

# Installation instructions

## Unloader valve ST-275

### Article number: 200 275 xx



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## Description

### The unloader valve

The unloader valve is used to direct the volume flow of a pump back to the pump inlet depending on the operating state. This prevents the pump from being overloaded and excessive pressure on the high-pressure hose and spray gun.

The unloader valve works according to the principle of a directly actuated, spring-loaded proportional seat valve. The unloader valve is infinitely adjustable. The valve housing is made of stainless steel. All components that come into contact with the media are made of corrosion-resistant materials.

Depending on the volume taken off at the operating point and the pressure preset on the spring, the unloader valve opens a cross-section towards the bypass in order to direct the excess volume back to the pump inlet. If no volume is taken off at the operating point, the bypass operation of the unloader valve is triggered. In this case, the entire volume flow is directed back to the pump inlet.

- 1 Inlet connection
- 2 Outlet connection
- 3 By-pass connection
- 4 Adjusting nut
- 5 Switch
- Direction of flow

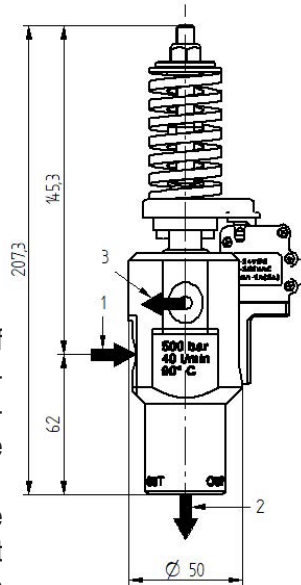


Illustration shows variant with switch

Technical data	
Maximum permissible pressure	500 bar / 50 MPa
Minimal pressure	100 bar / 10 MPa
Maximum volume flow	40.0 l/min / 10.4gpm
Water temperature, permanent	max. 90°C
Ambient temperature	max. 60°C
Inlet	G 3/8" F
Outlet	G 1/2" F
Bypass	G 3/8" F
Max solid size	50 µm
pH water	6.5-8.0
Conductivity of water [µS/cm]	max. 2000 at 20°C
Hose line to spray gun	L > 4 m

Due to its design, the unloader valve cannot be operated with guns with anti-freeze or weep functions.

## Intended Use

The unloader valve is intended for use on water-operated high-pressure systems such as high-pressure cleaners.

„All components of the high-pressure system must be coordinated with one another. The component with the lowest values (pressure, temperature, etc.) determines the maximum possible load on the high-pressure system. The unloader valve does not replace the safety valve. Only operate the unloader valve together with a safety valve.“

The unloader valve is only approved for use with fluids of Group II according to EC Regulation 1272/2008. These can be, for example, water and diluted commercially available cleaning or disinfection agents. In addition, all safety regulations and rules for high-pressure cleaners such as DIN EN 60335-79-2 and DIN EN 1829-1 must be followed.



### The processing of flammable, explosive, corrosive or toxic substances is prohibited!

The unloader valve must not be operated with abrasive substances. To avoid damage to the unloader valve, install a fine filter with a recommended mesh size of 50 µm in the water supply to the high-pressure pump.

### Normative references

- The product is a pressure-retaining piece of equipment in accordance with the Pressure Equipment Directive 2014/68/EU. Due to the application parameters, it falls within the scope of Article 4 / Paragraph 3 of this directive („sound engineering practice“) and therefore no declaration of conformity or CE marking is permitted!
- The product must not be installed in equipment that must comply with the Pressure Equipment Directive 2014/68/EU!
- The component is a standard component in accordance with the Machinery Directive 2006/42/EC!

## Symbols and their meaning



### Risk of injury due to high pressure!

Do not point the outlet at living beings. Do not spray objects that contain substances that are hazardous to health, that are electrically conductive or that are fragile!



### Danger!

If these instructions are not followed, there is a risk to life, limb and property!

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### Symbols and their meaning



**Use eye protection!**



**Please read the operating instructions!**

Incorrect handling can lead to serious injuries.

Read the operating instructions before using the device.



**Use hand protection!**



### For your safety

This Suttner product corresponds to the state of the art and the recognized safety regulations. Due to the high pressures and temperatures, there is still a risk of property damage and injury to users and other people. Be sure to follow these operating instructions and the relevant regulations for liquid jets. Regarding personal protective equipment, see the accident prevention regulations "Personal Protective Equipment" (VBG101) currently draft). Personal protective equipment includes: B. Protective suits, head protection, non-slip protective gloves and non-slip boots, metatarsal protection, respiratory protection, hearing protection, eye or face protection. Do not use the device when people without protective clothing are within reach.

- Stop operation immediately if leaks or malfunctions occur.
- Any faults that may affect safety must be remedied immediately.
- The unloader valve may only be used if it is in a technically perfect condition, structurally unchanged, as intended, with due consideration of safety and hazards and in compliance with these installation instructions. Any other use or use beyond this is considered improper use.
- All assembly work must be carried out by authorized specialist personnel.
- Please also observe the operating instructions for the devices and accessories connected to the unloader valve and also the regulations applicable to the cleaning agents.



### Danger of burns and scalding from hot media!

If you work with operating and auxiliary materials whose temperature exceeds 45° C, do not touch any uninsulated areas.

- Put on protective gloves!



### Risk of injury!

The spring with the pressure plate moves up and down.

If there is a potential risk of injury, this area must be covered with additional housing.

## Assembly

### Scope of delivery

The unloader valve is delivered unadjusted



### Instructions for use

Unloader valves are high-quality fittings that must be treated with particular care.

The sealing surfaces on the seat and piston are precision machined, which ensures the necessary tightness.

The entry of foreign bodies into the valve must be avoided during assembly and operation.

The function of a bypass valve can be impaired by hemp, Teflon tape or other sealants as well as by welding beads.

Rough handling of the finished unloader valve during storage, transport and assembly can also cause a unloader valve to leak.

If the unloader valves are painted, care must be taken to ensure that the sliding parts do not come into contact with paint.

The ST-275 unloader valve can be installed vertically and horizontally.

To ensure that the unloader valves function properly, they must be installed in such a way that no inadmissible static, dynamic or thermal stresses can act on the unloader valve.

During assembly, make sure that the maximum tightening torque is not exceeded.

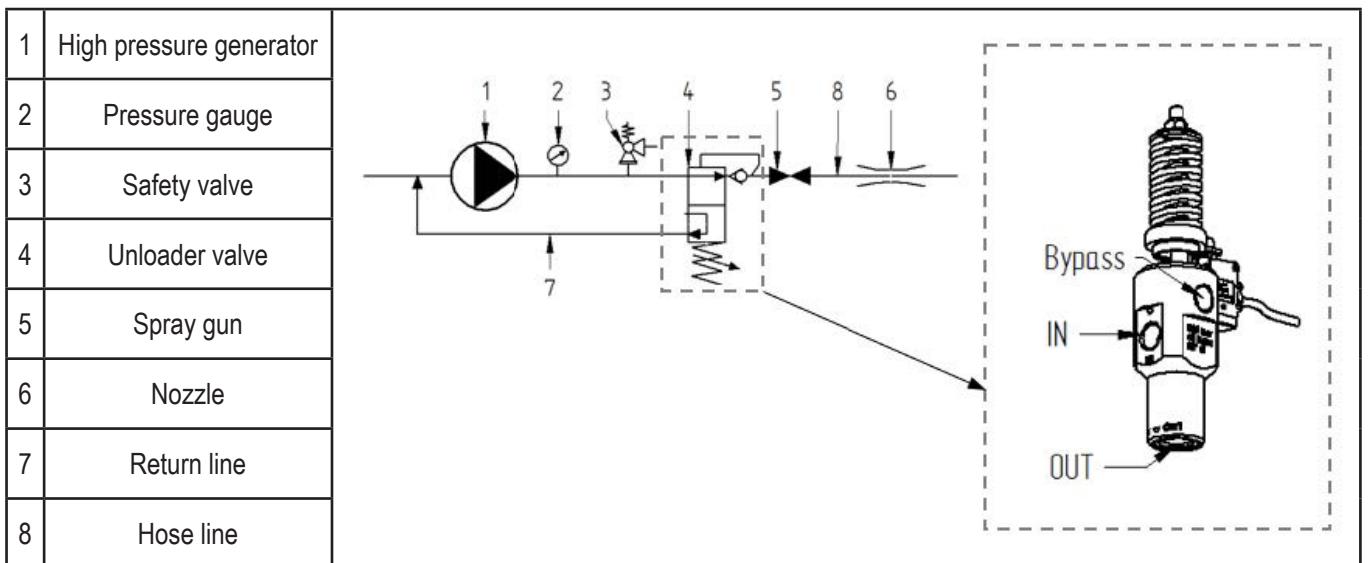
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**⚠ Instructions for use**

- Switch off the high-pressure generator (1) before carrying out any assembly work on the high-pressure system.
- Secure the high-pressure generator against accidental switching on.
- Turn off the water supply.
- Make sure that system sections and lines to be opened are depressurized.
- Seal screw connections according to your application with a suitable sealant such as Teflon sealing tape or liquid sealant (see R+M catalog Chapter 06, Adhesives and Sealants).
- Tighten screw connections in the high pressure range with 20 Nm
- Install the unloader valve in the pressure line, taking into account the direction of flow.
- Create a return line (7)
- Make sure that after installing the unloader valve in a machine/system, the device complies with the requirements of the Machinery Directive!



**Modification**

Modifications of any kind to the unloader valve are not permitted!

**⚠ Setting**

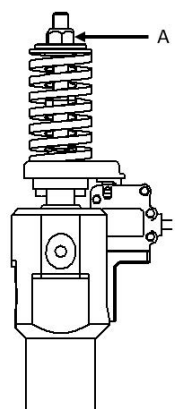
The manufacturer of the high-pressure system is responsible for the correct setting and hazard-conscious installation!  
 Incorrect setting causes the volume flow to permanently overflow into the return line. This reduces the service life of the unloader valve.  
 If you change to a different nozzle size, the setting must be made again. Ideally, you should choose the nozzle size in the lance so that no water flows through the return line at the desired working pressure.

- Loosen the adjusting nut (A) and relax the spring
- Switch on the high pressure generator (1)
- Open the spray gun (5)
- Turn the adjusting nut clockwise to the desired working pressure or until there is no increase in pressure on the pressure gauge.
- For fine adjustment, slowly turn the adjusting nut back with the spray gun (5) open until the working pressure drops a few bars below the desired value. Turn the adjusting nut a quarter turn to the right with the spray gun (5) open. This sets the optimal working pressure
- Operate the spray gun (5) several times and check the working pressure on the pressure gauge (2)

**Option switch**

If you want to switch off the pump motor during breaks in operation, use the ST-275 with an attached switch. The attached switch is a changeover switch for NC/NO signal.

A - Hexagon nut




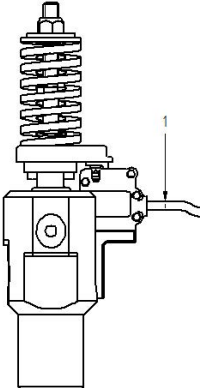
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**Product variants**

	200275500	200275550
Weight	1.32 kg	1.4 kg
Voltage	-	12-24 VDC 12-250 VAC
max. switching current	-	10 mA-5A(2A)
Schutzklasse	-	IP 6K7
Cable (1)	-	1,2 m 3x0,5 mm <sup>2</sup>



**Maintenance**

Installation, maintenance and repair work may only be carried out by persons who have been trained in maintenance and repair work on water pressure boosting systems. Only use approved spare parts. Only use high-pressure components (hoses, couplings, etc.) that are approved for the respective pressure and temperature range.

- Check annually whether the unloader valve is in a safe condition from the outside!
- Is the unloader valve tight?
- Does the unloader valve show any mechanical damage?
- Can the adjustment nut be turned?
- Is the unloader valve working/switching properly?

**After 1000 operating hours** or one year at the latest, or after 500 operating hours or 6 months when using hot water (over 80°C) and chemicals: Check valve parts (O-rings, support rings, hose clamps) for damage and, if necessary, replace completely with a Suttner repair kit.

**After no more than 3000 operating hours** or 3 years or, when using hot water (over 90°C) and chemicals, after 1500 operating hours or 18 months: Replace all valve parts (O-rings, support rings, hose clamps) with Suttner Repair Kit.

**After each use** with sticky or contaminated fluids, rinse the unloader valve with clean water.



**Please dispose of old devices in an environmentally friendly manner.**

Old devices contain valuable recyclable materials that should be recycled. . Please dispose of old devices at appropriate collection points.