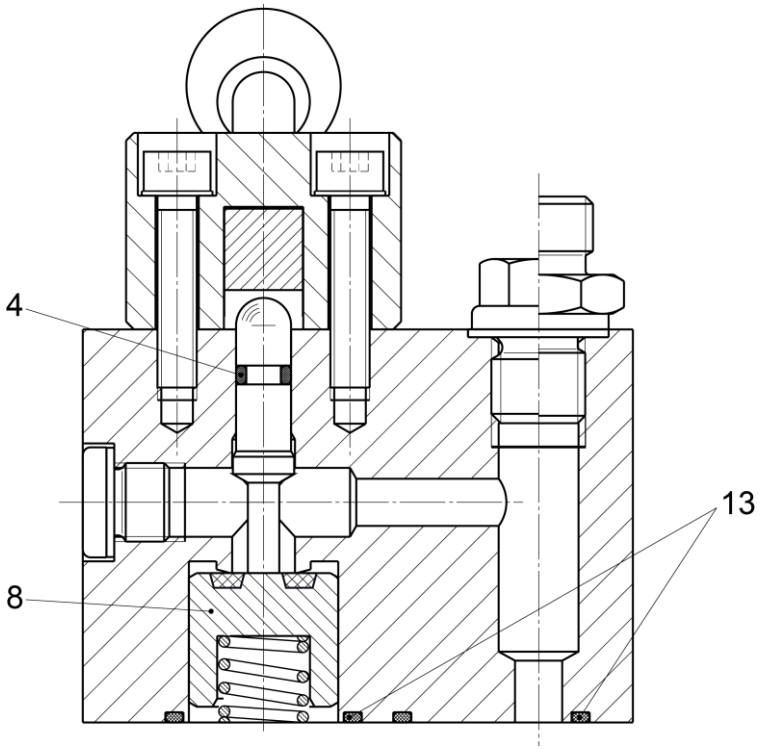
Nominal size	No. / Letter	Qty	Name	Part no.
6″			6" 5020 R300 series spare parts kit (standard model) -NBR Class 300/600	K5020-022
	5	1	Diaphragm 50/70 bar DP	10011307
	10	1	O-ring NBR	730ODVN261
	726	2	O-ring NBR	20336
	727	2	O-ring NBR	20251-RMK
	748	1	O-ring NBR	21193
	754	1	O-ring NBR	20338
	774	1	O-ring NBR	100399-RMK

Nominal size	No. / Letter	Qty	Name	Part no.
6″			6" 5020 R300 series spare parts kit (low-temperature model) Class 300/600	K5020-023
	5	1	Diaphragm 50/70 bar DP	10011307
	10	1	Low-temperature O-ring	730ODVN261
	726	2	Low-temperature O-ring	100967-RMK
	727	2	Low-temperature O-ring	101036-RMK
	748	1	Low-temperature O-ring	101037-RMK
	754	1	Low-temperature O-ring	101035-RMK
	774	1	Low-temperature O-ring	100399-RMK

Nominal size	No. / Letter	Qty	Name	Part no.
6″			6" 5020 R300 series spare parts kit (FKM/NBR model) Class 300/600	K5020-024
	5	1	Diaphragm 50/70 bar DP	10011307
	10	1	O-ring FKM	730OMVV261
	726	2	O-ring FKM	20599
	727	2	O-ring FKM	20600-RMK
	748	1	O-ring FKM	21223-RMK
	754	1	O-ring FKM	20610
	774	1	O-ring FKM	100399-RMK

8.4 Spare parts for HON 910 push-button valve for actuator assembly with 6" size

Spare parts drawing for HON 910 push-button valve



Maintenance parts for HON 910 push-button valve

No. / Letter	Qty	Name	Part no.
4	1		
		O-ring NBR	20309
		O-ring FKM	20794-RMK
8	1	Piston	10022595
13	2		
		O-ring FKM	20926-RMK
		O-ring NBR	20232-RMK

8.5 Lubricants

Lubricants

Important! All parts must be slightly greased.

Use the following lubricants:

Application	Remark	Lubricant	Part no.
O-rings Stationary and moving		**Standard model:**	
Flat gaskets		Silicone grease (jar)	27079
Diaphragms	Grease the diaphragm grip body on all sides	Silicone grease (tube)	27081
	Do NOT grease the flat grip		
Valve rod sliding surfaces	Grease film only	**Low-temperature model:**	
Sliding guides		Silicone grease (jar)	27993
Guide bushings			
Moving parts in SAV controlgear and switchgear		**High-temperature model:**	
Switch jacks and locking sleeves		PFPE grease	102389
Control balls and control rollers			
Ball bearing			
Valve sleeves and valve sleeve gaskets in gas pressure regulators		Silicone grease	27052
Setpoint set screws Power screws		Assembly paste	27091
Thread material combination: Al/Al			
Screw-in fittings and fastening screws			
Spring plate depressions (pilot)			
Devices for oxygen **Important!** Oil-free and grease-free installation; only antiseize agents are permissible	Upper oxygen pressure limit: 260 bar at 60 °C	Antiseize agent	28211
Devices for ammonia		Antiseize agent	28211

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.

Honeywell Process Solutions

1250 West Sam Houston Parkway South
Houston, TX 77042
Phone: 1-602-293-1866 Option 4

Honeywell Gas Technologies GmbH
Osterholzstrasse 45
23123 Kassel, Germany
Phone: +49 (0) 561 5007000

Emaar Business Park, Building 2,
Sheikh Zayed Road, PO Box 232362
Dubai, United Arab Emirates
Phone: +97144505800

Honeywell Engineering Sdn Bhd
1st Floor, Block B, No.10
Jalan Bersaru 13/4
46200, Petailing Jaya Selangor DE,
Malaysia
Phone: +603 7626 57000

A1 Building, C&W Industry Zone
No.14, Jiuxiangqiao Rd., Chaoyang
District, Beijing, P.R. China 100015
Phone: +8610-56696001

www.honeywellprocess.com
www.hongastec.de

August 2018

Honeywell

THE POWER OF **CONNECTED**