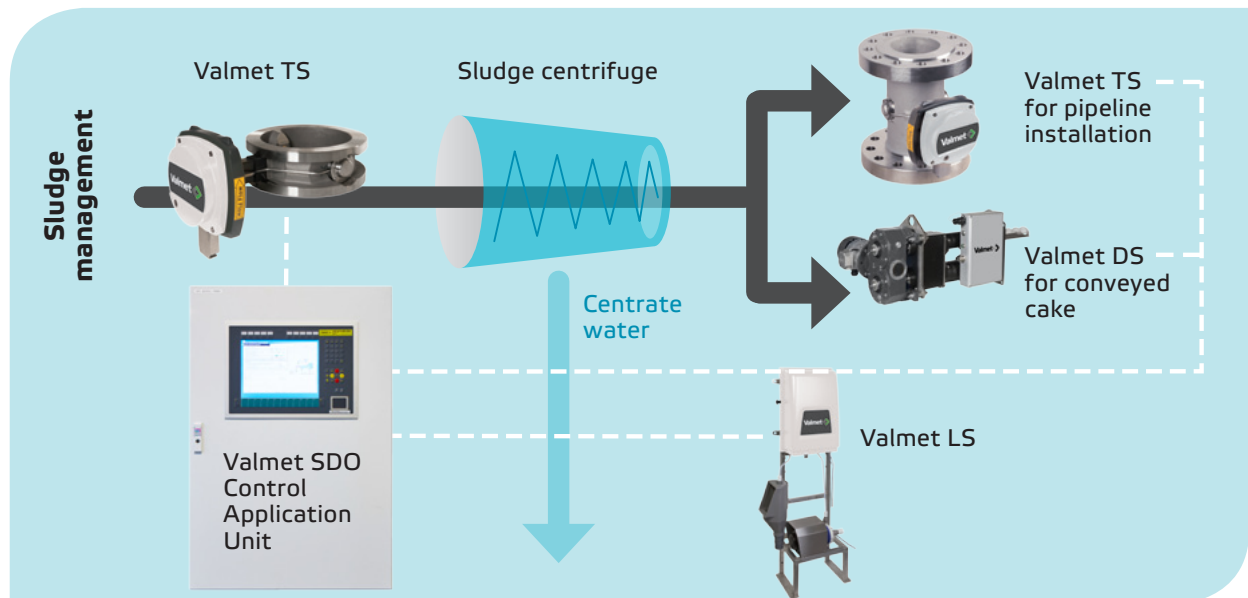


Valmet SDO

– Sludge Dewatering Optimizer

In wastewater plants, both industrial and municipal, sludge dewatering is accomplished in a centrifuge, which forces water from the sludge. The subsequent dry cake produced is either sent for incineration or transported for soil improvement. The liquid centrate is recycled back into the process. Dewatering polymer is added to the centrifuge based on the amount of feed solids. Valmet offers the Valmet TS for measuring feed solids and dry cake percent solids and the Valmet LS for centrate suspended solids measurement. The Valmet SDO using multi-variable model predictive control (MPC), uses these measurements to control polymer dosing and centrifuge torque. Multi-variable MPC is unique to Valmet's SDO and is essential for centrifuge optimization since centrifuge control is a non-linear process system.



Benefits for the end customer

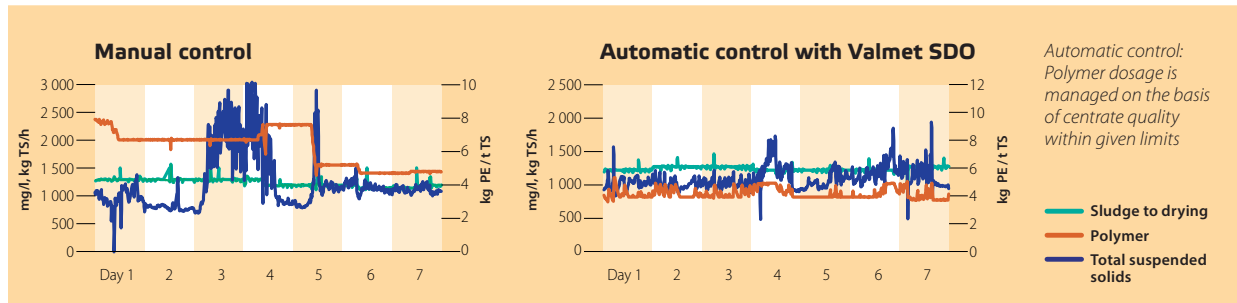
24/7 optimization

- Continuous real-time data
- Automatic centrifuge operation without operator presence

Considerable savings

- Lower transportation costs with drier cake
- Polymer reduction
- Reduction in laboratory sampling
- Lower fuel consumption in incineration
- Efficient energy consumption

Creating savings out of sludge



With Valmet SDO, one site realized a 50% savings in polymer and an increase in centrifuge performance with a decrease in centrate level.

Modular structure

The modular structure of SDO makes it possible to increase optimization features step by step based on process needs, as well as available measurements.

Product Code	Product Name	Description and requirements
Applications		
D202411	Sludge Dewatering Calculation for Polymer	Calculates setpoints for the dewatering unit based on sludge feed flow and polymer dosage based on sludge mass flow. Polymer dosage is a feedforward control.
D202409	Valmet Sludge Dewatering Optimizer Base Application	Includes the control core for the optimization and base graphic displays for centrate (D202412) and dry cake optimization (D202413).
D202412	Sludge Dewatering Optimizer for Centrate	Biases setpoints for polymer dosage based on sludge mass flow with feedback based on Valmet LS measurement. Requires Sludge Dewatering Calculation for Polymer application (D202411).
D202413	Sludge Dewatering Optimizer for Dry Cake	Calculates setpoints for centrifuge torque. Dry cake dosage feedback based on Valmet TS measurement. The D202411 related application needs to be started at the same time or earlier.
System components		
A420862	Valmet SDO stand-alone cabinet for 1-4 centrifuges	Valmet DNA SDO stand-alone cabinet with one ACN Process Controller.
A420877	Valmet SDO stand-alone cabinet option for centrifuges 5-8	Valmet DNA SDO stand-alone cabinet with two ACN Process Controllers.
D202418	Valmet SDO Valmet DNA basic licence	Valmet DNA Licences.
A420879	Valmet SDO remote connection	Remote support with a 3G cellular connection. Requires a monthly service contract.

Related Application

Valmet TS, Valmet Total Solids Measurement

- Measures feed and output cake solids
- Allows for both feed forward and feedback control
- Based on proven microwave time of flight measurement
- Low maintenance, no moving parts

Valmet LS, Valmet Low Solids Measurement

- Measures suspended solids in centrate liquid
- Self cleaning and flushing for low maintenance optical LED and Laser measurement
- Allows for optimizing of polymer dosing and centrifuge torque

Technical features

Based on the selected products the optimizer includes the following feature:

- Calculates setpoints for
 1. centrifuge feed flow
 2. polymer dosage
 3. centrifuge torque
- Possible to limit setpoint rate of change
- Utilizes multivariable model predictive control (MPC) algorithm
- Operator interface is as simple as for normal PID loops

Engineering support features

- Sludge Dewatering Optimizer is equipped with a comprehensive set of tools for tuning, maintenance and troubleshooting
- Stand-alone application capable of interfacing to other automation systems

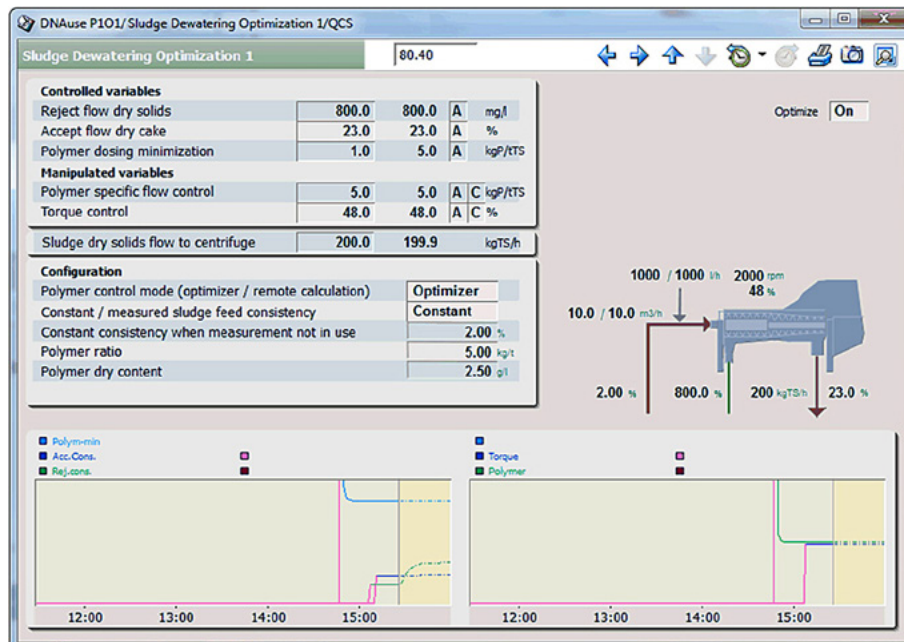
Inputs/Outputs

Inputs:

- Valmet TS before the centrifuge
- Flow measurement before the centrifuge
- Valmet LS at the centrate
- Valmet TS at the dry cake

Outputs:

- Polymer setpoint
- Torque setpoint
- Sludge feed flow setpoint



Operator picture

For more information, contact your local Valmet office. www.valmet.com

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