

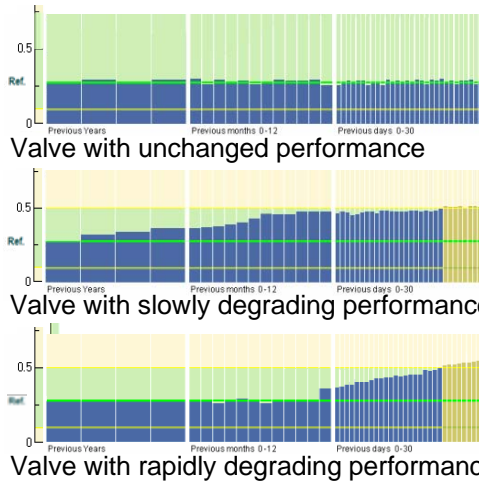


**Neles digital valve controller enables asset management and predictive maintenance without expensive software and HART multiplexers**

## Anticipate problems

### Diagnostic trends:

- Automatically gathered while the process is running
- Stored in the field device
- No computer connection needed except when viewing the trends
- Shows performance throughout the life of the valve
- Degrading performance is identified before it impacts process performance
- No costly multiplexer or software infrastructure needed



### Trends:

- Static friction
- Dynamic response
- Control accuracy
- Diaphragm leak
- Broken spring
- Sticking in seat
- Improperly sized valve
- Daily valve reversals
- Daily valve position
- Temperature
- Supply pressure

### Counters:

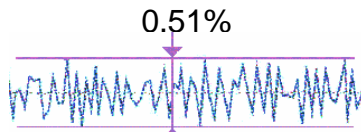
- Travel
- Reversals

## Better control

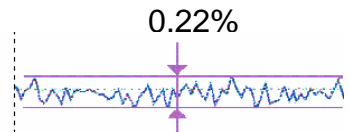
- **Advanced control algorithm** is based on a mathematical study of control valve dynamics

$$\left[ m_{red} \cdot \frac{dx}{d\psi} + J \cdot b(\psi, \mu) \right] \cdot \frac{d^2\psi}{dt^2} + m_{red} \cdot \frac{d^2x}{d\psi^2} \cdot \left( \frac{d\psi}{dt} \right)^2 + \left[ f_m \cdot \frac{dx}{d\psi} + f_v \cdot b(\psi, \mu) \right] \cdot \frac{d\psi}{dt} + \text{sign} \left( \frac{d\psi}{dt} \right) \cdot b(\psi, \mu) \cdot M_{vH}(\psi, \mu, \Delta p) + b(\psi, \mu) \cdot M_d(\psi, \Delta p) - F_m(P_A P_B) = 0$$

- Less process variability



**Without advanced control algorithm**



**With advanced control algorithm**

## Faster setup

- **Local user interface** permits faster commissioning than analog positioners
- Faster and easier to use than handheld communicator
- Automatic zero, span and tuning
- All valves are configured identically



**Local user interface**