

Pressure Perfect: Troubleshooting the Pressure Booster System

Pressure booster systems are critical components in various applications, from residential buildings to industrial facilities. They ensure consistent water pressure, which is not only vital for customer comfort, but also for the efficient functioning of plumbing systems, firefighting systems, irrigation, and more. Troubleshooting these systems is essential to:

- Ensuring consistent water supply
- Preventing system failures
- Enhancing efficiency and performance
- Minimizing safety risks
- Improving cost savings
- Meeting regulations and compliance
- Optimizing system performance

By regularly troubleshooting and maintaining booster systems, you can ensure they operate effectively, safely, and efficiently, providing reliable water pressure and reducing the risk of unexpected failures and costly repairs.

Booster Troubleshooting Chart

A pump may not start due to several potential issues, often related to electrical, mechanical, or operational problems.

Issue: Pump does not run	
Causes	Solutions
No power to the motor	Check for voltage at motor terminal box Check for tripped circuits, reset circuits Check main switch, switch to "on"
Fuse defective	Check fuses, replace if necessary
Water level in in break tank too low, i.e. low-water level reached	Check break tank intake valve/inlet pipe
Low-water level switch has triggered	Check intake pressure
Low-water level switch failure	Check, if necessary replace switch
Starting pressure is set too high or lower than incoming pressure	Check settings, and correct if necessary
Check valve closed at pressure sensor	Inspect, open check valve if necessary

Issue: Pump des no run (continued)	
Causes	Solutions
Electrodes incorrectly connected or supply pressure switch incorrectly set	Check installation or setting, and correct
Motor protection has triggered	Check set valves against the pump or motor data, measure current values and correct settings if necessary
Contactors defective	Check and replace if necessary
Turn-to-turn fault in motor	Check, if necessary repair or replace motor

Pumps may fail to switch off due to several underlying issues, commonly involving system leaks, pressure switch malfunctions, or incorrect settings.

Issue: Pump(s) do not switch off	
Causes	Solutions
Intake pressure fluctuates severely	Check intake pressure, if necessary take measures to stabilize supply pressure (e.g. pressure reducer)
Intake pipe blocked or shut off	Check inlet pipe, remove blockage or open check valve
Inlet pipe installed incorrectly, or too small	Check inlet pipe, replace if necessary
Air in inlet	Check, if necessary, seal pipes. Vent pumps.
Impellers blocked	Check pump, if necessary, repair or replace
Non-return valve leaking or blocked	Check, if necessary replace seal or non-return valve (leaking valve) or remove blockage or replace non-return valve (blocked)
Gate valve in system closed or not sufficiently open	Check, open gate valve completely if necessary
Flow volume too large	Check pump data and default values and correct if necessary
Check valve closed to pressure sensor	Inspect, open check valve if necessary
Switch-off pressure set too high	Check setting and correct if necessary
Direction of motor rotation backwards	Check direction of rotation and correct if necessary

A pump experiencing high switching frequency or fluttering is often a sign of issues within the pressure system, such as improperly sized pressure tank, incorrect pressure switch settings, or system leaks.

Issue: Switching frequency too high or fluttering	
Causes	Solutions
Intake pressure fluctuates severely	Check intake pressure, if necessary, take measures to stabilize supply pressure (e.g. pressure reducer)
Intake pipe blocked or shut off	Check inlet pipe, if necessary, remove blockage or open check valve
Inlet pipe too small or installed incorrectly	Check inlet pipe, if necessary, replace or reinstall
Check valve closed at pressure sensor	Inspect, open valve if necessary
No diaphragm pressure vessel present (option accessory)	Retrofit diaphragm pressure vessel
Supply pressure at existing diaphragm pressure vessel incorrect	Check supply pressure and correct if necessary
Valve on existing diaphragm pressure vessel closed	Check valve and open if necessary
Existing diaphragm pressure vessel defective	Check diaphragm vessel and replace if necessary
Set switching difference too small	Check setting and correct if necessary

Pumps producing no or too little pressure can result from various issues, including clogged filters, blocked pipes, air leaks, or mechanical failures.

Issue: Pump(s) produces no or too little pressure	
Causes	Solutions
Major fluctuation in intake pressure	Check intake pressure, if necessary, take measures to stabilize supply pressure (e.g. pressure reducer)
Intake pipe blocked or shut off	Check inlet pipe, if necessary, remove blockage, or open check valve
Inlet pipe too small or incorrectly installed	Check inlet pipe, increase pipe size or change pipe routing
Air in inlet	Check, if necessary, seal pipe. Vent pumps.
Impellers blocked	Check pump, if necessary, repair or replace
Non-return valve leaking or blocked	Check, if necessary, replace seal or non-return valve (leaking valve) or remove blockage or replace non-return valve (blocked)
Gate valve in system closed or not sufficiently open	Check, open gate valve completely if necessary
Low-water level switch has triggered	Check intake pressure
Direction of motor rotation backwards	Check direction of rotation and correct if necessary
Turn-to-turn fault in motor	Check, if necessary, repair or replace motor

A dry-running protection system may switch off a pump even when water is present due to issues such as sensor malfunctions, electrical faults, or incorrect calibration.

Issue: Dry-running protection system switches off, although water is present	
Causes	Solutions
Major fluctuation in intake pressure	Check intake pressure, if necessary, take measures to stabilize supply pressure (e.g. pressure reducer)
Inlet pipe too small or incorrectly installed	Check inlet pipe, increase pipe size or change pipe routing
Flow volume too large	Check pump data and default values and correct if necessary
Electrodes incorrectly connected or supply pressure switch incorrectly set	Check installation or setting, correct if necessary
Low-water level switch failure	Check, if necessary, replace switch

A dry-running protection system that fails to switch off despite low water levels can lead to severe damage to the pump. This issue may arise from sensor malfunctions, such as a faulty or miscalibrated sensor that incorrectly detects water presence, preventing the system from initiating a shutdown.

Issue: Dry-running protection system does not switch off, although water low	
Causes	Solutions
Electrodes incorrectly connected or supply pressure switch incorrectly set	Check installation or setting, correct if necessary
Low-water level switch failure	Check, if necessary, replace switch

Troubleshooting pressure booster systems is a critical process that ensures consistent water pressure, operational efficiency, and system longevity. By systematically identifying and addressing common issues such as low pressure, continuous running, noisy operation, frequent cycling, and sensor malfunctions, users can maintain optimal performance and prevent costly repairs. Regular maintenance, including checking electrical connections, calibrating pressure settings, and inspecting mechanical components, is essential to keep the system functioning correctly.

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