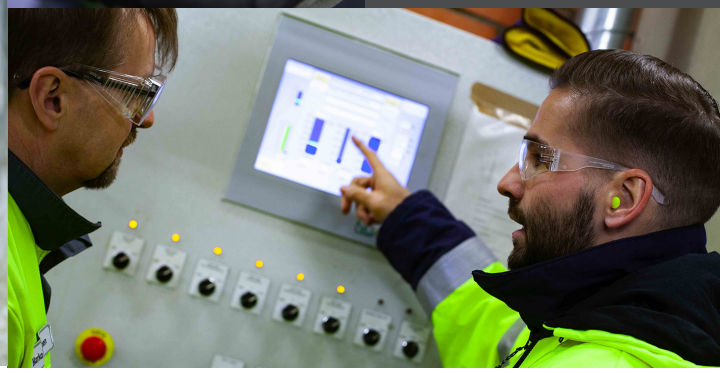
Valmet Total Solids Measurement

Proven, reliable and real-time wastewater measurement

Typically more than
20%
in polymer savings



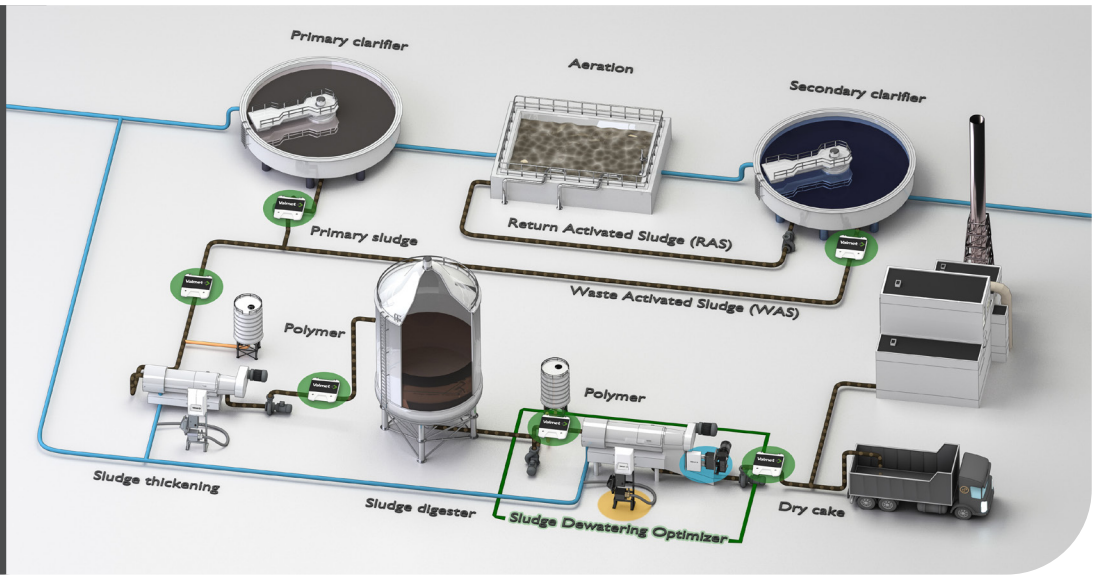
Industrial quality for all solids treatment applications

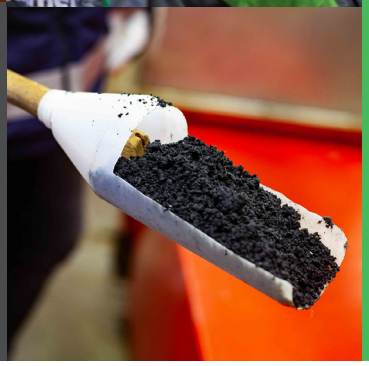
Why should your plant settle for being dependent on time-consuming and expensive lab sample analysis? Valmet TS offers a new, reliable measurement that you get onsite at your wastewater treatment plant, saving you valuable time and costs without sacrificing efficiency.

The goal of Valmet Total Solids Measurement (Valmet TS) is to provide your plant with the most accurate and reliable measurements of your total solids through innovative automation. Let Valmet ease your load with online sample analysis to reduce your need for laboratory testing and to save you both time and extra costs. Controlling and developing the process can be enhanced through accurate and fast measurements, which improves the overall efficiency of your plant, and provides crucial data for dewatering optimization. Valmet TS is the reliable, maintenance-free, easy to use solution for upgrading your plant operations.

Valmet TS in your plant

Valmet TS improves solids processing in your plant to save on polymer dosing, energy use and overall costs. Enjoy improved process control, a more efficient dewatering system, increased solids digestion time resulting in more biogas, decreased heating energy need, better incineration of dry cake, and more electrical energy production from biological reactors.





Energy
savings in pumping

Benefits of Valmet TS:

- Typically more than 20% in polymer savings
- Energy savings in pumping
- Reduced heating cost at the digester
- Increased capacity with existing plant
- Optimized biogas production
- Reduced transportation costs
- Reliable
- Maintenance-free

Reliable solutions for all solids treatment applications

Our microwave technology has been updated with the latest digital electronics and signal processing to improve the quality of solids measurement with higher resolution and sensitivity. The Valmet TS flow through sensor, totally interchangeable with earlier installations, is available in standard and high pressure versions with various sizes from 50 to 300 mm. For larger diameter pipelines, a new twin blade sensor is available.

The problem of dirt build-up, common to optical inline sensors, is avoided with a special non-stick lining providing increased resistance to contaminate coating and helps to provide a maintenance free measurement. With higher process conductivity limits, no measurement drifting and no need for recalibration, microwave technology is totally safe and provides accurate and stable solids measurements throughout the process. Valmet TS sensors are also suitable for explosion-proof applications having ATEX, IECEx, and UKEX certifications.

Other new features include: integrated pressure measurement, the Bridge user interface with 7 inch touch screen, new calibration features, intelligent diagnostics and remote access with IoT readiness.

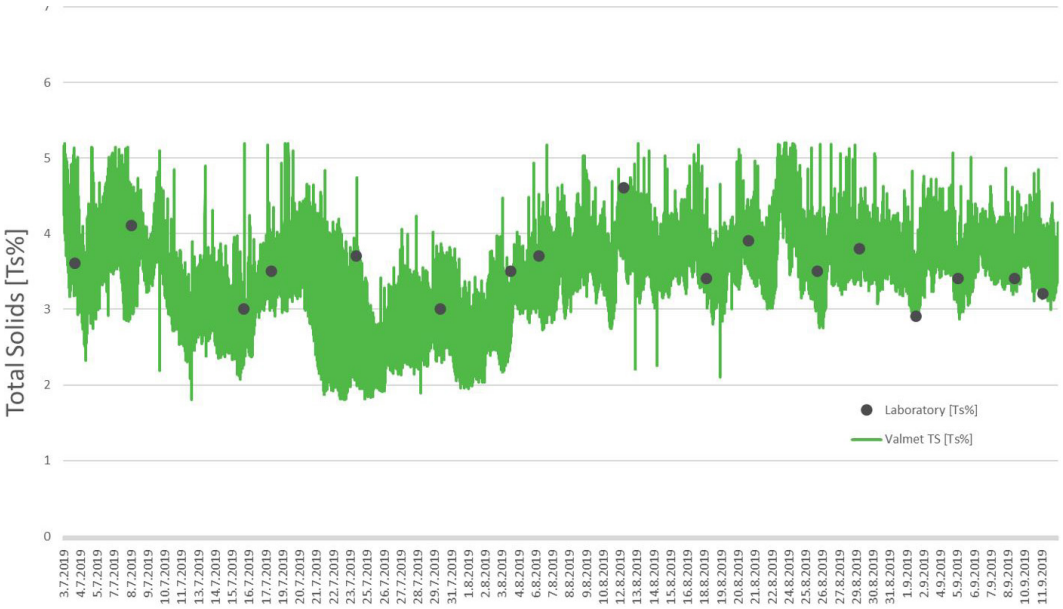
New Bridge User Interface

Twin Blade sensor

Flow Through sensor

High Pressure sensor

Reliable solids measurements mean considerable savings



On the basis of the laboratory measurement it is not possible to follow the process dynamics because the situation changes immediately after the laboratory sample is taken.

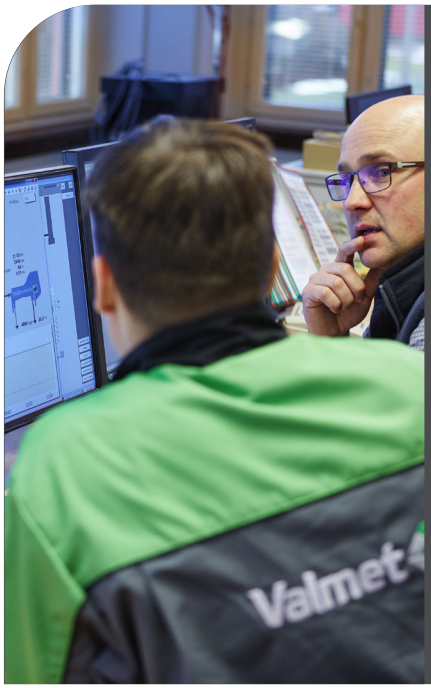
Measurements you can rely on

Traditionally the only reliable online measurement available to wastewater process engineers has been flow. Laboratory solids content tests are carried out infrequently and, because results are available only after a considerable delay, only partially support process control.

Proven results achieved in close to 2000 wastewater plants around the world form a solid basis for reliable control at your plant, too - the most efficient way towards real process optimization and considerable savings.

Valmet TS uses patented microwave-based technology, which allows it to continuously measure total solids content, unaffected by flow rate or color of the process stream. Solids conduct microwaves faster than water so that shorter microwave transmission times correlate to higher solids content. The relationship is linear, making it easy to calibrate the device regardless of what is being measured.

With advanced self-diagnostics capability, multiple internal measurements are carried out in order to monitor the overall reliability of the measurement, ensuring you precise results.



Industrial Internet

Valmet Industrial Internet enabled solutions combine process technology, automation and solutions for the benefit of the customer. With our interconnected technology applications, all analytics, big data and other actionable information is gathered and analyzed for use in process and plant maintenance improvement.

The Industrial Internet connects your plant services and analysis processes like never before for the most advanced process control available. Furthermore, with our Industrial Internet readiness you can get expert help from Valmet quickly and easily.

With Valmet Industrial Internet enabled services you receive better asset management, improved logistics, condition monitoring, technical support and much more. Valmet TS and the Industrial Internet combine to give your plant the benefits of enhanced performance, better maintenance predictability, and improved machine diagnostics.

Technical specifications

Valmet TS

Valmet TS sensor

Measurement
Measuring range .....0–50 % TS
Repeatability .....± 0.01 % TS
Sensitivity .....0.001 % TS
Filtering .....1–99 s
Microwave power.....-6…+25 dBm

Pressure measurement
Measuring range .....0–25 bar
Accuracy.....± 0.1 bar

Process conditions
pH range.....2.5 – 11.5
Temperature .....0 ≤ T < 100 °C / 32 ≤ T 212 °F
Vibration .....max. 20 m/s², 10–2000 Hz
Process flow .....min. 0.01 m/s
Minimum process
pressure .....Pipe must be full, pressurized and flowing
Maximum process pressure
- TB.....PN25
- Standard FT.....DIN PN16 / ANSI Class 150 / JIS 10 K
- High pressure FT.....DIN PN100 / ANSI Class 600 / JIS 63 K

	Temperature [°C / °F]	Max. process pressure [bar / psi]
High pressure FT: ANSI Class 600	0…38 °C / 32…100 °F	99 bar / 1435 psi
	< 50 °C / 122 °F	96 bar / 1392 psi
	< 100 °C / 212 °F	84 bar / 1218 psi

Operating environment
Temperature .....-20…+70 °C (-4…+158 °F) protect from direct heat sources
- ATEX/IECEx.....-10…+70 °C (+14…+158 °F) protect from direct heat sources
Housing class.....IP66 (NEMA 4X)
ATEX/IECEx/UKEX.....Ex II 1/3 G Ex ib nR IIC T4 Ga/Gc; -10 °C ≤ Tamb ≤ +70 °C IECEx EESF 20.0020X; ATEX: EESF 20 ATEX 056X; CML 21 UKEX 2625X

Connections
Operating power, communication.....M12 sensor cable from opetaring terminal

Materials, TB sensor
Wetted parts .....AISI 316L Ceramic; OPTION: non-stick, rubber lining or hardened
Sealing rings .....EPDM, FKM, PTFE
Process coupling .....AISI 316L
Mounting clamps.....AISI 304
Mounting bolts.....8.8 ZNE and AISI316

Materials FT sensor
Wetted parts .....AISI 316, AISI 316L, Ceramic; OPTION: non-stick or hardened
Sealing rings .....EPDM, FKM

Technical specification

Valmet Bridge operating terminal

Connections
Cable to sensor.....length 10 m (33 ft)
Operating voltage.....90 – 260 VAC / 10 W

Connections to mill systems
- analog outputs.....2 current outputs, 4–20 mA
- HART® .....12 – 36 VDC
- binary inputs.....4 x 12–28 VDC / 10 mA isolated
- relay outputs .....2 relay outputs, max. 250 VAC, 220 VDC/2 A

Connection options
USB.....SW update, backup
Ethernet

Operating environment
Temperature .....-5…+50 °C (+23…+122 °F)
Housing class.....IP66 (NEMA 4X)

Materials
Housing .....Aluminium casting
Display cover.....Polycarbonate

Dimensions & weight
w x h x d .....258 x 303 x 172 mm 10.2” x 11.9” x 6.8”)
Weight .....6.4 kg (14.1 lbs)

Making the most out of Valmet TS

Clarifier and thickener solids measurements

Typically pumping from clarifiers to the thickening tank is controlled in a timed sequence. Towards the end of the sequence, the clarifier can be emptied of solids and only water is pumped. With Valmet TS measuring the total solids content, the pumping sequence can be controlled by actual solids content to avoid excess water being pumped to solids thickening.

Improved digester operations

Valmet TS monitoring solids content after thickening enables an optimum increase of solids content to the digester; reducing heating demand, increasing residence time and producing more biogas.

Centrifuge and press optimization

Valmet TS can be used to stabilize the mass flow to the centrifuge or press and control dewatering polymer addition as a ratio to the mass flow rather than the flow rate only based control typically used. Valmet TS can also be used to measure dry cake up to 50% dry content.

Higher conductivity applications

Valmet TS can be used in wastewater systems with high conductivity wastewater, such as systems that use sea water, industrial wastewater systems, biowaste (i.e. biogas production), and in the handling of animal waste. It can also be used in the treatment of surface water.

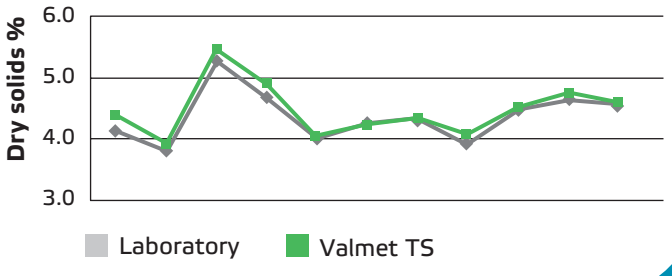
Confidence in your solution

As a trusted source for industry know-how, and a committed partner to moving your business forward, Valmet ensures that our experts can provide you with the solutions you need to succeed - don't let anything go to waste.

"The data given by Valmet TS makes running the dewatering unit easier and has reduced total solids variability in our process. Thanks to this, we have gained savings especially in the further treatment costs of dewatered solids. And our operators like the new easy-to-use user interface."

Pekka Paavola
Production Engineer, Kemi Energy and Water, Finland

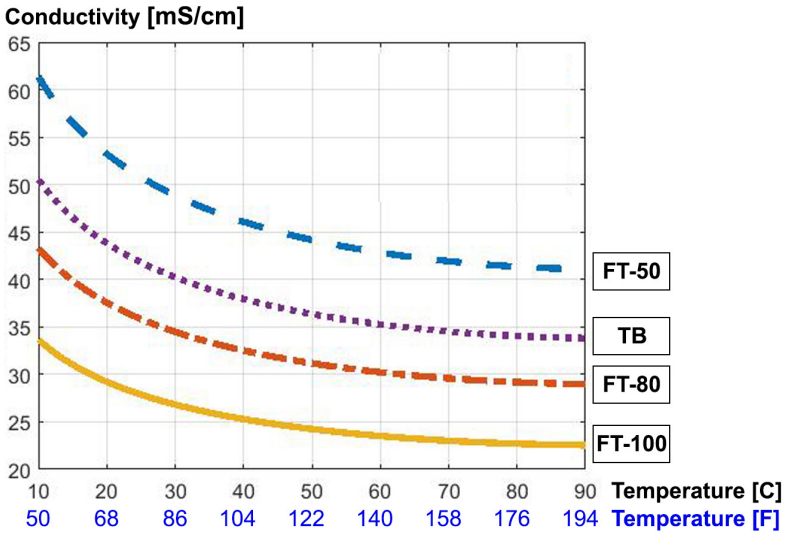
Valmet TS compared to laboratory



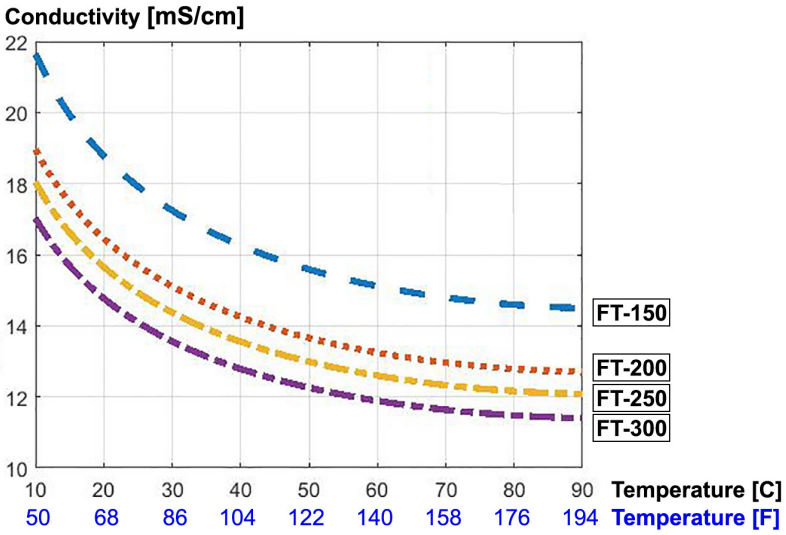
Technical specifications

Maximum conductivity limits for the different sensor models

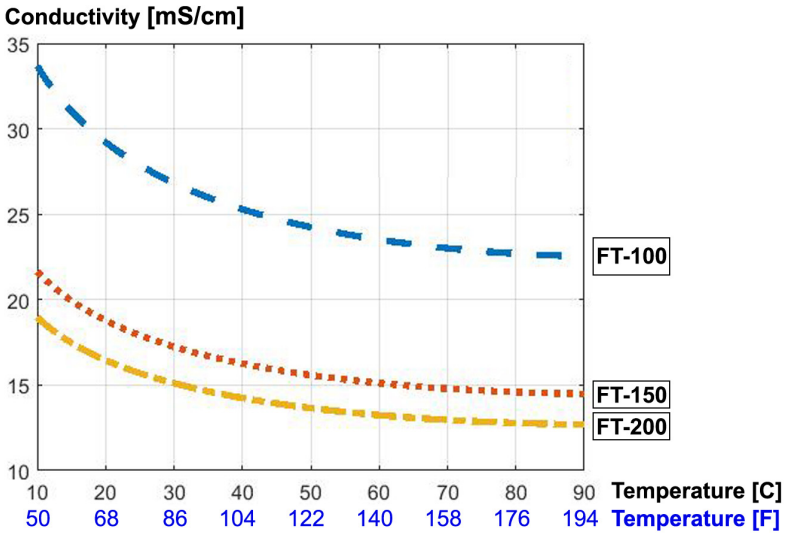
Standard – small



Standard – large



High pressure models



Valmet's professionals around the world work close to our customers and are committed to moving our customers' performance forward – every day.

Over 8,200 analyzers and tens of thousands of measurements delivered all over the world.

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

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