

EVSA



Automatic shut-off valve, solenoid valve (NC)

Operating and maintenance instructions

UNI Geräte E. Mangelmann

Elektrotechnische Fabrik GmbH
Holtumsweg 13
D-47652 Weeze, Germany

Telephone: +49 (0) 2837/9134-0
Fax: +49 (0) 2837/1444
Email: info@uni-geraete.de
Homepage: www.uni-geraete.de

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

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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 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

Operating instructions	Document number
MG... series; MG..Xn series	220.100.038
MG...X series	220.100.040
MG...Xme series	220.100.039
Data sheet for 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 solenoid drive
- Optional attachments
- Operating instructions for automatic shut-off valve
- Operating instructions for solenoid drive
- Operating instructions for optional attachments

5 Intended use



The EVSA solenoid 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

	4-EVSA	10-EVSA	16-EVSA	25-EVSA	40-EVSA
Valve class	A				
Group	2				
Operating pressure	0 – 400 kPA 0 – 4 bar	0 – 1000 kPA 0 – 10 bar	0 – 1600 kPA 0 – 16 bar	0 – 2500 kPA 0 – 25 bar	0 – 4000 kPA 0 – 40 bar
Medium temperature - Standard - Optional	-20 °C to +60 °C See nameplate				
Ambient temperature	-20 °C to +60°C				
Supply voltage - Direct current - Alternating current	12 V – 440 V (–15% to +10%) 24 V – 500 V (–15% to +10%) (40–60 Hz)				
Power consumption	10 – 4000 W				
Degree of protection	IP54 or IP65				
Opening times	0.3 s – 0.7 s				
Closing times	< 1 s				
Switching cycles	see operating instructions for solenoid drive				
Installation position (see nameplate)	Vertical actuator:  Horizontal actuator: 				

Further information on the electrical data can be found on the nameplate and in the operating instructions for the specific solenoid drive.

6.1 Dimensions with standard solenoid drive

Threaded connection according to DIN ISO 228-1

Connection G	Dimension	1/4*	3/8	1/2	3/4	1	1 1/4	1 1/2	2
Overall length	A	60	80	80	95**	105	120	150	170
4/10-EVSA	B	190	220	220	220	260	290	345	380
	B'	240	305	305	310	370	400	495	525
	ØC	83	106	106	106	127	127	153	153
	D	22.5	22.5	22.5	21	30	40	50	50
40-EVSA	B	-	-	210	-	-	-	-	-
	B'	-	-	330	-	-	-	-	-
	ØC	-	-	127	-	-	-	-	-
	D	-	-	22.5	-	-	-	-	-

*G1/4 only in 4-EVSA version

**Overall length A = 105 mm for valve chamber made of stainless steel

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

DN flanges	Dimension	15	20	25	32	40	50
Overall length	A	130	150	160	180	200	230
ANSI flanges	Dimension	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
4-EVSA	B	240	240	290	320	370	375
	B`	320	320	385	425	500	520
	ØC	106	106	127	127	153	153
	D	50	50	55	68	68	75
10-EVSA	B	290	290	290	320	370	375
	B`	385	385	385	425	500	520
	ØC	127	127	127	127	153	153
	D	50	50	55	68	68	75
16-EVSA	B	-	-	460	-	480	-
	B`	-	-	620	-	640	-
	ØC	-	-	194	-	194	-
	D	-	-	55	-	68	-
25-EVSA	B	-	-	-	-	-	450
	B`	-	-	-	-	-	610
	ØC	-	-	-	-	-	194
	D	-	-	-	-	-	75
40-EVSA	B	460	-	469	-	-	-
	B`	620	-	620	-	-	-
	ØC	194	-	194	-	-	-
	D	50	-	-	-	-	-

A = overall length acc. to DIN (e.g. ANSI flanges and DIN overall length or DIN flanges and overall length)
 Overall length according to ANSI (see data sheet for overall fitting lengths DIN / ANSI 225.100.026 on our homepage)

B` = dimension for removal of the solenoid drive

For solenoid drives for Ex-protection zone 1, the dimensions B and ØC change.
 Observe dimensions for actuators with attached control system. (see operating instructions for solenoid drive)

DN flanges	Dimension	65	80	100	125	150
Overall length	A	290	310	350	400	480
ANSI flanges	Dimension	2 1/2"	3"	4"	-	6"
4-EVSA	B	430	440	470	510	550
	B`	590	600	630	670	710
	ØC	194	194	194	194	194
	D	90	110	143	151	167
10-EVSA	B	430	440	470	510	550
	B`	590	600	630	670	710
	ØC	194	194	194	194	194
	D	90	110	143	151	167
16-EVSA	B	-	440	-	-	-
	B`	-	600	-	-	-
	ØC	-	194	-	-	-
	D	-	110	-	-	-
25-EVSA	B	-	-	-	-	-
	B`	-	-	-	-	-
	ØC	-	-	-	-	-
	D	-	-	-	-	-
40-EVSA	B	470	-	-	-	-
	B`	630	-	-	-	-
	ØC	194	-	-	-	-
	D	90	-	-	-	-

A = overall length acc. to DIN (e.g. ANSI flanges and DIN overall length or DIN flanges and overall length)
 Overall length according to ANSI (see data sheet for overall fitting lengths DIN / ANSI 225.100.026 on our homepage)

B` = dimension for removal of the solenoid drive

For solenoid drives for Ex-protection zone 1, the dimensions B and ØC change.

Observe dimensions for actuators with attached control system. (see operating instructions for solenoid drive)

6.2 Assignment of solenoid drive types MG...

Connection G	1/4 (2)	3/8 (3)	1/2 (5)	3/4 (7)	1 (10)	1 1/4 (12)	1 1/2 (15)	2 (20)	Test pressure (*) PT
4-EVSA	005-3	008-2	008-2	008-2	010	012	014	016	PT10
10-EVSA	–	008-2	008-2	008-2	010A5	012A5	014A5	016A5	PT16
40-EVSA	–	–	012	–	–	–	–	–	PT40

DN flange ANSI flange	PN	15 (5N) 1/2"	20 (7N) 3/4"	25 (10N) 1"	32 (12N) 1 1/4"	40 (15N) 1 1/2"	50 (20N) 2"	Test pressure (*) PT
4-EVSA	16	008-2	008-2	010	012	014	016	PT10
10-EVSA	16	010	010	010	012A5	014A5	016A5	PT16
16-EVSA	16	–	–	018	–	018	–	PT25
25-EVSA	40	–	–	–	–	–	019A5	PT40
40-EVSA	40	018	–	018	–	–	–	PT40

DN flange ANSI flange	PN	65 (25N) 2 1/2"	80 (30N) 3"	100 4"	125 -	150 6"	Test pressure (*) PT
4-EVSA	16	018	019A5	018A1	018A1	019A2	PT10
10-EVSA	16	019A5	018A1	018A1	019A1	019A2	PT16
16-EVSA	16	–	018A1	–	–	–	PT25
25-EVSA	40	–	–	–	–	–	PT40
40-EVSA	40	019A3.1	–	–	–	–	PT40

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

Actuator types with "A" consist of pick-up and holding coil.

Type test CE-0085AR0256 for all valves except:

■ Acceptance test certificate 3.2 possible

– not available

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 ¹⁾	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

¹⁾ Not applicable for valves with flanges

7 Technical description

The EVSA solenoid valve is a direct-operated, normally closed (NC), quick-closing automatic shut-off 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. 1 – Fig. 7.

When the solenoid drive (800) is switched on, the solenoid core (207) is pulled against the Upper part of housing (106). The pressure spring (503) is further preloaded and the actuator releases the valve cross-section. The valve is open.

The valve closes by interrupting the energy supply to the solenoid drive. The pressure spring (503) is preloaded and the actuator closes. The valve is closed at 15% of the nominal voltage.

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 group
- CE mark and number of the notified body
- Fluid group and PT test pressure
- Solenoid drive type
- Electrical power
- Voltage
- Frequency
- Degree of protection
- For solenoid drives for Ex-protection zone 1 additionally:
 - Ignition protection type
 - Certificates

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 housing or the intended transport lugs, ring nuts or below the solenoid drive. Never lift the valve by the cable connections, attachments or the device plug.
- Always keep a safe distance away from raised components.
- Never step under suspended loads.
- Never place the valve on 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. When doing so, only attach the lifting tackle to the housing. If possible, 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. 1 – Fig. 7). The screen of the strainer must have the following characteristics:

- Clear mesh size ≤ 1.5 mm
- A test mandrel of $\varnothing 1$ 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

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. 1 – Fig. 7).
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).

10.3 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 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 solenoid drive (800).

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

Solenoid 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 12).
- **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 12).
- **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 13).

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

Note

An internal visual inspection is only required for models for which spare parts kits are available.

1. Remove the valve from the system (See "Disassembly" on page 15).
2. Disassemble the valve:
 - Flange version 4/10-EVSA...; 16-EVSA 30N(H)..: (Page 14)
 - Flange version 16/25-EVSA: (Page 14)
 - Threaded version 4/10-EVSA 10 – 20 (1" – 2"): (Page 14)
3. Check the following items (see Fig. 1 – Fig. 7):
 - Damage to the valve seat (100)
 - Damage to the valve disc seal (400)

- Damage due to corrosion
 - Wear on the guide rings (206)
4. **If there is damage to the valve seat:** Replace the complete valve.
 5. **If there is wear on the guide rings:** Replace guide rings.
 6. **If there is damage to the sealing elements:**
 - Flange version 4/10-EVSA...; 16-EVSA 30N(H)..: Install the spare parts kit (Page 13)
 - Flange version 16/25-EVSA: Install the spare parts kit (Page 13)
 - Threaded version 4/10-EVSA 10 – 20 (1" – 2"): Install the spare parts kit (Page 13)
 7. Check the valve for internal leaks.
 8. Check the valve for external leaks.
 9. Subject the valve to a functional test.
 10. 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 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.

Spare parts

Version	Fig.	Type	Spare part
Flange version	Fig. 1	4-EVSA 5N(H) – 150(H) 10-EVSA 5N(H) – 150(H) 16-EVSA 30N(H)	Spare parts kit, solenoid drive (800)
	Fig. 2	16-EVSA 10N(H)/15N(H) 25-EVSA 20N(H)	Spare parts kit, solenoid drive (800)
Flange version	Fig. 3	40-EVSA 5NH	Solenoid drive (800)
	Fig. 4	40-EVSA 10NH	Solenoid drive (800)
	Fig. 5	40-EVSA 25NH	Solenoid drive (800)
Threaded version	Fig. 6	4-EVSA 2 - 7	Solenoid drive (800)
	Fig. 6	10-EVSA 3 - 7	Solenoid drive (800)
	Fig. 6	4/10-EVSA 10 - 20	Spare parts kit, solenoid drive (800)
	Fig. 7	40-EVSA 5	Solenoid drive (800)

Install the spare parts kit for flange version 4/10-EVSA...; 16-EVSA 30N(H)...: Fig. 1**Disassembling the valve**

1. Loosen the hexagon head screws (900/1).
2. Remove the housing flange (108).
3. Remove the Upper part of housing (106) completely.
4. Remove the spring bolt (210/1) and the pressure spring (503/1).
5. Remove the bolt (902/1) with the SL-retainer (949) or split pin (912).
6. Remove the solenoid core (207).
7. Remove the balance piston (220/1) with the piston guide (221/1) from the valve chamber (100).
8. Pull the balance piston (220/1) out of the piston guide (221/1).

Replacing wearing parts

1. Replace the O-rings (403/1, 403/2).
2. Replace the lip-rings (404/1, 404/3).
3. Replace the guide rings (206).

Installing the valve

1. Push the balance piston (220/1) into the piston guide (221/1).
2. Slide the balance piston (220/1) with the piston guide (221/1) into the valve chamber (100).
3. Secure the solenoid core (207) with the bolt (902/1) and the SL-retainer (949) or split pin (912).
4. Insert the pressure spring (503/1) and the spring bolt (210/1).
5. Fit the Upper part of housing (106).
6. Mount the housing flange (108).
7. Tighten the hexagon head screws (900/1) (See "Tightening torques" on page 10).

Install the spare parts kit for flange version 16/25-EVSA: Fig. 2**Disassembling the valve**

1. Loosen the setscrew (941/1).
2. Completely unscrew the Upper part of housing (106).
3. Remove the spring bolts (210/1) and the pressure springs (503/1).
4. Remove the bolt (902/1) with the SL-retainer (949) or split pin (912).
5. Remove the solenoid core (207).
6. Loosen the hexagon head screws (900/1).
7. Disassemble the housing flange (108) with housing cylinder (109).
8. Remove the balance piston (220/1) with the piston guide (221/1) from the valve chamber (100).
9. Pull the balance piston (220/1) out of the piston guide (221/1).

Replacing wearing parts

1. Replace the O-rings (403/1, 403/2, 403/3).
2. Replace the lip-rings (404/1, 404/3).
3. Replace the guide rings (206).

Installing the valve

1. Push the balance piston (220/1) into the piston guide (221/1).
2. Slide the balance piston (220/1) with the piston guide (221/1) into the valve chamber (100).
3. Install the housing flange (108) with housing cylinder (109).
4. Tighten the hexagon head screws (900/1) (See "Tightening torques" on page 10).
5. Secure the solenoid core (207) with the bolt (902/1) and the SL-retainer (949) or split pin (912).
6. Insert the pressure springs (503/1) and spring bolts (210/1).
7. Screw on the Upper part of housing (106).
8. Tighten the setscrew (941/1).

Install the spare parts kit for threaded version 4/10-EVSA 10 – 20 (1" – 2"): Fig. 6**Disassembling the valve**

1. Completely unscrew the Upper part of housing (106).
2. Remove the spring bolt (210) and the pressure spring (503).
3. Remove the bolt (902) with the SL-retainer (949) or split pin (912).
4. Remove the solenoid core (207).
5. Unscrew the balance piston (220/1) with the piston guide (221/1) from the valve chamber (100).
6. Pull the balance piston (220/1) out of the piston guide (221/1).

Replacing wearing parts

1. Replace the O-rings (403/1, 403/2).
2. Replace the lip-rings (404/1, 404/3).
3. Replace the guide rings (206).

Installing the valve

1. Push the balance piston (220/1) into the piston guide (221/1).
2. Screw the balance piston (220/1) with the piston guide (221/1) into the valve chamber (100).
3. Secure the solenoid core (207) with the bolt (902) and the SL-retainer (949) or split pin (912).
4. Insert the pressure spring (503) and spring bolt (210).
5. Screw on the Upper part of housing (106).

14 Disassembly

Warning

Danger of burns from hot components.

The solenoid drive can become hot during continuous operation. This poses a risk of burns.

- Allow the solenoid drive to cool down or wear suitable gloves before disassembling it.

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. Disconnect the valve from the power supply and secure it against being switched on again.
6. Secure the valve against falling down.
7. Loosen the flange screw connections.
8. **If the valve is to be serviced:** Insert protective caps.
9. Dismantle the solenoid drive (see operating instructions for solenoid drive).

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. 1 – Fig. 7.

Fault	Possible causes	Remedy
No flow	Valve does not open	Switch on solenoid drive (800)
		Check voltage
	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 seal (400) or valve seat (100) damaged by foreign objects	Replace seals (See "Installing the spare parts kit" on page 13) or valve


Fault	Possible causes	Remedy
No external tightness	Seals damaged	Replace seals (See "Installing the spare parts kit" on page 13) or valve
Valve does not close	Voltage too high	Check whether residual voltage is present (See "Function" on page 9)
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

X = optional limit switch mounting

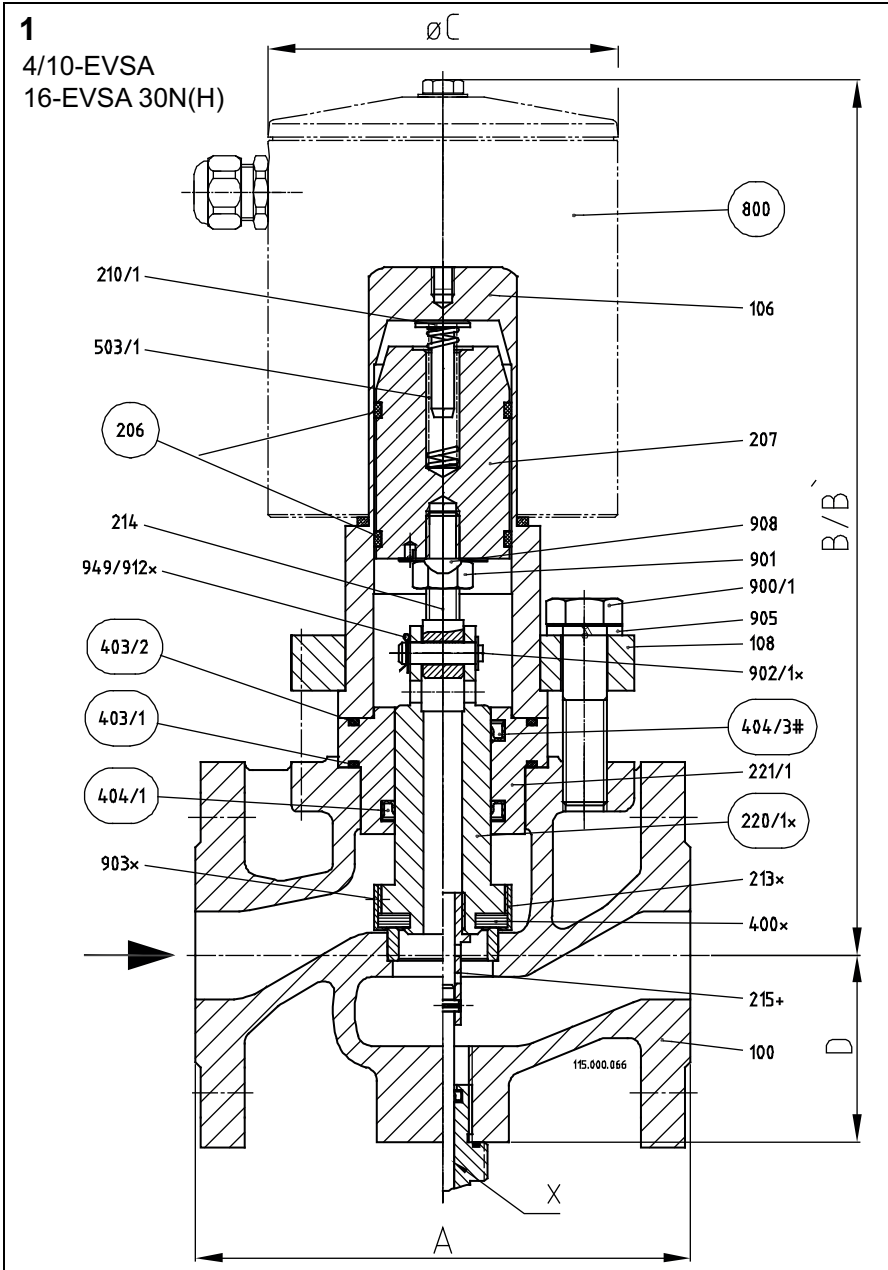
(...#) = only with back pressure

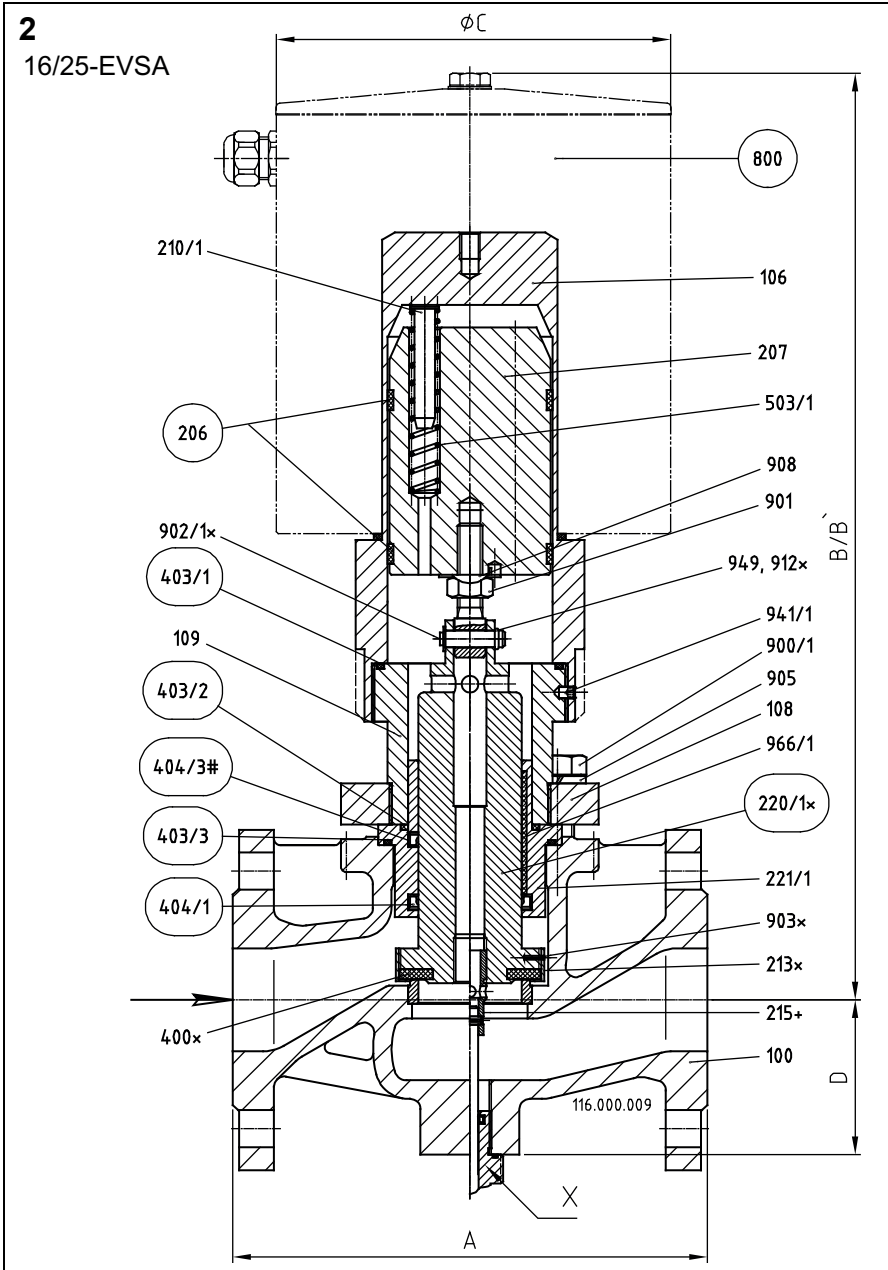
(...x) = supplied as a complete unit

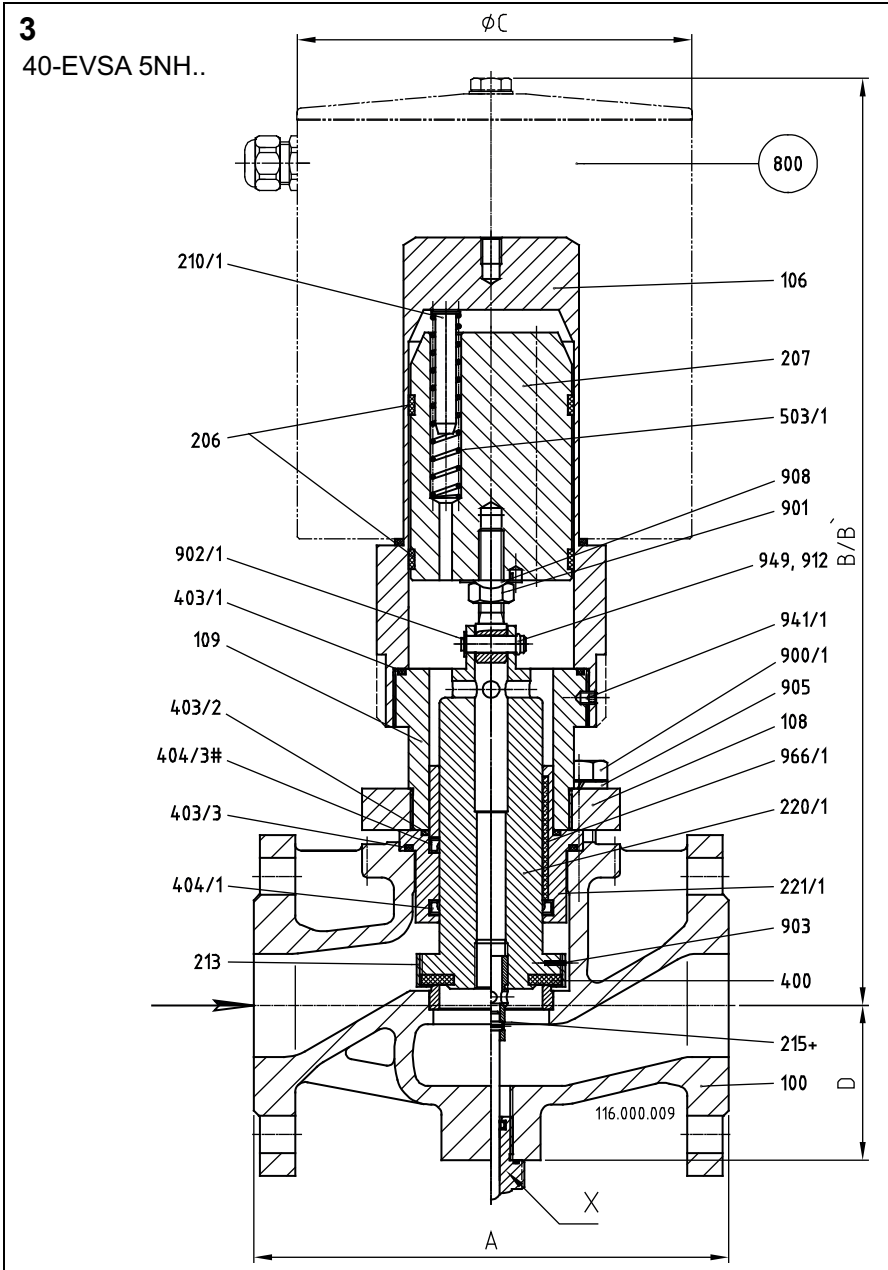
Item	Qty.	Designation	Description
100	1	Ventilgehäuse	Valve chamber
106	1	Oberteil	Upper part of housing
108	1	Gehäuseflansch	Housing flange
109	1	Gehäusezylinder	Housing cylinder
110	1	Distanzstück	Spacer
205	1	Ventilspindel	Valve spindle
206	2	Führungsring	Guide ring
207	1	Magnetkern	Solenoid core
210/1	1/3	Federbolzen	Spring bolt
210/2	1	Federbolzen	Spring bolt
213	1	Gewinding	Threaded ring
214	1	Ventilstift	Valve pin
215	1	Tellerscheibe	Plate screw
218	1	Zweitelliger Ring	Two-piece ring
220	1	Ausgleichskolben	Balance piston
220/2	1	Ausgleichskolben	Balance piston
221/1	1	Kolbenführung	Piston guide
221/2	1	Kolbenführung	Piston guide
246	1	Verbindungsstück Endschalter	Connection piece limit switch
400	1	Ventiltellerdichtung	Valve disc seal

Item	Qty.	Designation	Description
403/1	1	O-Ring	O-ring
403/2	1	O-Ring	O-ring
403/3	1	O-Ring	O-ring
404/1	1/2	Lippenring	Lip-ring
404/2	1	Lippenring	Lip-ring
404/3	1	Lippenring (nur bei Gegendruck)	Lip-ring (only with back pressure)
405	1	Abstreifring	Scraper ring
503/1	1/3	Druckfeder	Pressure spring
503/2	1	Druckfeder	Pressure spring
800	1	Magnetantrieb	Solenoid drive
900/1	4/6/8/12	Sechskantschraube	Hex. head screw
900/2	4	Sechskantschraube	Hex. head screw
901	1	Sechskantmutter	Hex. nut
902/1	1	Bolzen	Bolt
902/2	1	Bolzen	Bolt
903	1	Kerbstift	Grooved dowel pin
905	4/6/8/12	Federring	Lock washer
908	1	Sicherungsblech	Locking plate
912	1	Splint	Split pin
941/1	1	Gewindestift	Setscrew
941/2	1	Gewindestift	Setscrew
948/1	4/6	Nordlockscheibe	Nordlock washer
948/2	4	Nordlockscheibe	Nordlock washer
949	1	SL-Sicherung	SL-retainer
965	1	Filtersieb	Filter sieve
966/1	1	DU-Buchse	DU-bush
966/2	1	DU-Buchse	DU-bush
978	1	Stoßdämpfer ACE	Shock absorber ACE

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







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40-EVSA 10NH

