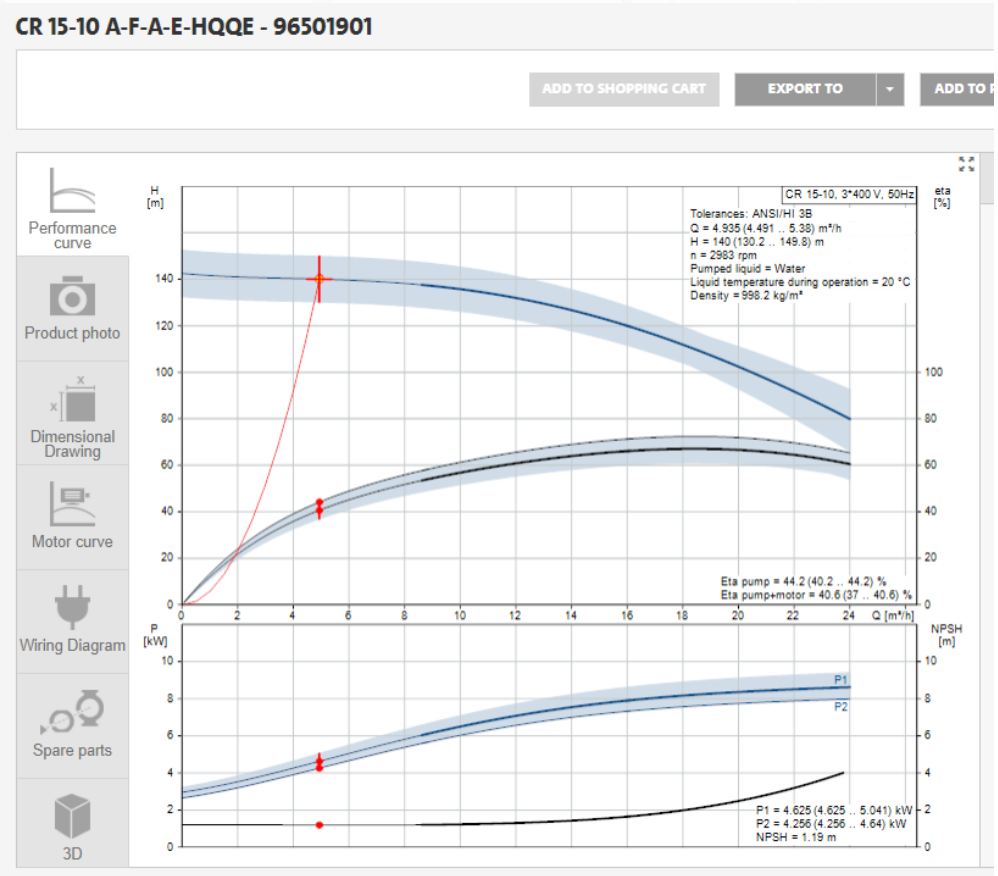
Monitoring reveals potential benefits – a new compact CRE pump realises OPEX and CAPEX cost savings

THE SITUATION

Washtec, an OEM, is today using a CR15-10 with an 11 kW motor with soft starter, as a high-pressure pump. Although our customer doesn't experience any issues with their CR pump, the pump is set to be replaced after 100,000 car wash cycles, and it would be helpful to know if it could operate for a longer time.

Because they did not know the flow in the system, a pump audit was carried out. This showed that a max flow of 5.5 m3/h @ 13 bar was required for the wash cycles. If a more compact pump solution could be offered Washtec would be interested.



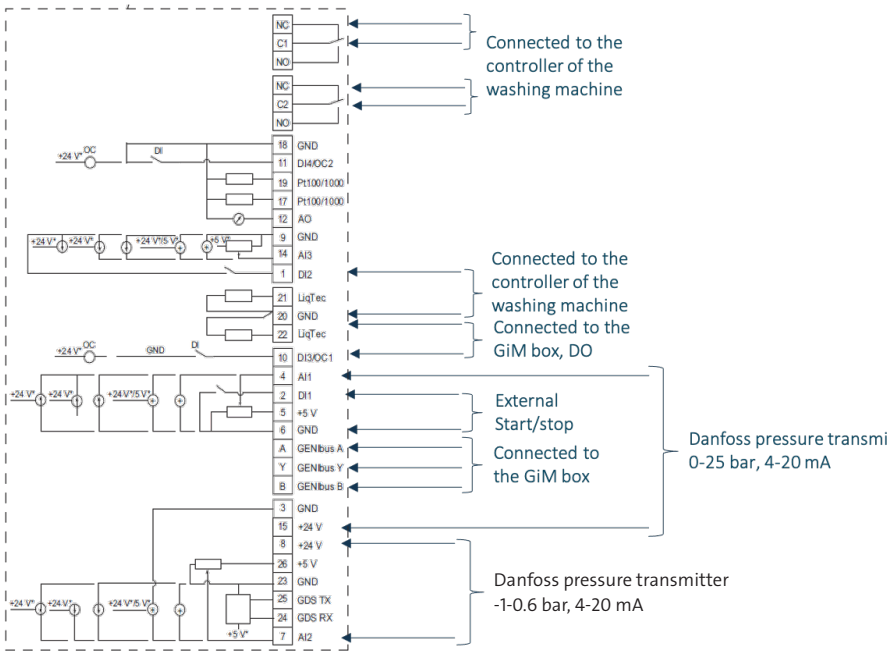
THE SOLUTION

The customer would like to use Grundfos iSOLUTIONS MONITOR to monitor the wear of the pump, so they know when to replace or service the pump. This could show that more than 100,000 car wash cycles are not a problem. Grundfos iSOLUTIONS MONITOR is our solution for monitoring CR pumps and CR pump systems for common operational issues such as dry running. A dedicated output signal can be linked to an external controller enabling fast action to prevent pump damage.

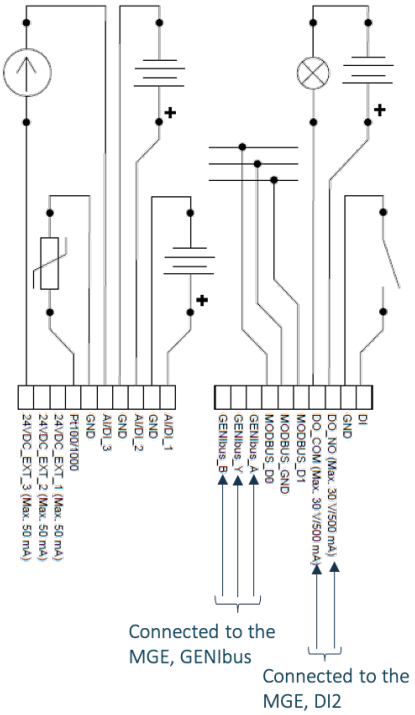
As the customer needs a compact solution, we have offered a CRE5-20 4.0 kW pump as an alternative:

- No need of soft starter = cost saving
- The new pump is set up to constant pressure operation as there are flow variations in the wash cycle = energy saving. Pump is setup for constant 13 bar of pressure but the setpoint is changed to 16 bar when high pressure cleaning is needed.
- The new pump is supplied with flow estimation as the customer would like to know the amount of water used for each cycle.
- Flow switch in the system was no longer needed as the function now is done with our pump = cost saving.
- The flow estimation combined with the pressure reading and power supply can be used to inform the customer when nozzles in the system need to be replaced because of wear.

Wiring: MGE motor



Wiring: Grundfos iSOLUTIONS MONITOR box



Settings: MGE motor

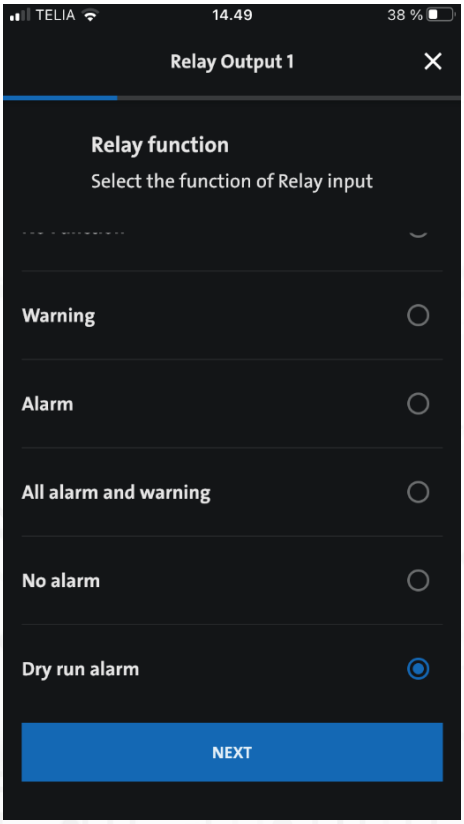
Operating mode: Normal
Control mode: Constant pressure
Setpoint: 13 bar
Other settings: Ramp-up time: 10 sec.

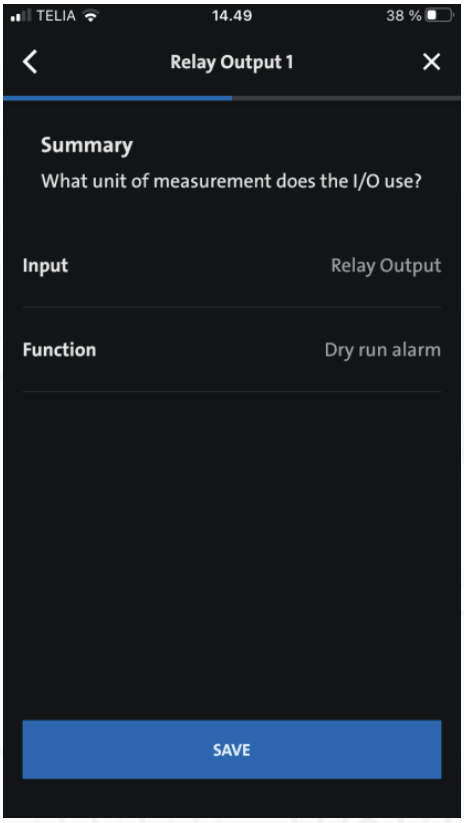
Max speed in case of failure on feedback:
sensor: Set to 87 % speed. This will ensure that the pump max can give 16 bar of pressure.

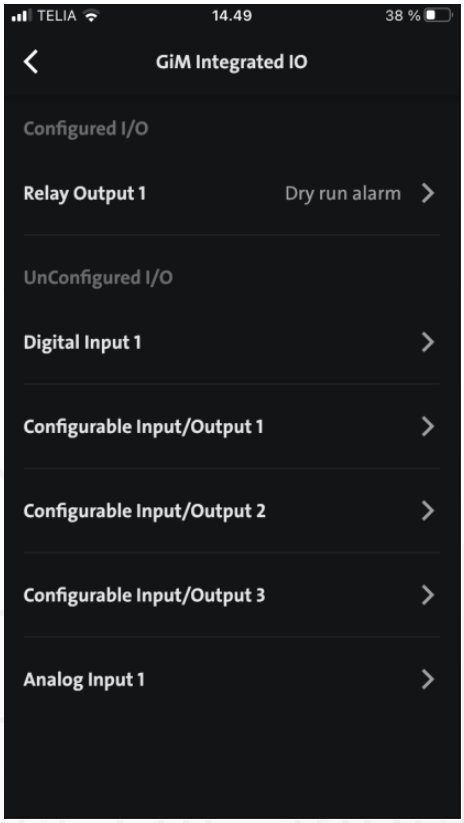
AI 1: Function: Feedback sensor
Measured: Discharge pressure
Signal, 4-20 mA. Unit, bar. Range, 0 - 25
AI 2: Function: other function
Measured: Inlet pressure
Signal, 4-20 mA. Unit, bar. Range, -1 -0.6
DI 1: Ext. start/stop
DI 2: Function; Pre def. Setp. Digit 1
DI/OC3: Mode; Digital input
Function; Dry running
Signal relay 1: Alarm
Signal relay 2: Limit 1 exceed

Limit 1 exceeded:
Measured: Discharge pressure
Limit: 8 bar
Limit exceeded when: Below limit
Action: Alarm/Warning
Detection delay: 10 sec.
Reset delay: 0 sec.
Hysteresis band: 0 sec

Settings: Grundfos iSOLUTIONS MONITOR (DO1)





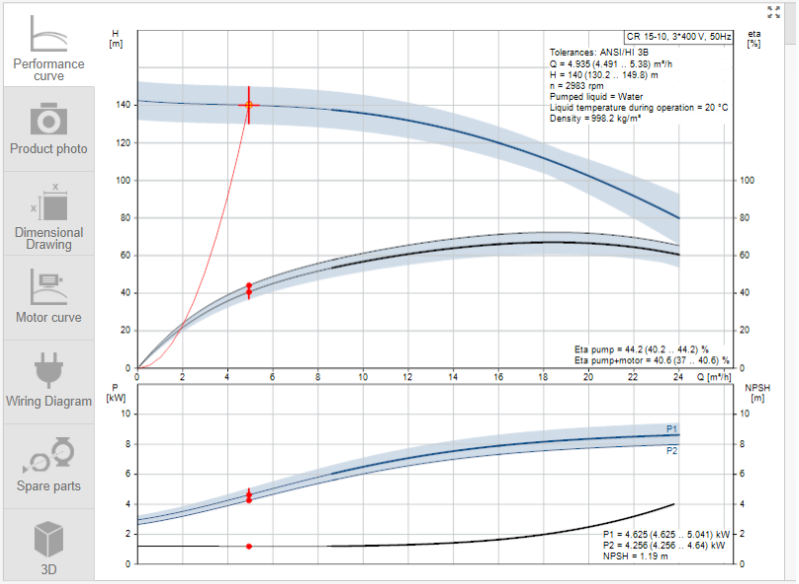


THE OUTCOME

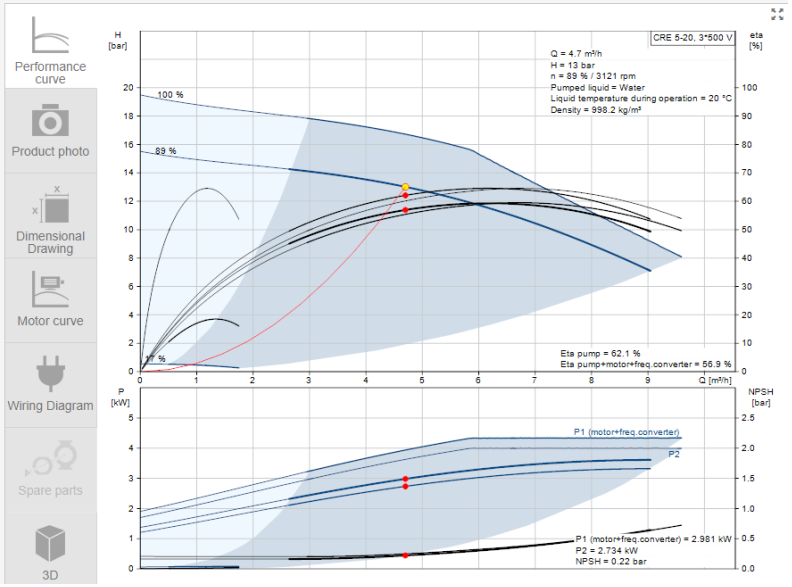
We are offering our customer a solution which helps to optimise the system in relation to savings for both OPEX and CAPEX:

- OPEX: because we have better control of the pump and the system, this reduces P1 from 4.6 kW to 3.0 kW @ max required QH
- CAPEX: Because with the use of our CRE pumps, we can reduce the number of components such as flow meters, flow switch, soft start and motor protection.
- With Grundfos iSOLUTIONS MONITOR we offer trend curves and dry running protection. Trend curves can be used to give a clearer idea of the need of service/replacement
- Trend curves, power, pressure and estimated flow can be used to monitor the conditions of the nozzles in system.

CR 15-10 A-F-A-E-HQQE - 96501901



CRE 5-20 NP-FGJ-A-E-HQQE - Configured Product



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