

TCS-2531

Total Consistency Single



FEATURES

- In-line total consistency measurement
- High accuracy real time results
- No increased process pressure needed
- Insensitive to vibrations and temperature
- Quick installation, startup, and calibration

BENEFITS

- Lower production cost due to tighter production rate control
- Increased production - eliminate bottlenecks
- Minimize off-specification production
- Reduced energy consumption
- Low life cycle cost

GENERAL

The TCS-2531 is a total consistency transmitter suitable for single grade applications or for several grades using different calibrations.

The transmitter is mounted in-line and provides real time results. The transmitter has a unique low-maintenance probe without electronic components attached, which makes it insensitive to variations in temperature and vibration.

The sensor electronic employs modern microprocessor technology with advanced signal analysis. It is operated using BTG's electronic platform, the CPM, with analogue output and HART®.

The TCS-2531 can be used in most applications from the pulper to the machine chest with good results and fast payback.

As part of the new generation of easier smaller, smarter and lighter product range, the TCS-2531 is designed to help you rapidly optimize the pulp and paper making process, for significant cost and productivity improvements.

BTG reserves the right to make technical improvements.

MEASURING PRINCIPLE

THE PEAK METHOD, REFLECTION

The TCS-2531 is based on the patented Peak method for measuring total consistency of pulp suspensions. This technology is based on the fact that pulp suspensions contain large as well as small particles which reflects the narrow light beam in characteristic patterns.

The light reflected back to the sensor is detected and the patented Peak method is used to weigh the various signal components to provide a true total consistency measurement.

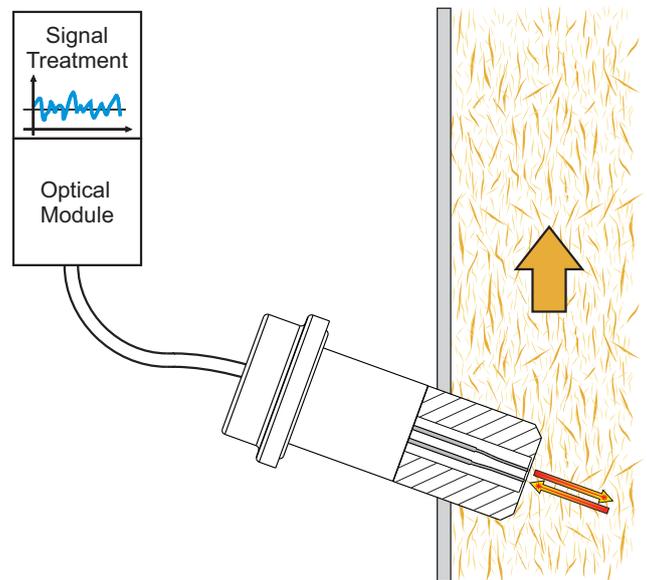


Fig. 1 TCS-2531 measuring method

APPLICATION EXAMPLES

SCREEN CONTROL

True mass flow calculations at both inlet and reject are pre-requisites for an optimal set of the ratio between inject and reject. The TCS-2531 measures total consistency, an indispensable requirement for mass flow calculations.

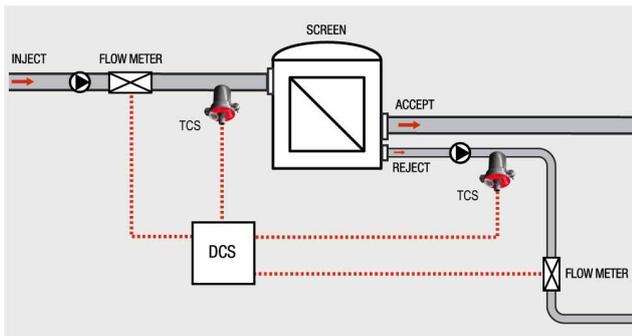


Fig. 2 Screen control with TCS-2531

PULPER CONTROL

It is important to control the consistency as early as possible in the process. The TCS-2531 works well in applications with harsh conditions and a lot of impurities since it is not going into the pipe, thus avoids catching strings etc.

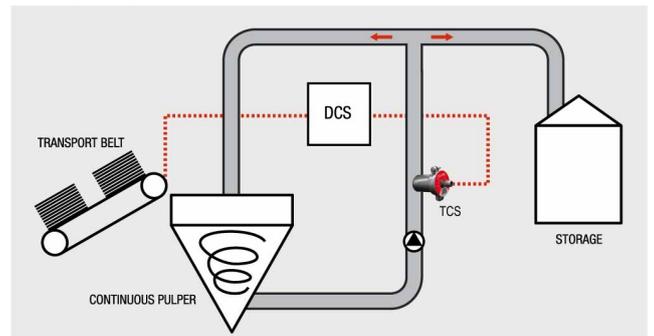


Fig. 3 Control of continues pulper with TCS-2531

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TECHNICAL DATA

Type	TCS-2531 In-line optical total consistency transmitter for pulp suspensions	Communication platform (CPM)	For information about the CPM, including input and output signals, see the CPM product sheet PS2026
Manufacturer	BTG Instruments, Säffle Sweden	Functions:	
Measuring principle	Light reflection and scattering based on BTG's patented Peak-method. Performed by reflection of NIR light	Output signal	Total consistency in % or mg/l
Measuring range	0.5 - 16 % pulp consistency	Calibration sets	Four separate calibration sets, individually programmable, and externally controllable
Repeatability	± 0.002 %Cs	Alarm function	Provides alarm signal on LED intensity deviation and high electronics temperature
Process conditions:		User interface	See Communication platform
Process pressure	PN16 (16 bar at 20°C [230 psi at 68°F])	Serial port	RS485
Media temperature	Max. 120°C [248°F] Min. 5°C [41°F]	Mounting:	
Max. ambient temperature	Probe: 80°C [176°F] Electronics: 50°C [122°F]	Min pipe diameter	80 mm [3.2"]
Flow velocity	1.3 - 5 m/s	Electrical connection	100-240 ±10% VAC, 50/60 Hz. Connected in CPM
Process pH	4 - 11	Power consumption	Max 50 VA, a 2A slow blow fuse must be used
Material:		EU-directives:	
Wetted parts	Stainless steel, EN 1.4404, equiv. to ASTM 316L	89/336/EEC	EMC directive
Electronics box	Painted aluminum	73/23/EEC	Low voltage directive
Weight:		97/23/EEC	PED-Directive
Transmitter	0.6 Kg [1.3 lb]	Safety and protection class:	
Stud	0.25 Kg [0.6 lb]	Product safety	CE, C-tick, ETL
Sensor electronics box	0.25 Kg [0.6 lb]	Protective rating	Equivalent to IP65, NEMA 4x

DIMENSIONS

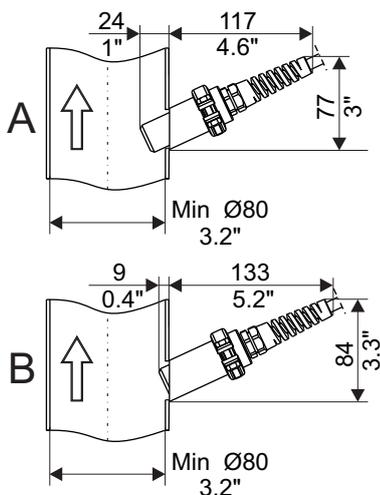


Fig. 4 TCS-2531 Probe.
A: Normal pulp, B: Unscreened pulp

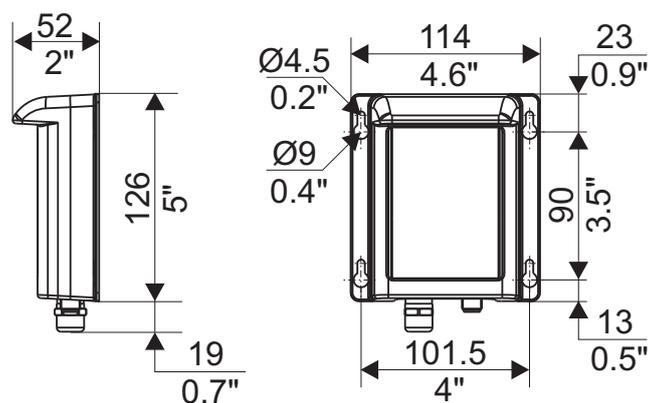


Fig. 5 Sensor electronics

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