

# Installation instructions

Original language: German

## Pressure relief valve ST-230



Product code: 200230700

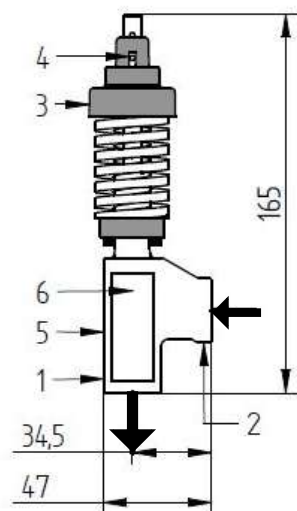
Vers. July 21

### Technical Data

Maximum permissible pressure	700.0 bar / 70.00 MPa
Minimum pressure	200.0 bar / 20.0 MPa
Maximum flow rate	40.0 l/min
Water temperature permanently	60°C
Water temperature temporary	max. 85°C
Ambient temperature	up to 60°C
Inlet connector	G1/4 FT
Outlet connector	G3/8 FT
Weight	0.600kg
Dimensions ( W / H / D )	165 x 47 x 38
Max. solid material size	50µm
pH value of water	6,5-8,0
electrical conductivity [µS/cm]	max. 2000 bei / at 20°C
pressure pulsation	<±15 bar

Abbreviations and symbols	
FT; MT	Female thread; male thread
G	Whitworth pipe thread according to DIN ISO 228, ident. BSP= British Standard Pipe
PRV	Pressure Relief Valve

	<p>The PRV is designed for permanent use up to approx. 60°C. Temperatures up to 85°C are also permitted for short-term applications. In any case, the user must wear appropriate protective clothing, for example, in the form of gloves, shoes and goggles. The local safety regulations currently in force should always be observed.</p>
	<p>Please read these Operating Instructions carefully before using the equipment!          Keep the Operating Instructions in a safe place for future use or for the next user!          These Operating Instructions were prepared with great care. However, SUTTNER GmbH can not be held responsible for any possible errors in the Operating Instructions or for any consequences arising thereof!</p>



- 1 Outlet
  - 2 Inlet
  - 3 Cover cap
  - 4 Hole for seal wire
  - 5 Valve housing
  - 6 Type plate
- ➔ Flow direction

## Description

### Pressure Relief Valve

The application purpose of the ST-230 PRV is to protect high-pressure devices from overpressure. The valve housing is made of forged brass. The PRV operates according to the principle of a direct-acting, spring-loaded proportional seat valve. The PRV is infinitely adjustable.

### Intended use

The PRV is designed to relieve unwanted overpressure, i.e. pressure above the specified operating pressure, thus protecting the high-pressure device.

The PRV is designed for use with water-operated high-pressure systems such as high-pressure cleaners.

The PRV is approved only for use with Group II fluids as per 2014/68/EU. This can include, for instance, water and diluted commercially available cleaning or disinfection agents. For further details, please refer to Guideline EGV 1272/2008. All safety regulations and rules for high-pressure washers apply as well, e.g. DIN EN 60335-79-2 and DIN EN 1829-1.

 **Dispensing flammable, explosive, caustic or toxic substances is forbidden!**

The PRV may not be used with abrasive substances.

To avoid damaging the PRV, install a fine filter with a recommended mesh size of 50 µm into the water inlet to the high-pressure pump.

## Normative references

- The product is classed as a pressure-maintaining component within the terms of Pressure Equipment Directive 2014/68/EU. Due to the operating parameters, it comes under the scope of Article 4 / Paragraph 3 of this guideline ("good engineering practice") and therefore no Declaration of Conformity and CE marking are allowed!
- The product must not be installed in equipment complying with the Pressure Equipment Directive 2014/68/EU.
- The product is a standard part within the terms of Machinery Directive 2006/42/EC!

## Symbols and their meanings



### Hazard!

If these instructions are not followed there is a danger of physical injury, danger to life and material damage!



### Please comply with the Operating Instructions!

Incorrect operation can lead to severe injury. Read the Operating Instructions before using the equipment.



### Wear safety gloves!



### Wear protective goggles!



### Risk of injury due to high pressure!

Risk of injection or severe injury to persons. Keep clear of nozzle. Do not direct discharge stream at persons.



**Description of imminent hazard and failure to avoid hazard will result death**



**Description of hazard and possible resulting injuries or death.**



**Description of hazard that could result in minor or moderate injury.**

## For your safety

This Suttner product is state of the art and complies with generally recognised health and safety regulations. Due to the high pressures and temperatures nonetheless there is the danger of material damage and injury for users and other persons. Please comply with these Operating Instructions at all times and the relevant regulations for liquid jet sprayers.

For details regarding personal protective equipment, refer to the local prevention regulations "Personal protective equipment". Personal protective equipment includes for example overalls, head protection, easy-grip protective gloves and non-slip boots, metatarsal foot protection, respiratory protection, ear protection, eye or face protection.

- Before starting work, check the high-pressure system (spray equipment, hoses, screw connectors, etc.) for signs of leakage and damage.
- Cease operation immediately if any leakage or malfunctions occur.
- Malfunctions that may affect safety are to be rectified immediately.
- The PRV may only be used in a technically perfect condition, unmodified in any way, for the purpose intended, in awareness of and compliance with safety requirements and potential hazards and when following these Operating Instructions. Any other or additional use is deemed inappropriate.
- All assembly or installation work must be carried out by authorised specialist personnel.
- Also comply with the operating instructions for equipment and accessories connected to the PRV and with the applicable regulations for cleaning agents.



### Risk of injury due to spray medium!

Ensure the safe escape of the water in case of overpressure.



### Risk of burning or scalding due to hot media!

Do not touch anything which is not insulated if you are working with consumables and additives where the temperature exceeds 45°C. Wear protective gloves!

## Assembly

### Delivery scope

The PRV is delivered unadjusted and unsealed. Leaden seal, sealing wire and jet breaker are not included.



### Usage notes!

PRVs are high-quality fittings, which must be handled with particular care. The sealing surfaces on the seat and ball are smooth machined to achieve the necessary tightness. The penetration of foreign bodies into the valve must be avoided during assembly, installation and during operation. The tightness of a PRV can be impaired by hemp, Teflon tape or other sealant as well as by welding beads. Even rough treatment of the finished PRV during storage, transport and assembly may cause a PRV to leak. If the PRVs are painted, care must be taken that the sliding parts do not come into contact with paint.

ST-230 PRVs may be installed vertically or horizontally. The safety function of the valves is tested and confirmed in both installation positions. In order to ensure proper functioning of the PRVs, they must be installed in such a way that no impermissible static, dynamic or thermal stresses may act on the PRV. During assembly, ensure the maximum tightening torque is not exceeded. If the medium emerging from the outlet may directly or indirectly cause danger to persons or the environment, appropriate protective measures such as the installation of a protective hood or blow-off line must be carried out.



### Risk of injury!

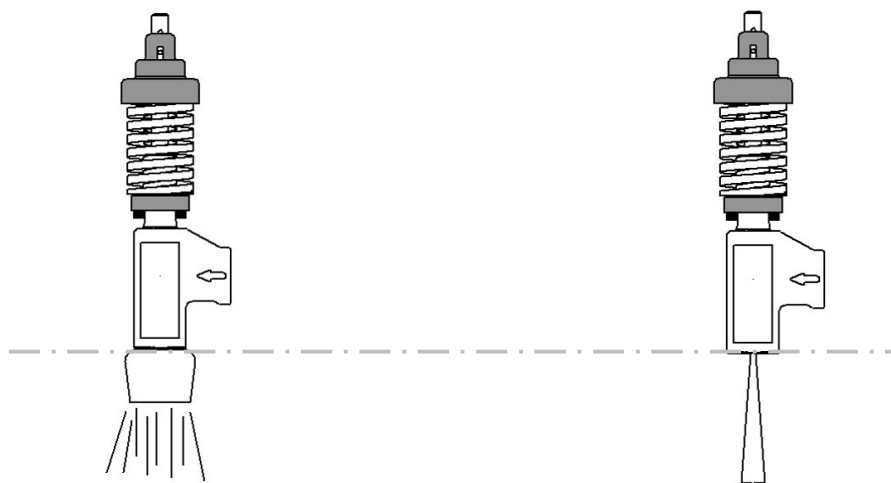
If the high-pressure system has been used with hot water, allow the equipment to cool down to below 45°C due to the risk of scalding or burning before starting assembly and maintenance work!

- Switch the high-pressure washer off before carrying out assembly work on the high-pressure system.
- Secure the high-pressure washer against being unintentionally switched on.

- Turn the water supply off.
- Ensure that system sections and lines to be opened are not under pressure.
- Check the flow direction before mounting!
- Seal the screw connectors in accordance with your intended use with an appropriate sealant such as Teflon sealing tape or a liquid sealant (see R+M Catalogue, Chapter 06, Adhesives and sealing materials).
- Mount the DBV firmly on a pipe or pump housing. Secure the DBV against twisting
- Ensure the equipment meets the requirements of the machine guideline after installing the PRV in a machine/system!
- If necessary, set up warning signs to prevent unintentional start-up of the equipment/machines/ systems!
- Carry out the assembly/repair work in accordance with the applicable safety and accident prevention regulations of the employers' liability insurance association!
- Check the correct functioning of the safety devices during commissioning!

## How to use „Jet Breaker“

If PRV release overpressure, escaping jet can be dangerous. Use genuine Suttner accessories „Jet Breaker“ for safe operation. Safe operation is required by DIN EN 1829 note.1. Check also your local regulations



*Beam exit WITH Jet Breaker*

*Beam exit W/O Jet Breaker*

## Modification

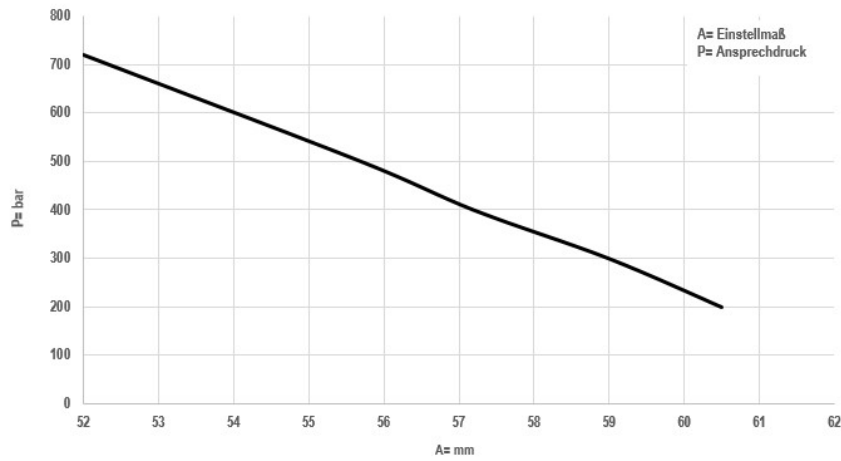
No modifications of any kind are to be made to the PRV!

## Setting

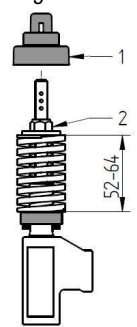
According to DIN EN 1829-1, a PRV must be set to a response pressure of 15% above the maximum operating pressure. Upon delivery, the PRV is not set and must be set and sealed by the manufacturer of the high-pressure system. To do this, proceed as follows:

The manufacturer of the high-pressure system is responsible for the correct setting and awareness of safety requirements and potential hazards during installation!

- Check your high pressure cleaner for Operating pressure<sup>①</sup>, unloader changeover pressure<sup>②</sup> and pressure pulsation
- Check Diagramm below for spring setting size.
- Remove cover cap (1)
- Set spring with nut (2) (SW13)
- Check PRV for response pressure and opening pressure. If needed, do fine setting.
- Screw cover cap down by hand
- The cover may be secured against unauthorized opening with a lead seal.

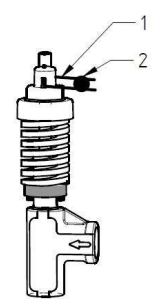


**Setting of the PRV**



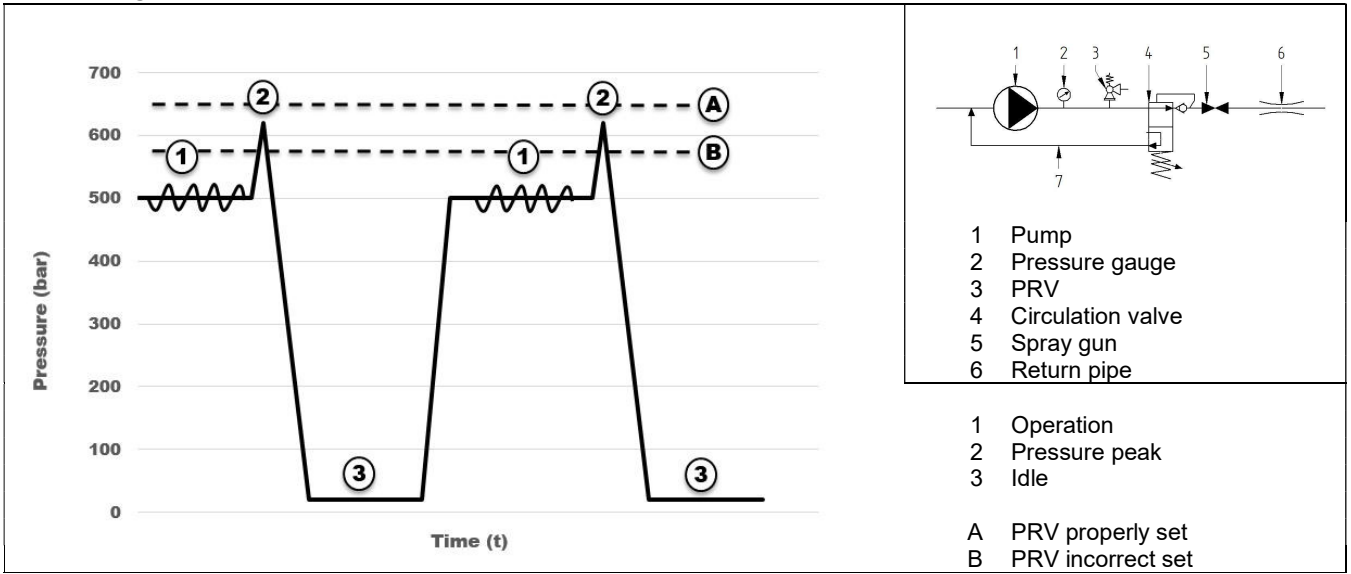
- 1 Cover cap
- 2 Adjusting nut (SW13)

**Sealing of the PRV**

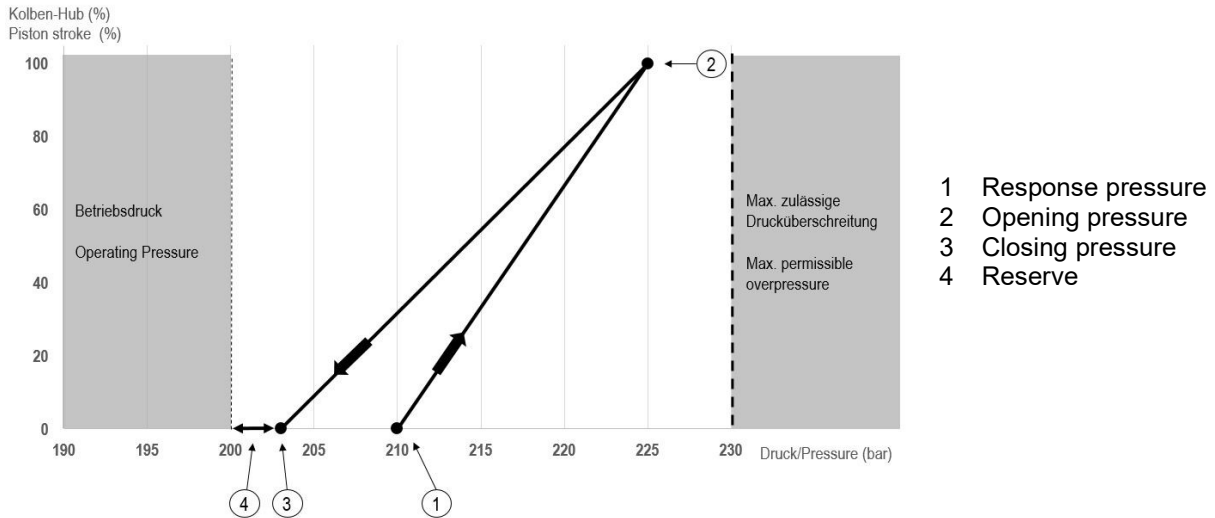


- 1 Sealing wire
- 2 Leaden seal

**Operating mode**



## Functional diagram



## Transportation and storage

Please ensure the PRV is cleaned and protected from contamination during transportation and storage. Protect the PRV against frost. The effect of frost can damage the PRV so badly that it no longer works perfectly.

## Maintenance



Assembly, maintenance and repair work may only be carried out by persons trained in maintenance and repair work on high-pressure systems. Use only spare parts approved by Suttner GmbH. Only use high-pressure components (hoses, connectors, etc.) approved for the respective pressure and temperature range.

- Perform an annual exterior visual inspection to make sure the PRV is safe to use.
- Are the markings and inscriptions legible?
- Does the PRV leak?
- Does the PRV show signs of mechanical damage?

**After max. 1000 operating hours** or a year or if hot water (exceeding 95°C) and chemicals are used after 500 operating hours or 6 months: Check valve parts (O-rings, support rings, hose clips) for damage and if necessary replace completely with a Suttner repair kit.

**After max. 3000 operating hours** or 3 years or if hot water (exceeding 90°C) and chemicals are used after 1500 operating hours or 18 months: Replace valve parts (O-rings, support rings, hose clips) completely with a Suttner repair kit.

## Disposal



Please dispose of old equipment in an environmentally friendly manner.

Old equipment contains valuable recyclable materials which should be salvaged for recycling. Please therefore dispose of old equipment at suitable collection points.