

*for continuous in-line solids
measurement in chemical
and mineral slurries*



MODEL 9670 – SOLIDS METER

PRODUCT INFORMATION

Model 9670 – Non-nuclear In-line Solids Meter

INTRODUCTION

The Rhosonics non-nuclear Model 9670 Solids Meter offers information about the dissolved solids (TDS), suspended solids (TSS) and density in your chemical liquid or slurry and is designed for a wide range of industries and applications. The model 9670 has a robust design with sensors that are made of highly corrosion and abrasion resistant materials to withstand rough process conditions.

The analyser is mostly used for measurement of the solid content in chemical slurries. However, the instrument can also be used to measure multiple other parameters of a liquid or slurry such as the density in g/l, concentration (TDS) in wt% and the temperature.



Installation by an UFTC spool piece

INDUSTRIES

The Model 9670 Solids Meter is developed for the following industries:

- Mining and mineral processing
- Pulp and paper industry
- Building materials
- Chemical industry
- Any other application where measurement of solids is required

FEATURES AND BENEFITS

Major features and benefits of the Model 9670:

- Real-time in-line solids and density monitor
- Wide range of measuring parameters
- Non-nuclear technology
- Corrosion and abrasion resistant sensors
- Easy installation and maintenance free
- Outputs for process control and alarm signal

TECHNOLOGY

■ Attenuation (solids)



Particles are absorbing ultrasonic energy. Model 9670 measures the loss of energy over a particular distance. Those losses are a value for the amount of solids, expressed in weight percent (wt%) or gram per liter (g/l).

■ Acoustic impedance (density)



The acoustic impedance is the reflection of energy at the interface between the sensor and slurry or liquid.

■ Sound velocity (concentration)

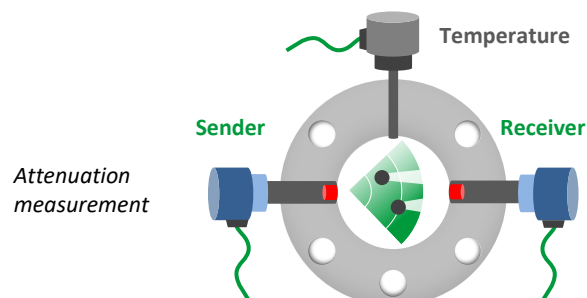


The sound velocity is determined by measuring the time that the ultrasonic signal is traveling over a known distance. This distance is from the sending to the receiving sensor and is equal to the pipe diameter.

■ Pt100 sensor (temperature)



The temperature is measured by a Pt100 probe to compensate for temperature influences.



INSTALLATION

There are multiple configurations available for the solids meter, the final choice depends on the specific applications of the customer.



Installation by an UFTW ultrasonic flow through wafer

The model 9670 can easily be installed in pipe lines by mounting the sensors onto a metal UFTC spool piece or with a flow through wafer. With both installation methods, there will be zero intrusion of the ultrasonic sensors in the process liquid or slurry.

For tank installation, Rhosonics will use another sensor type. This configuration offers a specially designed diver or tank probe and uses reflection technology with one ultrasonic probe instead of two compared to the model 9670. This product is available as the **model 9680 solids meter**.

REFERENCES

The Model 9670 is sold to leading companies in the fertilizer industry, such as phosphate plants in Morocco and Northern America.

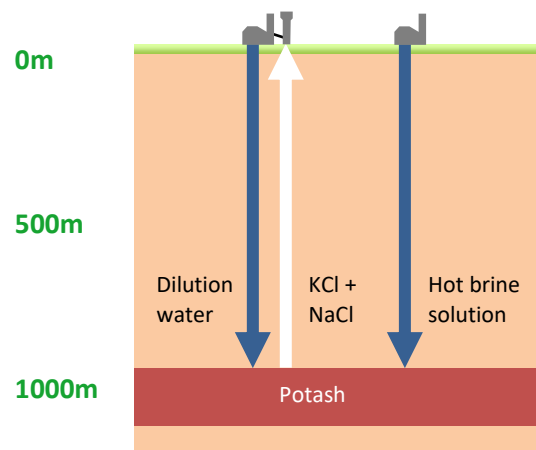


APPLICATIONS

A typical application can be found in the fertilizer industry where the Model 9670 is used in phosphate processing plants to measure the weight percent solids or density of phosphate in a diammonium phosphate (DAP) slurry.

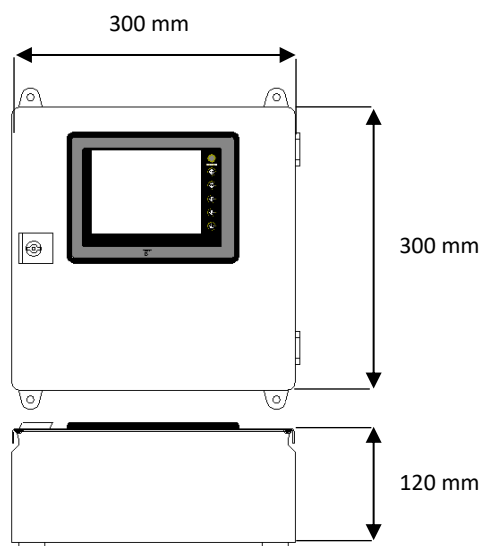
Another application can be found in 'solution mining'. Potash mining companies pump a hot brine solution in the ground under high pressure to dissolve potassium chloride (KCl). The Model 9670 measures the total dissolved solids (TDS) and total suspended solids (TSS) in the solution which is pumped back up to the surface. On the surface, further processing takes place to recover the dissolved KCl.

Once the returning brine solution reaches its point of having suspended solids, this is an indication that the solution is approaching saturation. The customer sends dilution water down the return piping to break saturation to prevent the pipe from clogging off. The model 9670 can help the customer to detect the saturation point to prevent the pipe from clogging off and helps him to use the least amount of dilution water as possible.

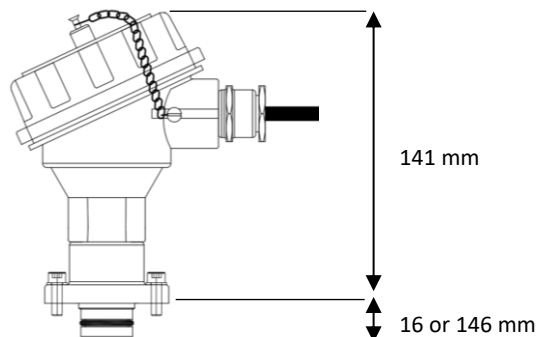


Model 9670 measures the TDS and TSS in the brine solution which is pumped back to the surface

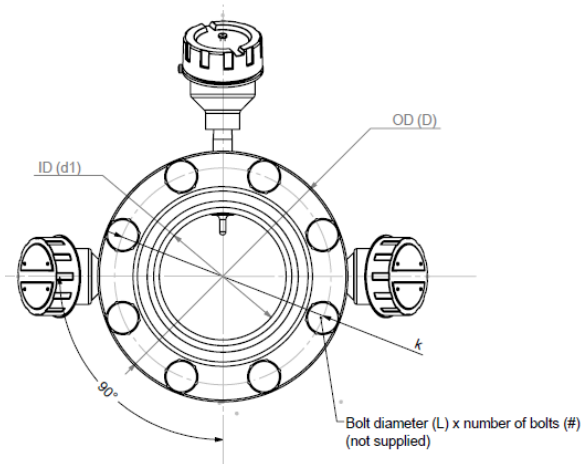
HOUSING DIMENSIONS



UMCS SENSOR DIMENSIONS



INSTALLATION BY A SPOOL PIECE



PERFORMANCE SPECIFICATIONS

Method:	Attenuation, sound velocity, acoustic impedance and pt100 temperature measurement
Measuring range:	Various, depends on the application
Readings:	Solids g/l, Concentration wt%, Density g/l, Temperature in °Celsius
Accuracy:	Up to 0.1% of reading, various depending on the application
Display:	5,7" Color Touch Screen
Operation:	Touch Screen Display, Computer

GENERAL SPECIFICATIONS

Process conditions

Max pressure:	25 bar
Temperature range:	0 °C ... 110 °C (32 °F to 230 °F)
Wetted materials:	316L, PEEK

Electrical specifications

Power supply:	24VDC or 100-240VAC 50/60Hz
Communication & Output:	4-20mA outputs (2x), Alarm output (2x), RS485/RS422 using Modbus Optional: Ethernet, Profibus
Data logging:	USB data logging & fault reporting
Cable entries:	5 pieces of M20x1.5 cable glands for Ø5-9 mm cable

Ambient conditions

Ambient temperature:	-20 °C to +65 °C (-4 °F to 149 °F)
Humidity:	< 95% at 40 °C (noncondensing)
Sensor protection:	IP68, NEMA 6P

Housing dimensions and weight

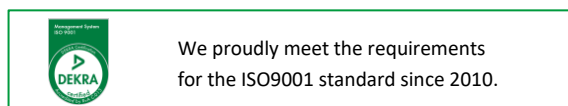
Weight:	Weather proof housing (WPF) approx. 6 kg, sensors and cells various weight depending on type
Housing materials:	WPF housing made of coated steel
Dimensions:	WPF housing 300 x 300 x 120 (L x W x H in mm)
Process connection:	- UFTC Spool piece with 3 ports - UFTW flow through wafer - UWC wafer cell with 3 ports
Standards:	DIN/ANSI
Nominal pipe size:	1" up to 3" pipes with UFTW probes 3" up to 16" pipes with UWC probes

About us



MEASURING BEYOND LIMITS

Rhosonics is based in the Netherlands near Amsterdam. We design, produce and supply state-of-the-art measuring instruments for virtually any industry. The company cooperates with partners worldwide to offer the best technology solutions. We use craftsmanship, capability and creativity to create measurement beyond limits.



CONTACT

Rhosonics

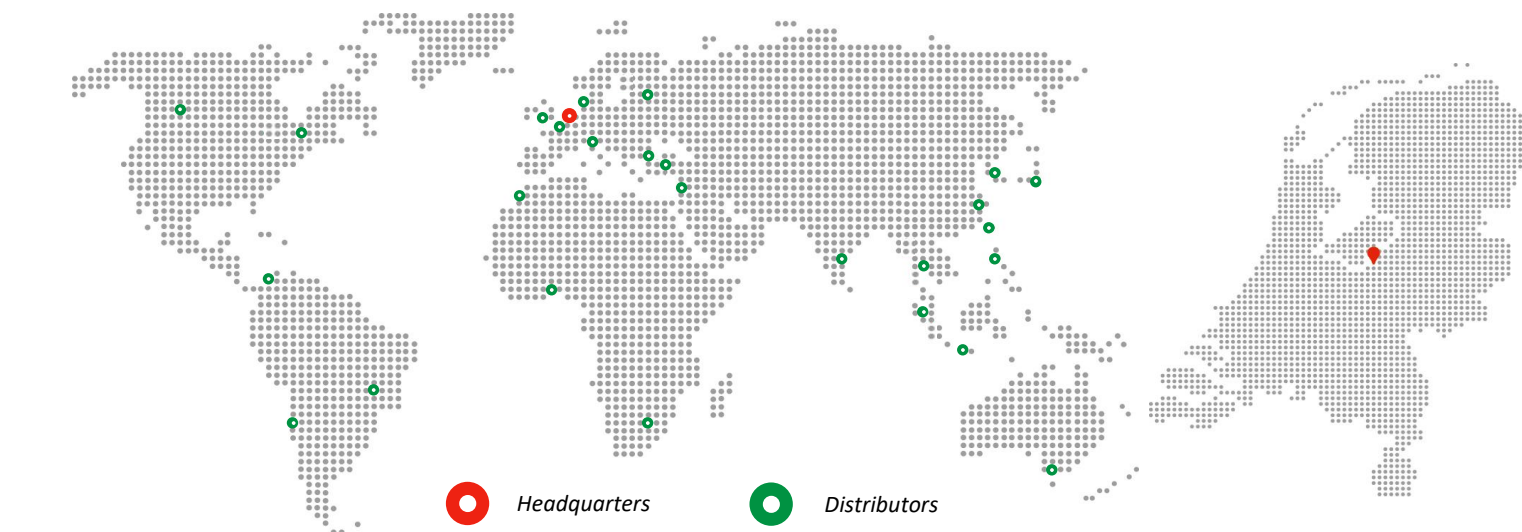
Hoge Eng West 30, 3882 TR Putten, NL

Phone: +31 341 – 37 00 73

Email: info@rhosonics.nl

Website: www.rhosonics.nl

Distributor



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