

## EPVA



### **Automatic shut-off valve, pneumatic valve (NC)**

Operating and maintenance instructions

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Read instructions carefully before use. The operating instructions must always be available at the system's place of use.

## Table of contents

<b>1</b>	<b>Explanation of symbols</b>	<b>3</b>
<b>2</b>	<b>Safety</b>	<b>3</b>
2.1	General safety	3
2.2	Safety during operation in potentially explosive atmospheres	4
2.3	Other applicable information	4
<b>3</b>	<b>Intended readers</b>	<b>4</b>
<b>4</b>	<b>Scope of delivery</b>	<b>4</b>
<b>5</b>	<b>Intended use</b>	<b>5</b>
<b>6</b>	<b>Technical specifications</b>	<b>5</b>
6.1	Dimensions	6
<b>7</b>	<b>Technical description</b>	<b>9</b>
7.1	Function	9
7.2	Identification	9
<b>8</b>	<b>Transport</b>	<b>9</b>
<b>9</b>	<b>Storage</b>	<b>10</b>
<b>10</b>	<b>Installation</b>	<b>10</b>
10.1	Notes on installation	10
10.2	Installing the valve	11
10.3	Connecting the valve pneumatically	11
10.4	Connecting the valve electrically	12
<b>11</b>	<b>Commissioning</b>	<b>12</b>
<b>12</b>	<b>Decommissioning</b>	<b>12</b>
<b>13</b>	<b>Maintenance</b>	<b>12</b>
13.1	Maintenance intervals	13
13.2	Maintenance at the plant operator	13
13.3	Maintenance at the manufacturer	14
13.4	Installing the spare parts kit	14
<b>14</b>	<b>Disassembly</b>	<b>16</b>
<b>15</b>	<b>Troubleshooting</b>	<b>16</b>
15.1	Troubleshooting chart	16
<b>16</b>	<b>Disposal</b>	<b>17</b>
<b>17</b>	<b>Parts list</b>	<b>17</b>

## 1 Explanation of symbols

### **Danger**

#### **Danger to life**

- This symbol in conjunction with the signal word “Danger” indicates a hazardous situation that will lead to death or serious injury.

### **Warning**

#### **Serious injuries!**

- This symbol in conjunction with the signal word “Warning” indicates a hazardous situation that can lead to death or serious injury.

### **Caution**

#### **Slight to moderate injuries!**

- This symbol in conjunction with the signal word “Caution” indicates a hazardous situation that can lead to minor or moderate injury.

### **Attention**

#### **Material damage!**

- Indicates a situation that can lead to damage to property and the environment.

### **Note**

Supplementary information on operating the product.

## 2 Safety

The manufacturer accepts no liability for damage in the following cases:

- Assembly or connection errors
- Damage to the product due to mechanical influences and incorrect connection voltage
- Modifications to the product without the express permission of the manufacturer
- Use for purposes other than those described in the manual
- Welding on load-bearing parts
- Operating the valve without safety devices
- Attaching fittings, components and devices that are not part of the scope of delivery and are not approved by the manufacturer

### 2.1 General safety

- Before carrying out any work on the valve, de-energise and depressurise the device and secure it against being switched on again.
- Before working on the valve, depressurise the piping system.
- If the valve or its paintwork shows visible signs of damage, it must not be put into operation.
- Maintenance and repair work may only be carried out by personnel trained by the manufacturer who are familiar with the hazards involved and the relevant regulations.
- Leakages of hazardous media (e.g. explosive, toxic, hot) must be discharged in such a way that they do not pose a risk to persons or the environment.

## 2.2 Safety during operation in potentially explosive atmospheres

- The temperature of the medium must not exceed the maximum temperature of the corresponding temperature class, or the respective maximum permissible medium temperature (See "Technical specifications" on page 5).
- If the valve is heated, the temperature classes specified in the system must be observed.
- The valve must be earthed. In the simplest case, this can be implemented via the pipe screws by means of toothed lock washers. Otherwise, earthing must be ensured by other measures, e.g. cable bridges.
- Control valves, electric and electric/mechanical actuators, and sensors must be subjected to their own conformity assessment in accordance with ATEX. Special attention must be paid to the corresponding safety and explosion protection instructions in the relevant operating instructions.
- The product is not subject to directive 2014/34/EU, since no effective ignition source occurs under the loads that occur in practice, even in the event of a likely fault. This also applies to spring-loaded components in the medium-conveying space. In the case of electric actuators, sensors or other electric components, use must be checked separately in accordance with 2014/34/EU.
- Repainting the valve can lead to electrostatic charging processes, which would pose an ignition hazard. Subsequent painting voids the ATEX approval with immediate effect.
- Any modification to the valve is prohibited. Unauthorised modifications to the valve will invalidate the ATEX approval with immediate effect.
- Modifications are only permissible after consultation with the manufacturer.

### Note

Safety verification with regard to Directive 2014/68/EU Annex I

UNI valves must not be used or classified as equipment with a safety function as defined by the Pressure Equipment Directive 2014/68/EU Article 2 (4)( and Article 4 (1) (d) according to Category IV!

## 2.3 Other applicable information

Document	Document number
Documentation for the control valve	
Data sheet: overall fitting lengths DIN / ANSI	225.100.026

## 3 Intended readers

These operating instructions contain the essential information and instructions for installing and maintaining the valve. They are intended for skilled workers in installation companies who are familiar with the applicable guidelines and safety precautions when installing pipe systems. Only personnel trained by the manufacturer may carry out maintenance work.

## 4 Scope of delivery

### Note

Immediately after receipt, check that the goods are complete and free of defects. Report any damage to the valve or packaging to the shipping company immediately.

- Automatic shut-off valve with mounted control valve.
- Optional attachments
- Operating instructions for automatic shut-off valve
- Documentation for the control valve
- Operating instructions for optional attachments

## 5 Intended use



The EPVA pneumatic valves are used as automatic shut-off valves for securing, limiting, shutting off and releasing the gas and air supply at main shut-offs or upstream of gas burners.

The valves are suitable for the following gases:

- Gases corresponding to gas families according to DIN EN 437
- Gases of the 1st, 2nd and 3rd gas family
- Aggressive gases such as biogas, sewage gas or landfill gas (only as variant with corresponding material design)

If the valve is to be used with operating data other than the intended data, check carefully whether the design of the valve, accessories and materials is suitable for the new application. The system planner is responsible for the valve's area of application.

## 6 Technical specifications

	1-4-EPVA, 1-5-EPVA	2-4-EPVA, 2-7-EPVA	2.5-6-EPVA	3-4-EPVA	4-4-EPVA	6-4-EPVA
Valve class	A					
Group	2					
Operating pressure	0 – 100 kPA, 0 – 1 bar	0 – 200 kPA, 0 – 2 bar	0 – 250 kPA, 0 – 2.5 bar	0 – 300 kPA, 0 – 3 bar	0 – 400 kPA, 0 – 4 bar	0 – 600 kPA, 0 – 6 bar
Medium temperature - Standard - Optional	-20 °C to +60 °C See nameplate					
Ambient temperature	-20 °C to +60 °C					
Control medium	Air, nitrogen -20 °C to +60 °C					
Control pressure	Min. control pressure, second digit on nameplate. Max. control pressure 10 bar (e.g. 4–10 bar)					
Control air	The quality of the compressed air provided (control air) should comply with the recommended purity class 2 according to ISO 8573-1.					
Opening times	0.3 s – 2 s depending on nominal sizes					
Closing times	< 1 s					
Switching frequency	500 switching operations per hour					
Installation position (see nameplate)	Vertical actuator:  , horizontal actuator: 					

Further information on the electrical data can be found on the nameplate and in the control valve documentation.

## 6.1 Dimensions

Dimensions, A version (Fig. 1)

Flange connection acc. to DIN EN 1092-2 / ANSI

Series	DN	A	ANSI	B	B'	ØC	D	E
1-4-EPVA	80	310	3"	418	528	105	144	196
	150	480	6"	598	773	170	216	354
	200	600	8"	717	947	210	254	438
	250	730	10"	821	1096	265	282	518
	300	850	–	855	1185	265	282	553
1-5-EPVA	350	980	–	910	1300	265	290	580
1-4-EPVA	400	1100	–	998	1388	370	333	688
2-4-EPVA	50	230	2"	387	482	105	144	165
	65	290	2 1/2"	405	505	105	144	182
	125	400	–	565	720	170	216	321
	200	600	8"	759	994	265	282	456
2-7-EPVA	400	1100	–	980	1400	370	350	670
2.5-6-EPVA	150	480	6"	575	750	170	230	330
3-4-EPVA	40	200	1 1/2"	385	470	105	144	163
	100	350	4"	538	668	170	216	294
4-4-EPVA	150	480	6"	703	883	265	282	401
6-4-EPVA	15	130	1/2"	367	447	105	144	144
	20	150	3/4"	367	447	105	144	144
	25	160	1"	369	449	105	144	146
	40	200	1 1/2"	485	575	170	216	241
	50	230	2"	488	578	170	216	244
	65	290	2 1/2"	506	611	170	216	262
	80	310	3"	583	698	210	238	278
	100	350	4"	601	731	210	238	296
	125	400	–	670	825	265	282	368

**A** = overall length acc. to DIN (e.g. ANSI flanges and DIN overall length or DIN flanges and overall length)

**ANSI** = overall length according to ANSI (see data sheet for overall fitting lengths DIN / ANSI 225.100.026 on our homepage)

**B'** = dimension for dismantling the entire actuator

**Dimensions, H version (Fig. 2)**

Flange connection acc. to DIN EN 1092-2 / ANSI

Series	DN	A	ANSI	B	B'	ØC	D	E
<b>1-4-EPVA</b>	<b>80</b>	310	<b>3"</b>	424	534	105	144	201
	<b>150</b>	480	<b>6"</b>	594	769	170	216	350
	<b>200</b>	600	<b>8"</b>	719	949	210	254	440
	<b>250</b>	730	<b>10"</b>	800	1083	265	282	505
	<b>300</b>	850	–	–	–	–	–	–
<b>1-5-EPVA</b>	<b>350</b>	980	–	–	–	–	–	–
<b>1-4-EPVA</b>	<b>400</b>	1100	–	–	–	–	–	–
<b>2-4-EPVA</b>	<b>50</b>	230	<b>2"</b>	400	495	105	144	178
	<b>65</b>	290	<b>2 1/2"</b>	405	505	105	144	182
	<b>125</b>	400	–	569	724	170	216	325
	<b>200</b>	600	<b>8"</b>	759	994	265	282	456
<b>2-7-EPVA</b>	<b>400</b>	1100	–	–	–	–	–	–
<b>2.5-6-EPVA</b>	<b>150</b>	480	<b>6"</b>	594	769	170	216	350
<b>3-4-EPVA</b>	<b>40</b>	200	<b>1 1/2"</b>	385	470	105	144	176
	<b>100</b>	350	<b>4"</b>	544	674	170	216	300
<b>4-4-EPVA</b>	<b>150</b>	480	<b>6"</b>	699	879	265	282	396
<b>6-4-EPVA</b>	<b>15</b>	130	<b>1/2"</b>	377	457	105	144	154
	<b>20</b>	150	<b>3/4"</b>	377	457	105	144	154
	<b>25</b>	160	<b>1"</b>	377	457	105	144	154
	<b>40</b>	200	<b>1 1/2"</b>	487	577	170	216	243
	<b>50</b>	230	<b>2"</b>	502	592	170	216	258
	<b>65</b>	290	<b>2 1/2"</b>	513	618	170	216	269
	<b>80</b>	310	<b>3"</b>	588	703	210	238	283
	<b>100</b>	350	<b>4"</b>	607	737	210	238	302
	<b>125</b>	400	–	674	829	265	282	371

**A** = overall length acc. to DIN (e.g. ANSI flanges and DIN overall length or DIN flanges and overall length)

**ANSI** = overall length according to ANSI (see data sheet for overall fitting lengths DIN / ANSI 225.100.026 on our homepage)

**B'** = dimension for dismantling the entire actuator

Actuator types and air consumption in standard litres (NL) per circuit at 4 bar control pressure

DN flange ANSI flange	PN	15 1/2"	20 3/4"	25 1"	40 1 1/2"	50 2"	65 2 1/2"	Test pres- sure (*)
2-4-EPVA	16	-	-	-	-	KA 70 1 NL	KA 70 1 NL	PT 6
3-4-EPVA	16	-	-	-	KA 70 1 NL	-	-	PT 6
6-4-EPVA	16	KA 70 1 NL	KA 70 1 NL	KA 70 1 NL	KA 120 5 NL	KA 120 5 NL	KA 120 5 NL	PT 16

DN flange ANSI flange	PN	80 3"	100 4"	125 -	150 6"	200 8"	Test pres- sure (*)
1-4-EPVA	16	KA 70 1 NL	-	-	KA 120 5 NL	KA 160 10 NL	PT 6
2-4-EPVA	16	-	-	KA 120 5 NL	-	KA 200 17 NL	PT 6
2.5-6-EPVA	16	-	-	-	KA 120 5 NL	-	PT 6
3-4-EPVA	16	-	KA 120 5 NL	-	-	-	PT 6
4-4-EPVA	16	-	-	-	KA 200 17 NL	-	PT 6
6-4-EPVA	16	KA 160 10 NL	KA 160 10 NL	KA 200 17 NL	-	-	PT 16

DN flange ANSI flange	PN	250 10"	300 -	350 -	400 -	Test pres- sure (*)
1-4-EPVA	16	KA 200 17 NL	KA 200 17 NL	-	KA 250 27 NL	PT 6
1-5-EPVA	16	-	-	KA 200 22 NL	-	PT 6
2-7-EPVA	16	-	-	-	KA 250 27 NL	PT 6

(\*) Test pressure for checking the external tightness. **This test is not a functional test.**

For all valves: Type examination according to EU2016/426

-: not available

Air consumption for 10 bar control pressure: Multiply table values by 2.2.



## Maximum valve load due to pipeline forces

The specified torques must not be applied for longer than 10 s.

DN		8	10	15	20	25	32	40	50	65	80	100	125	≥150
Torsion <sup>1)</sup>	Nm	20	35	50	85	125	160	200	250	325	400	–	–	–
Bending	Nm	35	70	105	225	340	475	610	1100	1600	2400	5000	6000	7600

<sup>1)</sup> Not applicable for valves with flanges

## 7 Technical description

The EPVA pneumatic valve is a direct-operated, normally closed (NC), quick-closing automatic shut-off valve with pneumatic actuator.

The actuator is operated by a 3/2-way control valve with solenoid drive.

The valve has a service life of 20 years.

### 7.1 Function

The following item numbers refer to the respective valve in Fig. 5 – Fig. 9.

When the 3/2-way control valve (805) is opened, the control medium flows through port 3 → 2, the control medium flows below the drive piston (217). The control medium presses the drive piston (217) against the pressure springs (503) and, with the aid of the valve spindle (205), opens the pressurised valve disk (200). The valve is open.

The valve closes by interrupting the electrical energy to the control valve (805). The compressed control medium in the pneumatic actuator is discharged through the control valve (805) with quick-venting mechanism (601), if present.

### 7.2 Identification

The nameplate on the valve contains the following information:

- Manufacturer
- Valve type, nominal size, pressure and temperature specifications, installation position
- Year of manufacture / serial no.
- Valve class and valve group
- CE mark and number of the notified body
- Fluid group and PT test pressure
- Pneumatic actuator type
- Control medium,  $p_{\min}$  and  $p_{\max}$  for control medium

## 8 Transport

### Warning

#### Risk of crushing and impact during lifting and transport!

Due to the weight of the valve there is an increased risk of injury during transport.

- Have valve transported by trained personnel only.
- Wear sturdy boots and safety gloves during transport.
- Only use approved lifting tackle.
- Only use lifting equipment with a minimum load capacity greater than the weight of the component to be lifted.
- Only lift the valve from the intended transport brackets, ring nuts or housing. Never transport the valve on pipelines, components or attachments.
- Always keep a safe distance away from raised components.
- Never step under suspended loads.
- Never place the valve on pipelines, components or attachments.

**Attention**

**Material damage due to improper transport.**

The valve may be damaged by mechanical influences during transport.

- Protect the valve against shock, impact or vibration during transport.

**Material damage due to incorrect ambient temperature.**

If the ambient temperature is too high or too low, the valve may warp or the paint may be damaged.

- Only transport the valve at ambient temperatures between -20 and +60 °C.

1. Attach protective caps to the sides of the valve.
2. Secure the device with lifting tackle. Only attach the lifting tackle to the transport brackets, ring nuts or the housing. Transport the valve in a box or on a pallet with a soft underlay.
3. Place valve on level ground.

## 9 Storage

Store the valve and spare parts under the following conditions:

- Ambient temperature from -20 to +60 °C
- Max. humidity 40%
- Clean storage location
- Protect against sunlight

## 10 Installation

### 10.1 Notes on installation

**Warning**

**Risk of crushing due to moving actuators!**

Reaching into the device can lead to fatal injury from crushed and severed limbs.

- If the access point to the pipe system is less than 850 mm away from the valve or if the pipe is more than 500 mm in diameter, a safety guard must be installed.
- Protect the valve from the effects of weather, e.g. moisture.
- Before installation, compare the following valve specifications with the system diagram of the piping system:
  - Material
  - Pressure
  - Temperature
  - Voltage
  - Direction of flow
- Only connect and operate the valve when it is correctly installed.

See the nameplate for the valve's installation position.

The valve must not be used as a fixed point. The valve is supported by the piping system.

**For automatic shut-off valves:** Install a strainer upstream of the valve. Observe the direction of flow (→ in Fig. 5 – Fig. 9). The screen of the strainer must have the following characteristics:

- Clear mesh size ≤ 1.5 mm
- A test mandrel of Ø1 mm must not be able to pass through it.

When two valves are assembled in combination, one strainer is sufficient upstream of the first valve. UNI-Geräte strainers of the SFR series in combination with solenoid valves are approved for use according to EU/2016/426.

### Tightening torques

Greased pipe screws

DN		8	10	15	20	25	32	40	50	65	80	100	125	≥150
Torque	Nm	20	30	30	30	30	50	50	50	50	50	80	160	160

Greased product bolts and nuts

Bolt		M6	M8	M10	M12	M16	M20	M24
Torque	Nm	5	11	22	39	70	110	150

## 10.2 Installing the valve

### Warning

#### Risk of crushing and impact during lifting and transport!

Due to the weight of the valve there is an increased risk of injury during transport.


- Have valve transported by trained personnel only.
- Wear sturdy boots and safety gloves during transport.
- Only use approved lifting tackle.
- Only use lifting equipment with a minimum load capacity greater than the weight of the component to be lifted.
- Only lift the valve from the intended transport brackets, ring nuts or housing. Never transport the valve on pipelines, components or attachments.
- Always keep a safe distance away from raised components.
- Never step under suspended loads.
- Never place the valve on pipelines, components or attachments.

### Attention

#### If there is tension, the actuators may jam.

If the actuators jam, it may no longer be possible to reposition them.

- During installation, make sure that the valve is fitted in the pipeline without any strain.
- Compensate for thermal expansion of the pipeline with expansion joints.

1. Suspend the valve separately and align it as required. Observe the direction of flow (see markings on the valve and  in Fig. 5 – Fig. 6).
2. Protect valves from dirt.
3. Remove the protective caps.
4. Check the inside of the valve and the pipeline and, if necessary, clean them to remove any foreign particles.
5. Centre the seals between the connecting flanges. The connecting flanges must be aligned.
6. Tighten the flange screw connections. Observe the tightening torques (See "Tightening torques" on page 10).
7. Install the solenoid drive of the control valve as described in the documentation for the control valve.
8. Install an air filter upstream of the control valve. Mesh size: 40 µm.

## 10.3 Connecting the valve pneumatically

1. Connect the control air to port 3 (see Fig. 8 – Fig. 9).

## 10.4 Connecting the valve electrically

### Warning

#### **Risk of crushing due to moving actuators!**

Reaching into the device can lead to fatal injury from crushed and severed limbs.

- Only connect and operate the valve when it is correctly installed.

#### **Danger of electric shock!**

Live conductors pose a hazard when working on the valve.

- Before working on the valve, de-energise the electrical control line and secure it against being switched on again.

1. Connect the solenoid drive of the control valve to the electrical control system as described in the manufacturer's documentation (See "Other applicable information" on page 4).

## 11 Commissioning

### Warning

#### **Risk of fatal injury due to leaking piping system and missing protective devices!**

Operating an incorrectly or incompletely installed piping system can lead to life-threatening injuries due to escaping media.

- Ensure that all work on the piping system has been completed.
- Ensure that all protective devices are intact and correctly fitted.
- Ensure that the piping system is free of contamination.

1. Perform a leakage test.

## 12 Decommissioning

1. Depressurise the piping system.
2. Allow the medium in the piping system to cool down.
3. Drain the system.
4. Ventilate the piping system if media with one of the following properties are used:
  - Corrosive
  - Flammable
  - Aggressive
  - Toxic
5. Switch off the control valve (805).

## 13 Maintenance

### Warning

#### **Danger to life due to improperly maintained valves!**

If the valves are maintained at intervals that are too long or by untrained personnel, this can lead to life-threatening injuries from escaping media.

- Observe the maintenance intervals specified in the maintenance schedule.
- Maintenance should only be carried out by personnel trained by the manufacturer.

### Note

For dates and prices of manufacturer training courses, please contact the sales department (see cover sheet).

### 13.1 Maintenance intervals

Pneumatic valves must be checked at regular intervals for function and internal leak tightness. The intervals for regular checks must be determined by the operator according to the operating conditions.

**Uni-Geräte prescribes the following maintenance intervals:**

- Annually:  
External visual inspection, as well as function test and internal and external leakage test (See “External visual inspection” on page 13).
- Every five years (only for valves for which spare parts kits are available):  
Internal visual inspection with replacement of all sealing elements. Then perform a functional test and an internal and external leakage test (See “Internal visual inspection with replacement of all sealing elements” on page 13).
- Every ten years or at the latest after the following number of switching cycles:

Operating temperature	DN ≤ 25	≤ DN 80	≤ DN 150	> DN 150
≤ 25°C	150,000	75,000	25,000	20,000
> 25°C	50,000	25,000	25,000	5,000

Complete revision of the valve by the manufacturer (See “Maintenance at the manufacturer” on page 14).

**UNI-Geräte prescribes the following maintenance intervals for valves with SIL requirements:**

The safety requirements with regard to the maintenance intervals to be adhered are described in the **SIL manual** of the type series and must be complied with.

### 13.2 Maintenance at the plant operator

#### External visual inspection

1. Check the valve and the paint for obvious damage and corrosion.
2. Check the valve for internal leaks.
3. Check the valve for external leaks.
4. Subject the valve to a functional test.
5. **In the event of damage or reduced function:** Replace the complete valve. Contact the manufacturer.

#### Internal visual inspection with replacement of all sealing elements

#### Warning

#### Risk of crushing and impact during lifting and transport!

Due to the weight of the valve there is an increased risk of injury during transport.

- Have valve transported by trained personnel only.
- Wear sturdy boots and safety gloves during transport.
- Only use approved lifting tackle.
- Only use lifting equipment with a minimum load capacity greater than the weight of the component to be lifted.
- Only lift the valve from the intended transport brackets, ring nuts or housing. Never transport the valve on pipelines, components or attachments.
- Always keep a safe distance away from raised components.
- Never step under suspended loads.
- Never place the valve on pipelines, components or attachments.

#### Note

A flat gasket (402) must be present to perform the internal visual inspection.

An internal visual inspection is only possible on the following models (see Fig. 9):

- 2-4-EPVA 20N(H)..
- 6-4-EPVA 20NH..
- ...-EPVA...N(H).. DN65 – DN400

1. Remove the valve from the system (See “Disassembly” on page 16).
2. Set down the removed valve in an upright position. The pneumatic actuator must be pointing upwards.
3. Install the shut-off valve in the actuator connection.
4. Apply control medium to the pneumatic actuator within the permissible pressure range.
5. Close the shut-off valve.
- ✓ The valve is open.
6. Secure the pneumatic actuator to prevent it falling down.
7. Loosen the hexagon head screws (900).
8. Remove the pneumatic actuator vertically upwards from the valve housing using a suitable hoist.
9. Check the following items (see Fig. 5 and Fig. 7 – Fig. 9):
  - Damage to the valve seat (100)
  - Damage to the valve disk sealing (400)
  - Residue in the sound absorber (600)
  - Damage due to corrosion
10. Clean the sound absorbers (600) on the quick-venting mechanism (601) and control valve (805).
11. Before reassembling the valve chamber / housing (100), grease the top with Staburags N32 lubricant or equivalent (DVGW approved).
12. Replace the flat gasket (402), install it properly and do not damage it during assembly.
13. Place the pneumatic actuator vertically from above on the valve housing using a suitable hoist.
14. Tighten the hexagon head screws (900).
15. Slowly open the shut-off valve.
- ✓ The spring in the pneumatic actuator relaxes and the valve disc moves into the valve housing.
16. **If there is damage to the valve seat:** Replace the complete valve.
17. **If there is damage to the sealing elements:** Install the spare parts kit (Page 14).
18. Check the valve for internal leaks.
19. Check the valve for external leaks.
20. Subject the valve to a functional test.
21. Install the valve in the system (See “Installation” on page 10).

### 13.3 Maintenance at the manufacturer

If repair or maintenance work is to be carried out at the manufacturer's site, take the following steps before delivery:

1. Clean any substances harmful to health or the environment from the valves.
2. Complete the decontamination declaration and enclose it with the valve.

### 13.4 Installing the spare parts kit

#### Danger

##### **Risk of injury due to spring dome jumping out!**

The spring dome is under spring tension. If the valve is opened improperly, the spring dome may jump out of the body.

- Leave at least two stud bolts screwed into the spring dome until the threaded rods are mounted.

##### **Risk of explosion due to incorrect lubricants and sealing materials!**

The medium may undergo a chemical reaction and explode if unsuitable lubricants or sealing materials are used.

- For specific applications such as oxygen, use only approved lubricants and suitable sealing materials (BAM approval, see also accompanying document 225.100.259).

#### Attention

##### **Material damage due to contaminated surface.**

Dirty surfaces can damage parts of the valve.

- Place all parts on a clean surface after disassembling them.

#### Note

Replace all the spare parts contained in the spare parts kit.

**Installing the spare parts kit: Fig. 5**

1. Remove two opposing studs (236).
2. Screw two threaded rods into the holes as specified in the following table:

Actuator size	KA70	KA120	KA160	KA200	KA250
Threaded rod	M6 x 250	M10 x 450	M12 x 450	M16 x 500	M20 x 750

3. Hand tighten the nuts on the threaded rods.
4. Remove the other studs (236).
5. Loosen and remove the upper nuts on the threaded rods.
- ✓ The spring cap (112) is pressed against the nuts of the threaded rod.
6. Remove the threaded rods and spring cap (112).
7. Disassemble the spring guide pin (204), pressure springs (503), and pneumatic cylinder (111).
8. Loosen the hexagon nut (901/2).
9. Remove the spring disc (216), the drive piston (217) and the sealing piece (226).
10. Loosen the cylinder screws (910).
11. Separate the spacer (110) from the housing flange (108).
12. Pull the spindle guide (212) off over the valve spindle (205).
13. Unscrew the hexagon head screws (900) and lock washers (905/1).
14. Pull the housing flange (108) off the valve chamber / housing (100).
15. Remove the assembled valve disc (200) with valve spindle (205) from the valve chamber / housing (100).
16. Loosen the setscrew (941).
17. Loosen the spindle nut (219) to remove the valve spindle (205).
- ✓ The two-piece ring (218) falls out.
18. Grease the valve spindle (205) in the area of the lip-rings (404) and in the area of the two-piece ring (218) with Staburags N32 lubricant or equivalent (DVGW approval).
19. Install the two-piece ring (218) with the valve spindle (205) in the new valve disc.
20. Screw the new valve disc (200) together with the spindle nut (219).
21. Fix the valve disc (200) with the setscrew (941).
22. Insert the assembled valve disc with valve spindle centrally into the valve chamber / housing (100).
23. Grease the top of the valve housing (100) with Staburags N32 lubricant or equivalent (DVGW approved).
24. Insert the new flat gasket (402).
25. Place the housing flange (108) on the valve housing (100).
26. Fix the housing flange (108) with the hexagon head screws (900) and lock washers (905/1) (See "Tightening torques" on page 10).
27. Slide the new spindle guide (212) onto the valve spindle (205).
28. Mount the spacer (110) with the cylinder screws (910) on the housing flange (108).
29. Replace the O-rings (403/1, 403/2, 403/3).
30. Install the sealing piece (226).
31. Install the new drive piston (217).
32. Install the new spring disc (216).
33. Tighten the hexagon nut (901/2).
34. Grease the pneumatic cylinder (111) in the area of the drive piston (217) with Klüberplex BE 31-222 lubricant.
35. Install the pneumatic cylinder (111), the pressure springs (503) and the spring guide pin (204).
36. Place the spring cap on the spring guide pin using two threaded rods and nuts.
37. Tension the spring cap using the threaded rods and nuts until the studs can be installed.
38. Tighten the two studs (236) with the hexagon nuts (901/1).
39. Loosen and remove the threaded rods.
40. Tighten the other studs (236) and hexagon nuts (901/1) (See "Tightening torques" on page 10).

## 14 Disassembly

### Warning

#### Risk of crushing and impact during lifting and transport!

Due to the weight of the valve there is an increased risk of injury during transport.

- Have valve transported by trained personnel only.
- Wear sturdy boots and safety gloves during transport.
- Only use approved lifting tackle.
- Only use lifting equipment with a minimum load capacity greater than the weight of the component to be lifted.
- Only lift the valve from the intended transport brackets, ring nuts or housing. Never transport the valve on pipelines, components or attachments.
- Always keep a safe distance away from raised components.
- Never step under suspended loads.
- Never place the valve on pipelines, components or attachments.

1. Depressurise the piping system.
2. Allow the medium in the piping system to cool down.
3. Drain the system.
4. Ventilate the piping system if media with one of the following properties are used:
  - Corrosive
  - Flammable
  - Aggressive
  - Toxic
5. Switch off the control valve (805) and secure it against being switched on again.
6. Disconnect the control line from the pneumatic actuator.
7. Secure the valve against falling down using a suitable hoist.
8. Loosen the flange screw connections.
9. **If the valve is to be serviced:** Insert protective caps.

## 15 Troubleshooting

1. In the event of a malfunction, first check whether the valve has been mounted correctly.
2. If the valve has been mounted correctly, use the troubleshooting chart.
3. If the problem persists, contact the manufacturer.

### 15.1 Troubleshooting chart

The following item numbers refer to the respective valve in Fig. 5 – Fig. 9.

Fault	Possible causes	Remedy
No flow	Pneumatic actuator does not open	Switch on control valve (805)
		Check control pressure
		Clean filter in control line, if necessary
	Operating pressure too high	Compare operating pressure with data on nameplate
	Protective caps have not been removed	Remove the protective caps
Low flow rate	Dirty strainer	Clean/replace strainer
	Blockage in piping system	Check piping system
Valve leaking at the seat, no internal tightness	Valve disc sealing (400) or valve seat (100) damaged by foreign objects	Replace seals (See "Installing the spare parts kit" on page 14) or valve




Fault	Possible causes	Remedy
No external tightness	Seals damaged	Replace seals (See "Installing the spare parts kit" on page 14) or valve
Valve opens too slowly	Vent hole in spring cap (112) plugged	Open hole
	Control pressure too low	Check control pressure
Valve closes too slowly	Dirt in the control line	Clean sound absorber (600)
		Clean vent line
	Reduced line cross-sections	Replace kinked control lines
Valve does not close	Control valve does not close	Check whether residual voltage is present
	Dirt in the control line	Clean sound absorber (600)
		Clean vent line
Reduced line cross-sections	Replace kinked control lines	
Flange break (valve/pipeline)	Screws tightened on one side	Align pipeline, install new valve
	Counter-flanges are not aligned	

## 16 Disposal

1. Dismantle valve completely and dispose of in individual parts.

## 17 Parts list

### Legend:

 = direction of flow

 = spare parts kit

P = air connection

X = optional limit switch mounting

(...x, ...# and ...+) = supplied as a complete unit

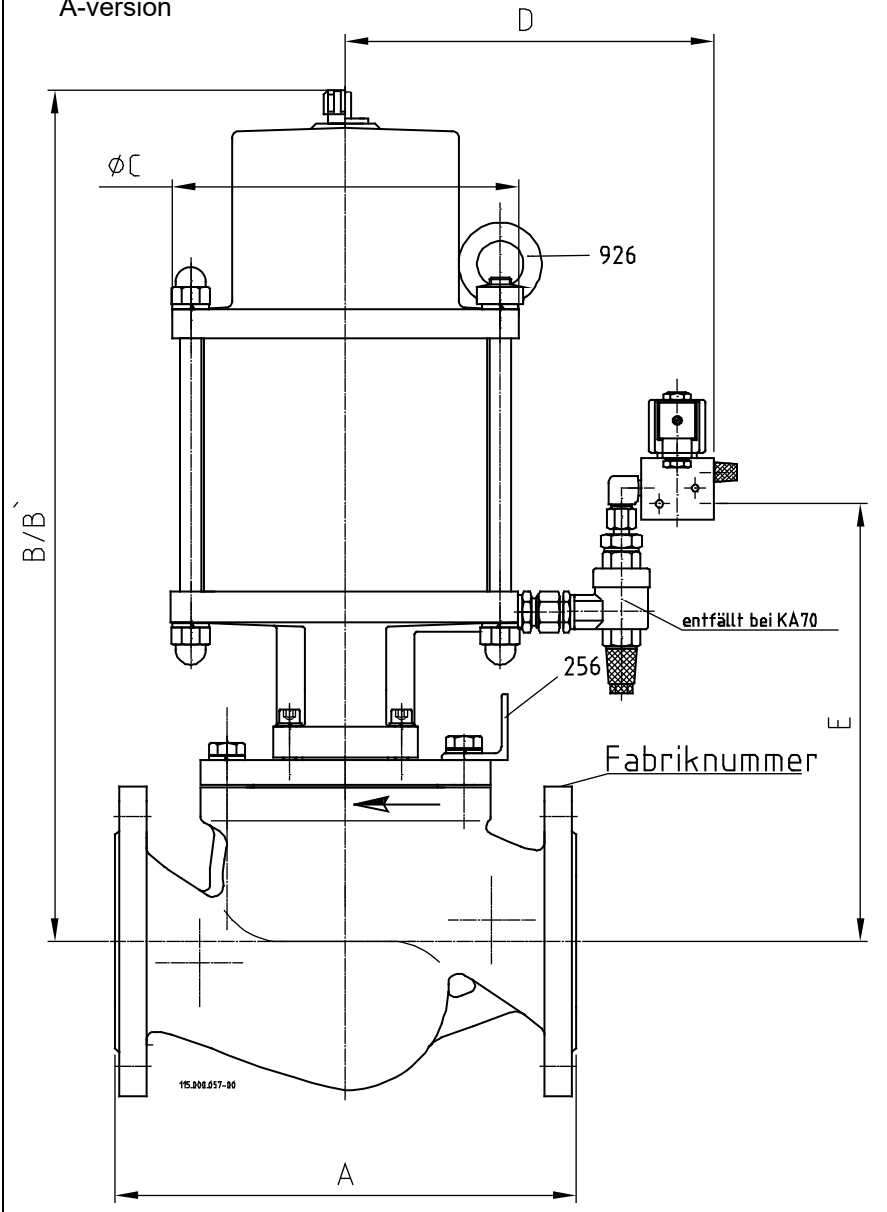
Item	Qty.	Designation	Description
100	1	Ventilgehäuse	Valve chamber/housing
108	1	Gehäuseflansch	Housing flange
110	1	Distanzstück	Spacer
111	1	Pneumatikzylinder	Pneumatic cylinder
112	1	Federdom	Spring cap
200	1	Ventilteller	Valve disc
201	1	Tellerscheibe	Disc plate
204	1	Federführung	Spring guide pin
205	1	Ventilspindel	Valve spindle
208	1	Schlagdämpfung	Sound insulation

Item	Qty.	Designation	Description
212	1	Spindelführung	Spindle guide
216	1	Federteller	Spring disc
217	1	Antriebskolben	Drive piston
218	1	Zweiteiliger Ring	Two-piece ring
219	1	Spindelmutter	Spindle nut
226	1	Dichtstück	Sealing piece
236	4	Stiftschraube	Stud
241	1	Ventiltellerabhängung	Valve disc mounting
246	1	Verbindungsstück Endschalter	Connection piece limit switch
256	1	Transportwinkel	Transport bracket
400	1	Ventiltellerdichtung	Valve disc sealing
402	1	Flachdichtung	Flat gasket
403/1	1	O-Ring	O-ring
403/2	1	O-Ring	O-ring
403/3	1	O-Ring	O-ring
403/4	1/2	O-Ring	O-ring
403/5	1	O-Ring	O-ring
403/6	1	O-Ring (nur bei buntmetallfreier Ausführung)	O-ring (only non-ferrous free metal type)
404/1	4	Lippenring	Lip-ring
405	1	Abstreifring	Scraper ring
503	1	Druckfeder	Pressure spring
505	7/8	Schutzkappe	Protective cap
509	1	Distanzring	Distance ring
600/1	1	Schalldämpfer	Sound absorber
600/2	1	Schalldämpfer	Sound absorber
601	1	Schnellentlüfter	Quick-venting mechanism
805	1	Steuerventil	Control valve
900	4	Sechskantschraube	Hex. head screw
901/1	8	Sechskantmutter	Hex. nut
901/2	1	Sechskantmutter	Hex. nut
901/3	1	Sechskantmutter	Hex. nut
905/1	4	Federring	Lock washer

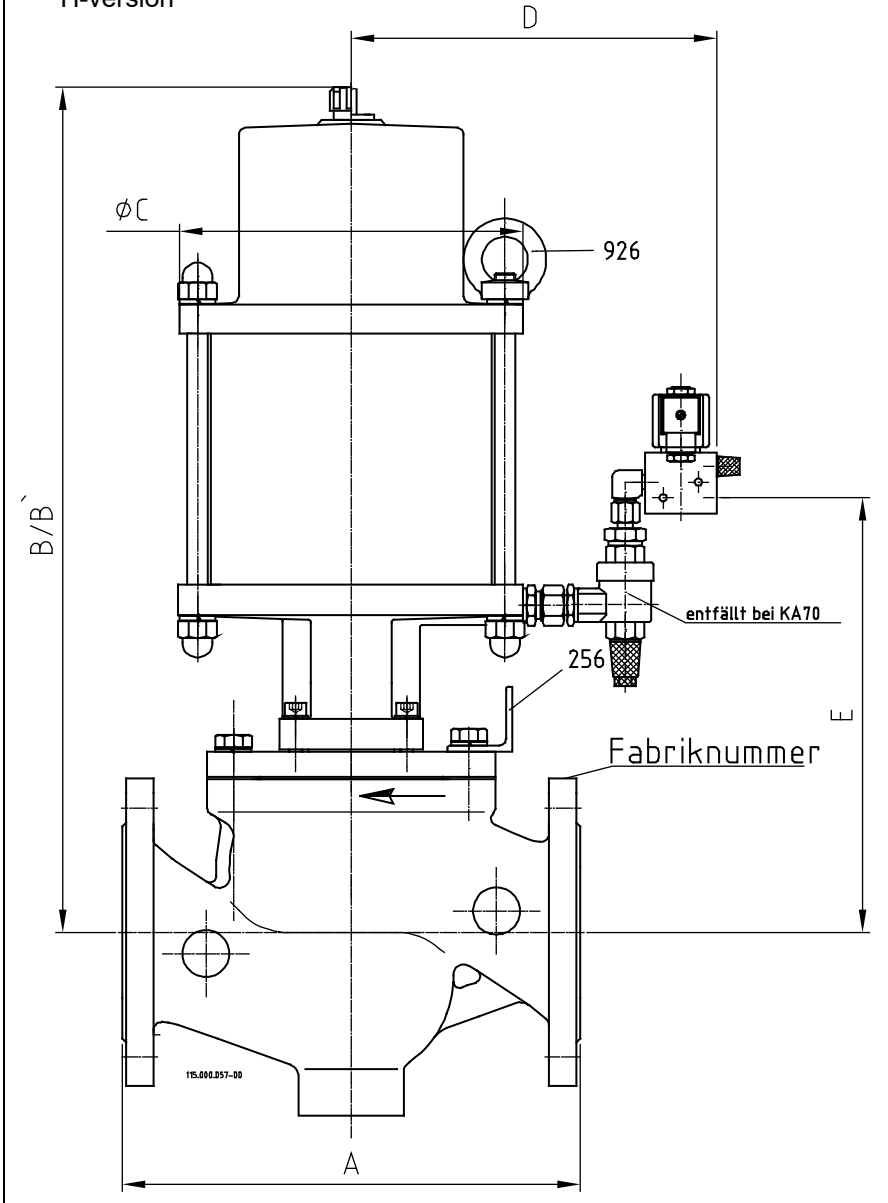
Item	Qty.	Designation	Description
905/2	4	Federring	Lock washer
905/3	8	Federring	Lock washer
905/4	8	Federring	Lock washer
905/5	1	Federring	Lock washer
906	1	Scheibe	Washer
910	4	Zylinderschraube	Cylinder screw
913	1	Gerade Einschraubverschraubung	Linear threaded screw connection
914/1	1	Gerader Aufsteckstutzen	Linear put on adapter
914/2	1	Gerader Aufsteckstutzen	Linear put on adapter
915	1	Winkel-Einschraubverschraubung	Angle threaded screw connection
926	1	Ringmutter	Ring nut
941	1	Gewindestift	Setscrew
943/x	1	Spannstift	Spring dowel sleeve
983	1	Entlüftungsstopfen	Exhaust plug

Quantities of the individual components may vary depending on the version.

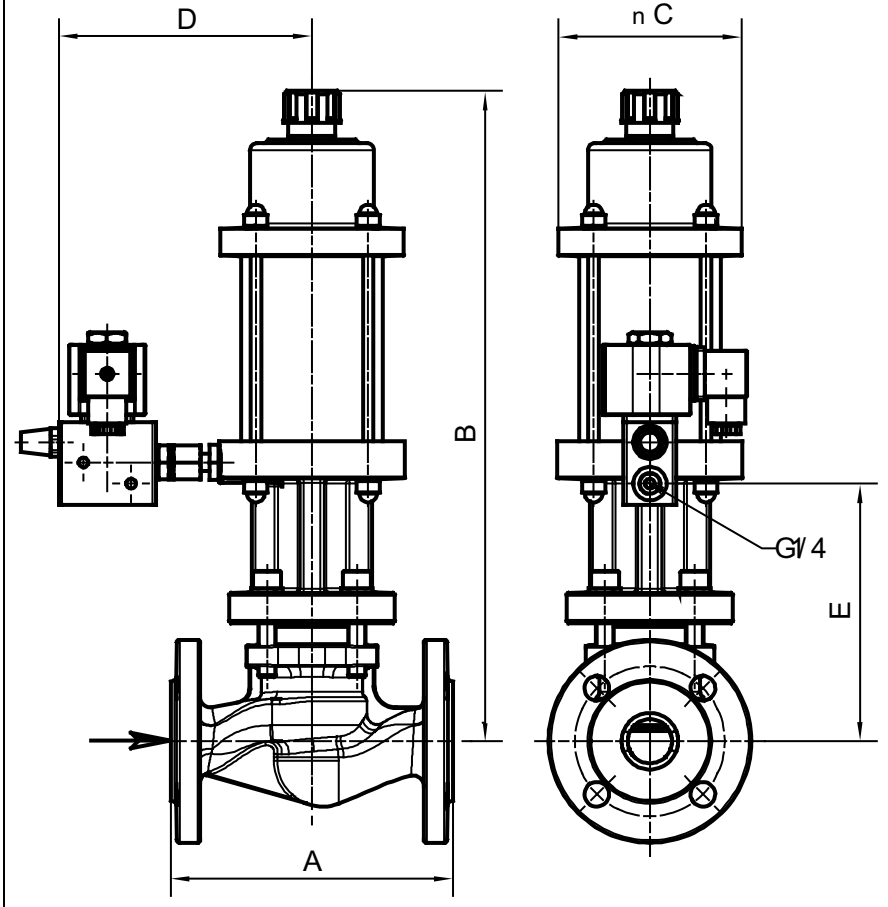
**1** Overview drawing:  
A-version



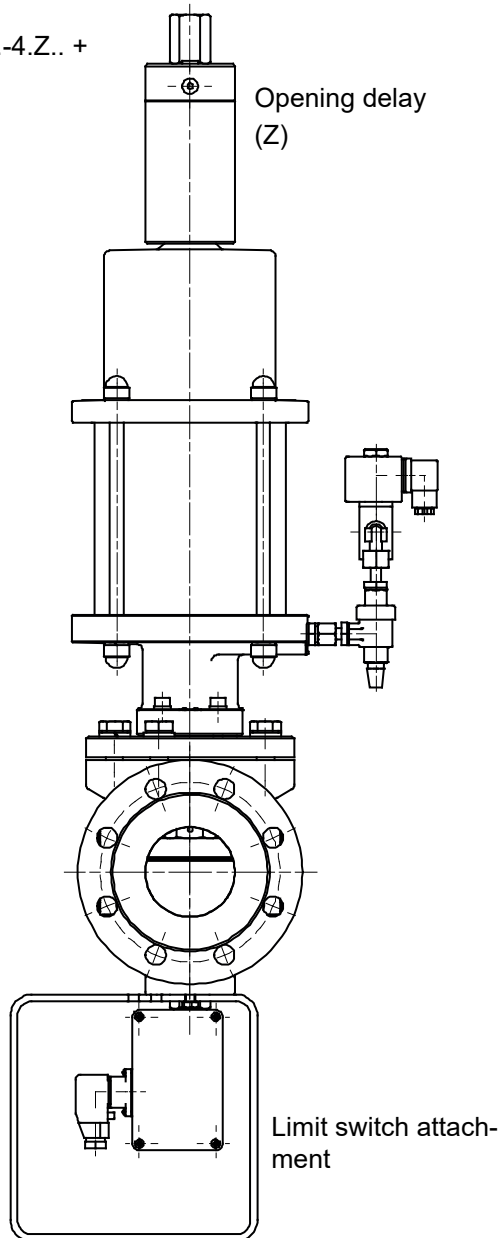
**2 Overview drawing:**  
 H-version



**3** Overview drawing:  
 ...-4-EPVA...N(H).. for Fig. 2

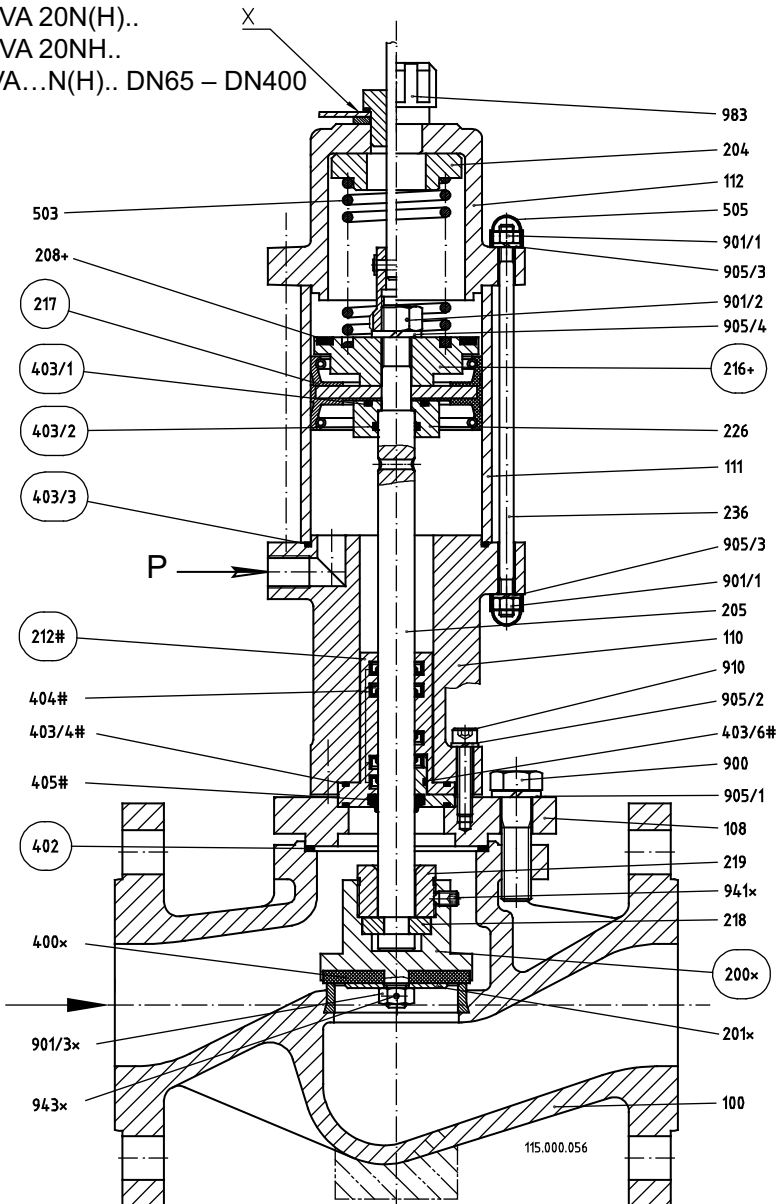


**4** Overview drawing:  
special ...-EPVA...(N)H.-4.Z.. +  
Limit sw. att.



### 5 Sectional drawing

2-4-EPVA 20N(H)..  
 6-4-EPVA 20NH..  
 ...-EPVA...N(H).. DN65 – DN400





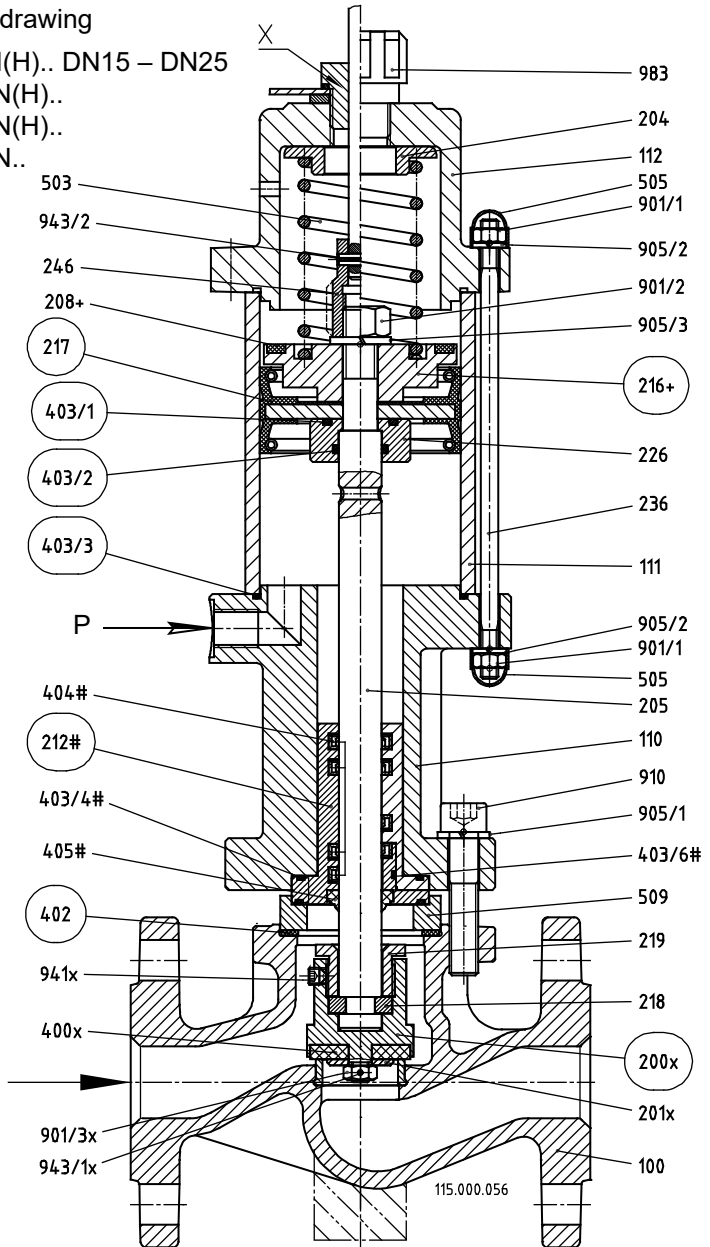
### 6 Sectional drawing

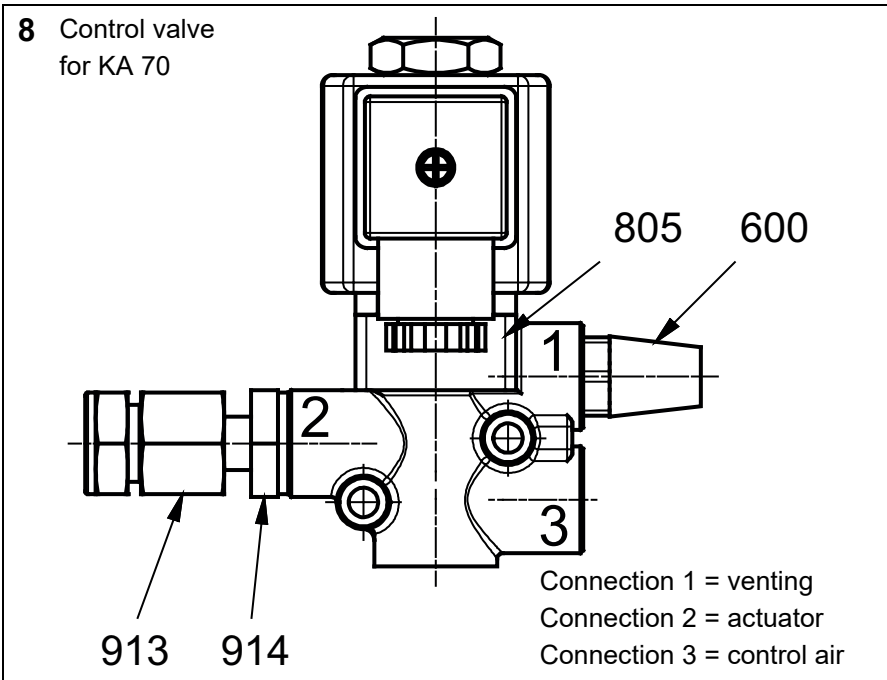
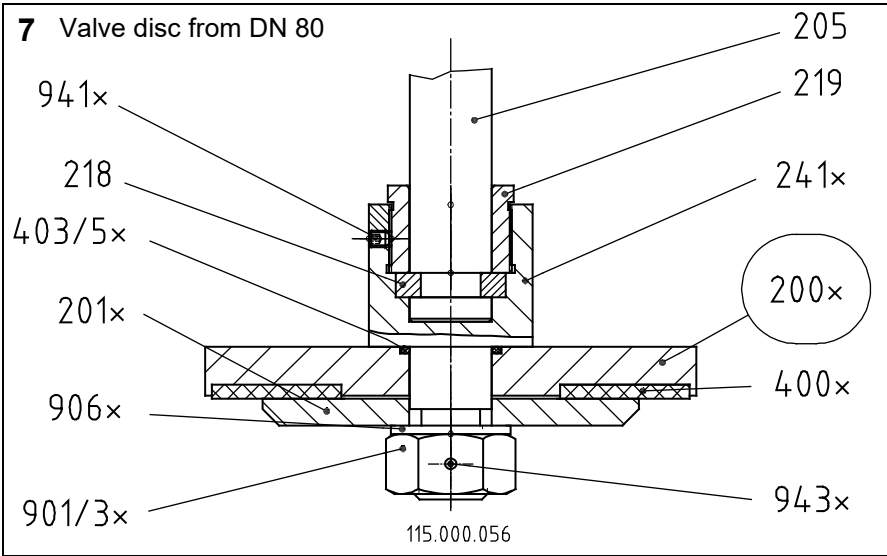
6-4-EPVA...N(H).. DN15 – DN25

3-4-EPVA 15N(H)..

6-4-EPVA 15N(H)..

6-4-EPVA 20N..





9 Control valve  
from KA 120

