CARLO GAVAZZI
Automation Components

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Sensors　　　**Switches**　　　**Controls**

Application notes

Application Note : July 2022

Market involved : Water and Waste water

Product : RSGD

Customer : Panel builders

Subject : Full pump protection lowers maintenance costs

CUSTOMER ISSUE :

In pumping applications there are 3 main phenomena that can cause severe damages to the pump and/or the installation: Water hammering, Cavitation and Dry run.

"Water hammering" is caused when pumps are stopped abruptly or when the deceleration of the pump is not stable. This phenomenon is more pronounced when long pipes are used and can cause pipes and valves to break.

On the other hand, "cavitation" mainly happens during start up and is caused by a too rapid acceleration of the pump impeller. Cavitation causes pitting on the impeller thereby reducing the pump's performance.

"Dry run" condition happens when the pump runs without water. This condition destroys pump seals in a matter of seconds (approx. 30sec) because of high temperature.

All these phenomena result in high maintenance costs and high downtime.

OUR SOLUTION :

The RSGD is a 3-phase soft starter that is designed with our well-known self-learning algorithm.

During ramp-down, the RSGD triggers the torque control functionality to slow down the pump to a standstill with a constant deceleration thereby eliminating water hammering.

As a new function on the RSGD, we now have dry run protection. Through this function it is possible to detect dry run and stop the pump in about 5 seconds to prevent severe pump damage.

The RSGD also comes with a built-in motor overload protection (Class 10) that is well appreciated in the markets where pumps are used.

BENEFITS :

- Eliminates water hammering and reduces cavitation related issues

- Protects against dry run (function can be enabled/disabled via Test/Reset button or Modbus)

- More protection for pumps with a built-in Class 10 motor overload protection

- Lower disturbance to voltage network thanks to balanced currents and lower starting current

- Lower maintenance costs with built-in protection and diagnostic functions

- Easy to configure – only 3 user adjustments required

- Real-time conditioning monitoring can help to schedule and lower maintenance costs