

# Operating Instructions for WITT safety valve SV 805 / 805A / 809 / 809A

Thank you for choosing the WITT safety valve. These operating instructions contain information for operating your safety valve as well as important tips and notes. Please keep these instructions in a safe location for future reference.

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## 1 Purpose of the operating instructions

These Operating Instructions provide important information relating to the safe and intended utilisation of the product. Please study the Instructions thoroughly before fitting and using the device. Improper handling and improper utilisation may be dangerous for the operator and third parties, and may result in damage to the plant!

## 2 Notes on Possible Dangers

### 2.1 What symbols are used

**⚠ The attention symbol indicates hazards for man or the system. It is imperative that these instructions are observed and followed.**

**The word „Caution!“ is placed in front of information indicating risk of injury- and potentially fatal hazards.**

**The word „Attention!“ is placed in front of hazards for the system.**

**The word „Note!“ marks general notes that explain operating procedures.**

- The „dot“ marks actions to be performed.
- This symbol is used for a list.

### 2.2 Qualified Personnel

The term „Qualified Personnel“ relates to persons who are familiar with the installation, assembly, start up and operation of the product and have the qualification corresponding to their responsibilities. Such as: Instruction and awareness to comply with all operational, regional and in-company regulations and requirements; Training or instruction in accordance with safety technology standards with regard to the upkeep and use of appropriate safety work protection equipment; First aid training, etc. (see TRB 700)

## 3 Description

### 3.1 Model

- directly acting, spring loaded, normal safety valve (SV)
- TÜV-tested and certified response pressure
- with or without condensate outlet
- Type approval (Module B) with acceptance in accordance with Module F (Pressurised Equipment Directive 97/23/EC)
- AD-2000 Data Sheet A 2, DIN 3381, DIN 3840
- VdTÜV Data Sheet 100

### 3.2 Function

The safety valve (SV) is designed to prevent excess pressures in canister and pipe systems. When the set pressure (embossed on the housing) is reached, it opens and drains the medium off. When the pressure falls, the SV automatically closes within 10 % below the response pressure. Its specified flow rate is achieved at a pressure of approx. 10 % above the response pressure. At response pressures of below 3 bar, it closes within 0.3 bar below the response pressure (only SV 805 / 805A).

### 3.3 Utilisation

Safety valves must be capable of preventing the development of overpressure even if all upstream control, regulation and monitoring devices fail. For this purpose, the specified flow rate of the safety valve must be at least as large as the flow rate which would be required in the event of a malfunction. This is in order to prevent the development of inadmissible overpressure in the system (see marking "Blow-out volume flow" – if necessary, see Appendix).

### Note!

**The normal system pressure should lie at least 10% below the response pressure of the SV.**

The SV may be used only for gasses and vapours (liquid gases in liquid form are also deemed to be gasses). Check that the materials are compatible with the media which may need blowing out.

Do not use the SV as a control unit, in order e.g. to establish a desired operating pressure. If the SVs are frequently triggered, check your process.

Do not use in heating equipment and systems for processing warm water.

Do not use the SV for gasses or vapours for which they are not suitable. Furthermore, deploy the SV only in the permitted temperature range (see sealant materials). In case of doubt, ask the manufacturer.

### ⚠ Caution!

**The SV are not suitable for use in corrosive environmental conditions.**

## 3.4 Technical Data

Housing materials / valve piston materials:

- 1.4541 (stainless steel X10CrNiTi 18 9)
- 2.0401 (brass CuZn39Pb3)
- 2.0402 (brass CuZn40Pb2)

Spring material:

- 1.4310 (stainless steel X12CrNi 17 7)

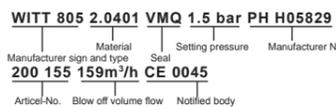
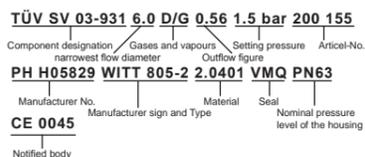
Seal materials / permitted temperature range:

FPM	fluoric rubber	-20 °C bis +150 °C
EPDM	ethylene-propylene-diene rubber	-40 °C bis +80 °C
CR	chlorbutadiene rubber	-30 °C bis +100 °C
FFKM	perfluoro rubber	-30 °C bis +150 °C
HNBR	acrylonitrile-butadiene rubber	-30 °C bis +100 °C
VMQ	silicon rubber	-60 °C bis +150 °C
PTFE	Hostafion	-196 °C bis +150 °C
PVDF	Polyvinylidenfluorid	-50 °C bis +150 °C

## 3.5 Markings

The safety valves have markings embossed on the housing. A typical example is explained in the following section:

SV 805 / 805A  
SV 809 / 809A



## 4 Utilisation

### 4.1 Storage

- Storage temperature -20 °C to +65 °C, dry and free of dirt.
- A desiccant or heating to prevent condensation is necessary in damp rooms.

### 4.2 Transport

- Transport temperature -20 °C to +65 °C.
- Protect against external force (impact, vibration etc.).

### 4.3 Handling before Installation

- Protect against atmospheric conditions e.g. wetness.
- Correct handling protects against damage.

## 5 Installation and fitting

The safety valves may only be fitted by qualified personnel to connections designed for the purpose.

They may not be made ineffective by shut-off units, and may not be exposed to any impermissible structural, dynamic and thermal loads.

On installation without blow-off pipe leave the protective dust cap on the outlet screw joint.

### ⚠ Caution!

**Make sure there is no dirt around SV outlet. Order a protective dust cap at manufacturer if necessary.**

Before fitting the SV, the performance characteristics must be compared with the deployment conditions!

The loss of pressure in the feed pipe may not exceed 3% of the SV's response pressure when subjected to the maximum blow-off pressure.

### ⚠ Caution!

**In the case of SVs which could directly or indirectly endanger persons or the environment in the event of the escape of**

**the medium (e.g. as the result of blow-off noises, toxic, inflammable gases), blow-off pipes or other protective devices must be installed.**

Ensure for all SVs that any possible escape of condensate is not able to impair the function of the SV. In the event of the possible formation of condensate, a maybe connected blow-off pipe must be equipped with a condensate-removing device at their lowest point which cannot be shut off. In this event, the SV may not represent the lowest point of the blow-off pipe. Furthermore, this must be fitted in a position which prevents the accumulation of condensate within the SV.

The blow-off pipes must be adequately dimensioned for the flow rate which needs to be discharged. In the event of a blow-off through the valve, the pressure loss may not exceed 15% of the response pressure.

The reaction forces resulting from the valve blow-off must be safely absorbed through the suitable attachment of the pipe.

Ensure that there is no application of a force to the SV by the blow-off pipe.

A WITT adapter must be installed between the SV and the blow-off pipe.

The SVs should be removed from their packaging only immediately prior to their installation.

Before installation and removal, the system must be pressure-free (if necessary, rinse).

The SVs may only be fitted – using the matching standard key (SW 27) – to the hexagon immediately above the connection thread.

### Note!

**If using SVs with condensate outlets with toxic/inflammable gases observe that in case of blow off medium escapes through the condensate outlets to the environment.**

### Note!

**Never fit the valves above the hexagon in the vicinity of the outlet screw joint, as they may be damaged by the torsion loads. On fitting the SV adjust the locking torque in that manner that damaging is excluded. Use the upper hexagon only for screwing with one blow-off pipe.**

In the case of valves with a conical (NPT) connection thread, the use of a suitable thread sealant (e.g. PTFE band) is recommended. In this respect it is important to ensure that no trace of the sealant is permitted to penetrate the valve, as this could lead to a permanent seal loss following the activation of this valve.

Valves with cylindrical connection threads may only be sealed with suitable seal elements.

Following fitting, check that the connections are gas-tight. When using liquids (e.g. leak detector sprays) for the purpose of identifying leaks, steps must be taken to ensure that these do not penetrate the valve, as this could impair the subsequent functional capability of the valve.

If the SVs are given a coating of paint, sliding parts may not come into contact with the paint. In the case of SVs with condensate outlets, these may not be blocked.

### ⚠ Caution!

**Prevent dirt penetrating the valve during installation or operation. Dirt within the valve may lead to functional unreliability.**

## 6 Servicing

Servicing may be performed only by qualified personnel.

### ⚠ Attention!

**Too frequently manual ventilation of the SV may cause increased wear of the sealing surfaces.**

According to the relevant regulations manually ventilate the SV from time to time to check the blow off function (these service intervals are dependent on many factors so it isn't possible to make a binding directive concerning the time intervals).

We recommend to check once a year whether the SV still opens at the required response pressure (opening pressure) and is tight closed afterwards.

Possible test methods are:

- Increase the pressure of the system up to the response pressure (opening pressure) of the SV.
- manually activating of SV 805A and 809A by hold up hexagon (SKT 30) and turn hexagon (SKT 36) in direction OPEN till the SV blows up. Thereafter turn hexagon (SKT 36) in direction CLOSE till the marking is on each other.

### ⚠ Note!

**Pay attention for a leak proof SV after function check.**

- Dismount the SV. Afterwards check the response and closing pressure.

When used in conjunction with corrosive media, this check must be performed at more frequent intervals. Once the SV has been activated, the seal check must be performed immediately, as it cannot be ruled out that the SV is no longer able to close entirely due to the penetration of a foreign body or another cause.

During the function test, it is important to ensure that nobody can be injured by the escaping medium. In particular, the valve should not be subjected to a close visual inspection during the performance of the test. Remember that the opening of the valve can produce a loud noise.

### ⚠ Caution!

**Non sufficient service may endanger the system to protect and the environment.**

## 7 Repair

Repairs may be performed only by the manufacturer. Any repairs or alterations (adjustment of the response pressure) performed independently by the user or a third party shall cause the manufacturer's liability with respect to the resulting consequences to be rescinded.

All specified pressures are overpressures above atmospheric pressure (1.0133 bar abs).

Technical alterations remain reserved.

Service life is 5 years.

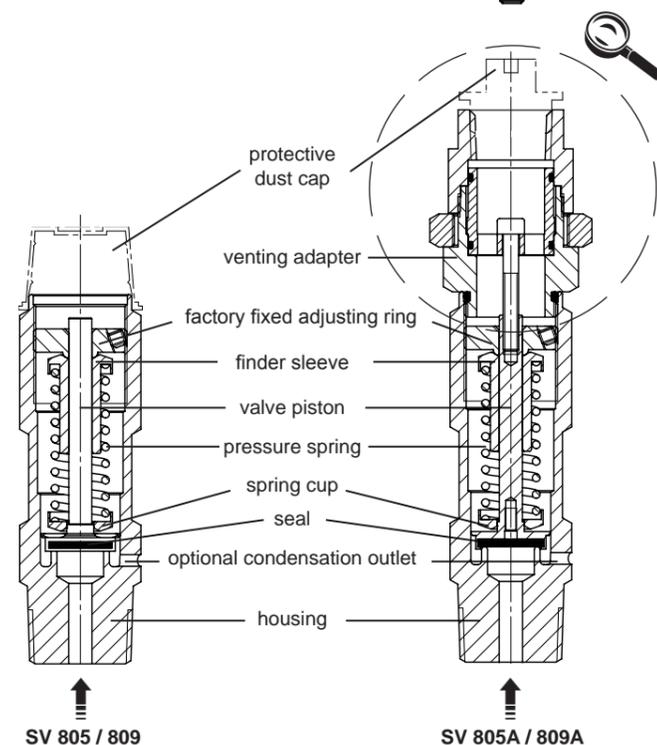
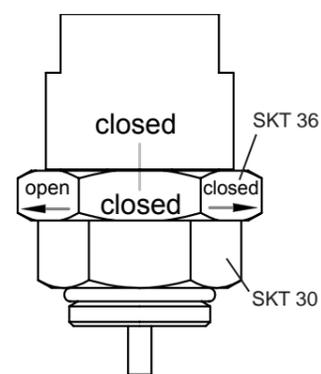
## 8 Warranty

The extent and period of warranty cover are specified in the „sales conditions of WITT-GASETECHNIK GmbH & Co KG“ valid at the time of delivery or by notice in the contract of sale itself.

No warranty claims can be made for any damage caused as the result of incorrect handling, disregard of operating and installation instructions, accident prevention regulations, EN, DIN, VDE standards and other applicable codes of practice.



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SV 805 / 805A		Blow-off volume flow for air at 23 °C (only valid with atmospheric counterpressure)											
Opening pressure [bar]		0.5	1	2	3	4	5	6	7	8	9	10	11
Volume flow [m³/h]		15.7	23.5	35.9	48.3	60.6	73	85.4	97.7	110.1	122.3	134.7	147
Opening pressure [bar]		12	13	14	15	16	17	18	19	20	21	22	23
Volume flow [m³/h]		159.4	171.7	184.1	196.5	209.8	260.6	275.1	289.7	304.3	318.9	333.4	348
Opening pressure [bar]		24	25	26	27	28	29	30	31	32	33	34	35
Volume flow [m³/h]		362.5	375.5	390	404.5	419	433.4	448	462.4	476.9	491.5	505.9	520.4
Opening pressure [bar]		36	37	38	39	40	41	42	43	44	45		
Volume flow [m³/h]		534.9	549.4	563.9	578.4	592.9	607.4	621.9	636.3	650.9	665.3		

Opening pressures are overpressures above atmospheric pressure, volume flows are standard volume flows, relative to standard state 23 °C, 1013.3 mbar

SV 809 / 809A		Blow-off volume flow for air at 23 °C (only valid with atmospheric counterpressure)											
Opening pressure [bar]		46	47	48	49	50	51	52	53	54	55	56	57
Volume flow [m³/h]		12.6	13.2	13.9	14.8	15.9	17.1	18.5	20.1	21.8	23.7	25.7	27.8
Opening pressure [bar]		58	59	60	61	62	63	64	65	66	67	68	69
Volume flow [m³/h]		30	32.4	34.9	37.5	40.2	43	45.9	48.8	51.9	55	58.2	61.4
Opening pressure [bar]		70	71	72	73	74	75	76	77	78	79	80	81
Volume flow [m³/h]		64.7	68.1	71.4	74.9	78.3	81.8	85.3	88.8	92.3	95.8	99.3	102.8
Opening pressure [bar]		82	83	84	85	86	87	88	89	90	91	92	93
Volume flow [m³/h]		106.3	109.7	113.1	116.5	119.9	123.1	126.4	129.6	108	111	113	115
Opening pressure [bar]		94	95	96	97	98	99	100					
Volume flow [m³/h]		118	120	122	124	126	128	130					

Opening pressures are overpressures above atmospheric pressure, volume flows are standard volume flows, relative to standard state 23 °C, 1013.3 mbar