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
Low water or low suction pressure	Check intake pressure
Starting pressure is set too high or lower than incoming pressure	Check settings, and correct if necessary
Valve closed at pressure sensor	Inspect, open isolation valve if necessary Gently unscrew pressure sensor to release air
VFD fault has triggered	Check VFD manual for fault code and additional troubleshooting

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/not hit pressure	
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 system	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)
Flow volume too large	Check pump sizing
Valve closed at pressure sensor	Inspect, open isolation valve if necessary Gently unscrew pressure sensor to release air
Discharge pressure setpoint too high	Check setting and correct if necessary
Direction of motor rotation backwards	Check direction of rotation and correct if necessary (Clockwise CO-Helix and counterclockwise CO-MVI)
Transducer scaling	HMI Advanced Settings ->pressure transducer to adjust setting

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: System responds too quickly or too slowly to pressure changes	
Causes	**Solutions**
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 diagraph vessel and replace if necessary
System responds too slowly or too quickly to pressure changes	Check PID settings

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**
Suction pressure setpoint too high	Adjust setpoint in HMI Advanced settings->Alarm Settings
Transducer scaling	HMI Advanced Settings ->pressure transducer to adjust setting
Transducer failure	Check wiring, replace sensor if necessary.

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**
Suction pressure setpoint too low	Adjust setpoint in HMI Advanced settings->Alarm Settings
Transducer scaling	HMI Advanced Settings ->pressure transducer to adjust setting
Transducer failure	Check wiring, replace sensor if necessary.

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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