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Harsh rooftop testing ensures the performance of Neles™ valve controllers

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Q: How do you verify that your valve controllers will operate in varying field conditions for years?

We verify our valve controllers and actuators at our own field-testing system on the rooftop of our Valve technology center in Vantaa, Finland. We have several different types of valve positioners and actuators installed on the roof. This is long-term testing; all of the devices are here in the wintertime in cold temperatures and in the summertime when the temperatures can be very high. There can be either rain or snowfall - anything.

The control signal comes from the Valmet DNA system. For device configuration and diagnostics, we use Neles DTMs (Device Type Manager) running in Valmet DNA. This testing covers the whole system: Valmet DNA, integration components, mA control signal/PT signal, HART communication and the Neles NDX valve controller. The control sequencies vary from standard control and on-off cases to more demanding PSA applications – simulating the customer's use cases.

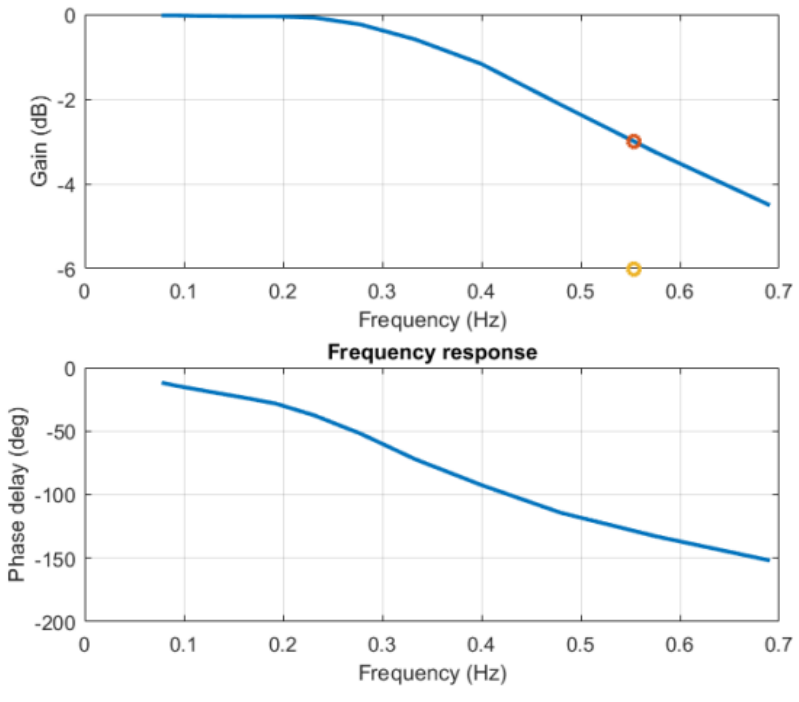
Neles actuators and positioners on the rooftop of Valmet's valve technology center in Vantaa, Finland. Some have been there for years.

Q: How do you verify the quality of control performance for Neles NDX positioners?

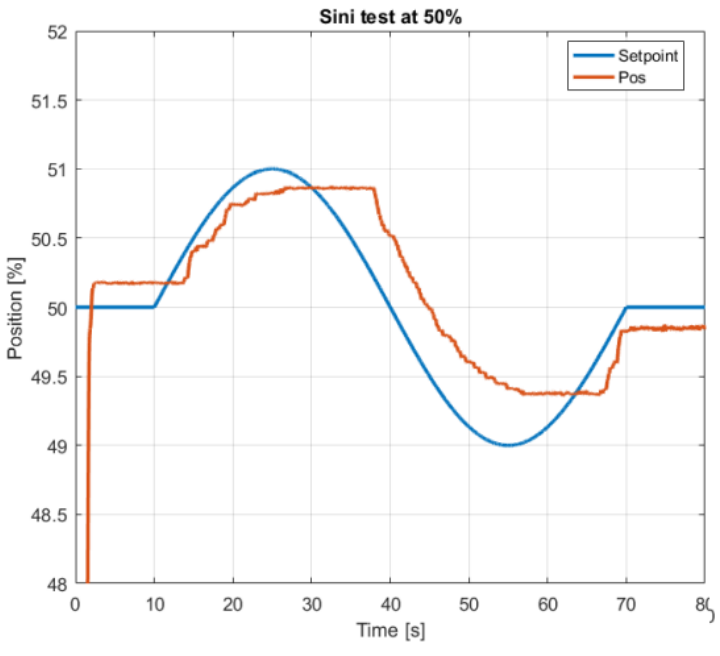
We have a control test room inside our flow laboratory, where we continuously run tests with different sizes and types of valve actuator and controller combinations. The valve actuator combinations include both Neles™ and other brands to comply with the requirements of demanding customer applications.

The test sequencies include tests like the step response test, frequency response test, ramping between open and close positions, hysteresis test, dead band test, and sinusoidal control test. All tests are run with different supply pressure levels (3, 5, 8 bar).

Dynamic properties: Frequency response



Frequency response test



Sinusoidal test

At the end of each test cycle the automated control performance tester creates a test report for every single device. This test report includes the test measures and overall performance index for every device.

Q: What other things do you test?

In addition, we test the interoperability of Neles NDX with various DCS & AMS systems, and we also perform customer testing based on their specifications for more demanding applications to ensure the performance for the customer approval.

Endurance testing
The valves remain on the roof 24/7, in harsh winter conditions as well as hot and rainy summer days.

The test sequencies include tests like:
- Step response test
- Frequency response test
- Hysteresis test
- Dead band test, between 0-100%
- Sinusoidal control test

Inside the control test room

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