

# SAND MANAGEMENT

## RELIABLE PROCESS MONITORING

- ✓ Design Pressure Up To 10 000 Psig (690 Barg)
- ✓ Instant And Reliable Measurement
- ✓ Onshore And Offshore Applications Available
- ✓ Sensor Works Contaminated
- ✓ Full Profiling



**How much is sand production costing us?**  
**How do we manage our sand production?**

A frequent and reliable process stream has been lacking for industries such as oil & gas upstream processing. Up to 80% of the upstream production comes from mature fields with various production challenges linked to high water cuts, emulsion and rag layers and solids production, to name a few. For the cost and energy-efficient operation, real-time process insights are highly valuable, for instance, level detection and profiling, dispersion band variations and solid layer build-ups. ROCSOLE™ can provide a variety of services and data analytics based on customer needs to improve business value. The solution can be provided either as an integration into the existing control system or as cloud-based SaaS services.

**ROCsole**  
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# PROBE FOR SAND

## PERFORMANCE

Technology	Electrical Tomography	Resolution	11- 22mm (0.43- 0.87")
Level Accuracy	± 1% (application specific)		
Typical Measurement Range	180-2880 mm (7-113")		
Typical Total Length	200-5000 mm (8-200")		
Minimum Nozzle Size ID	25mm (1")	Customisable probes are available, please contact Rocsole.	
Pressure Range	Up to 690 bar (10 000 PSI)		
Probe Temperature Range	Up to 175 °C (350 °F)		

## ELECTRICAL CHARACTERISTICS

Supply Voltage	24Vdc	Output	- Modbus/TCP
Electronics	24Vdc @ 3A		- Modbus/RTU (RS485 & RS232)
Computer	24Vdc @ 3A		- Analog 4-20mA

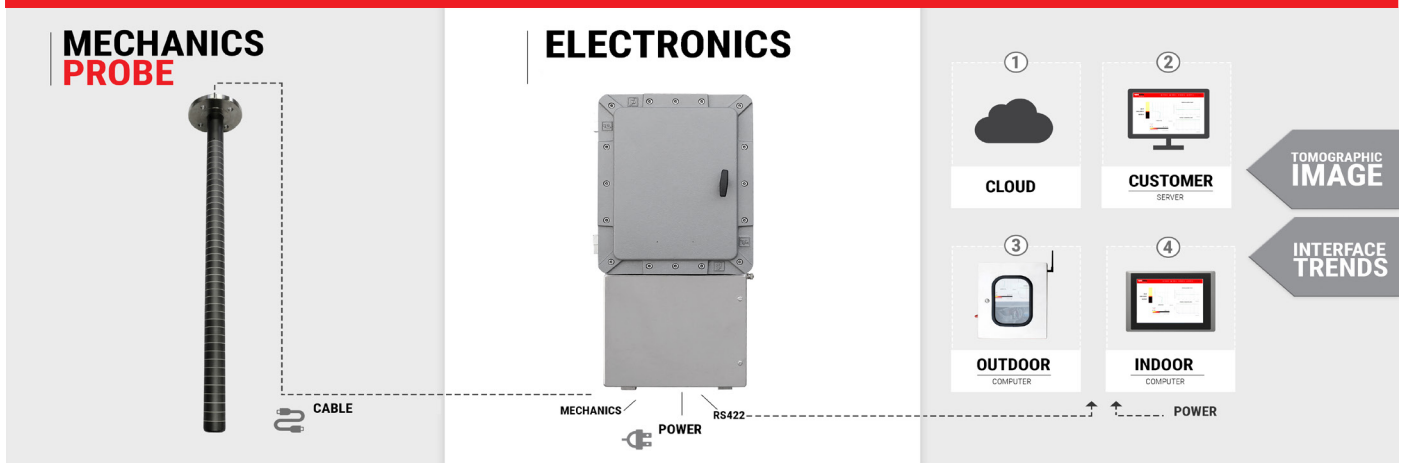
## MECHANICAL CHARACTERISTICS

	Weight	Material	Zone
Probe	Varies	Varies	Zone 0
Electronics Cabinet	44.9 - 76.8 Kg	Varies	Zone 1
Computing Unit	30 Kg	Varies	Safe Zone

### ZONE 0

### ZONE 1

### SAFE ZONE



## ENVIRONMENTAL

Approvals	ATEX, IECEx, CSA (optional)	Operating Temperature Sensor	-40 .. +175 °C
Method of Protection	No special needs	Operating Temperature Electronics	-40 .. +50 °C
Installation	With online factory support	Operating Temperature Computing Unit	-40 .. +50 °C
Compliance	EN	System Storage Temperature	-40 .. +65 °C

## ADDITIONAL INFORMATION

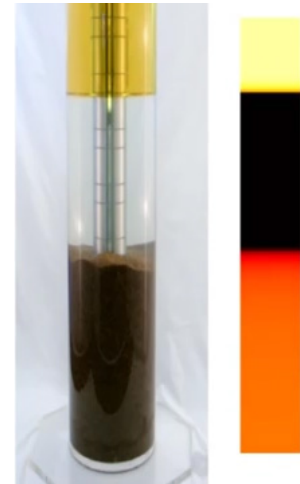
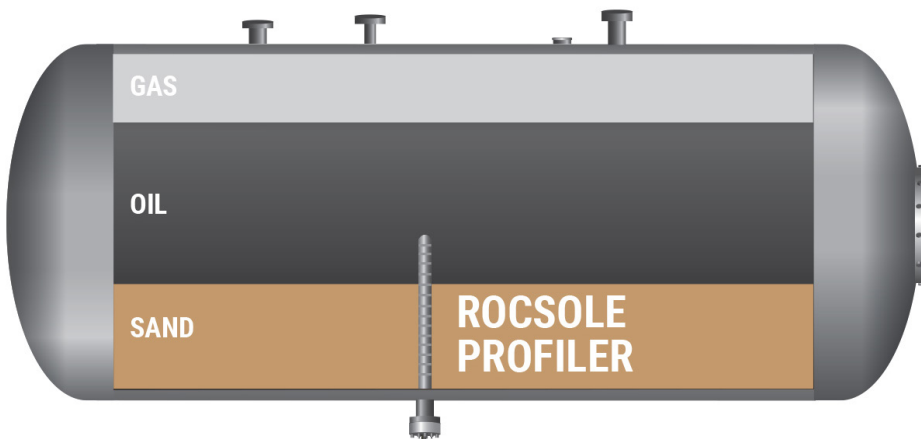
Spares	Please contact Rocsole
Product Code	PROB-8 .. 64
Software	Rocsole Webroc

# SAND APPLICATION

## ROCSOLE SAND PROBE IN A PRODUCTION VESSEL

### KEY FEATURES:

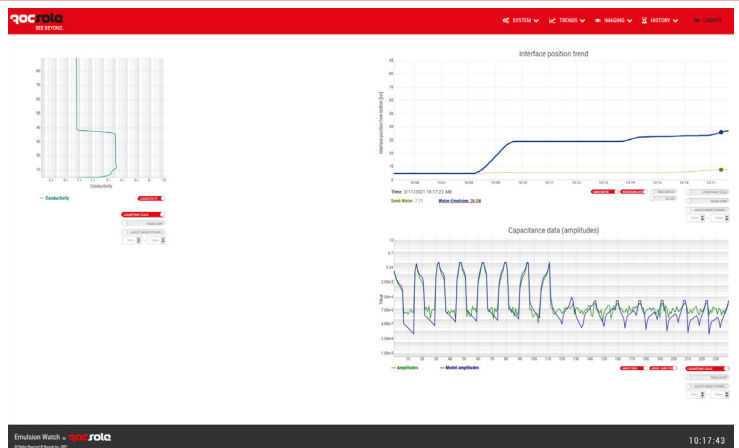
- Reliable method for evaluation of solids in the upstream production
- Compact design for production vessels including slug catchers, manifolds and test separators
- Easy to retrofit to existing vessels
- Reliable method to evaluate field wide sand production and accumulation
- Applicable for full life of field use
- Real time monitoring and reporting
- Sensor works even when contaminated with wax, asphaltenes
- Real-time and accurate measurement
- Fully compatible and can be integrated into asset management systems
- Measurement data backed up with real-time 3D-imaging
- Potential to differentiate solid deposits



### BENEFITS:

- Avoid costly unplanned shutdowns
- Maintain production capacity of the process system
- Real-time, reliable data
- Easy to install into existing vessels, suitable for high pressures and different nozzle sizes
- Can be installed in multiple orientations
- No re-calibration required
- Customized reporting available
- User-friendly interface

### USER INTERFACE:





# SAND APPLICATION

## ROCSOLE SAND PROBE IN A COMPACT DESIGN

### KEY FEATURES:

- Reliable sand detection for accumulation and levelling
- Full profiling
- Sensor works even when contaminated
- Real-time and accurate measurement
- Easy and safe to install
- Optimizing/verifying vessel cleaning performance
- Allows automation of sand management system
- Reliable prediction of sand effect on production
- Fully compatible and can be integrated into asset management systems
- Measurement data backed up with real-time 3D-imaging
- Potential to differentiate solid deposits

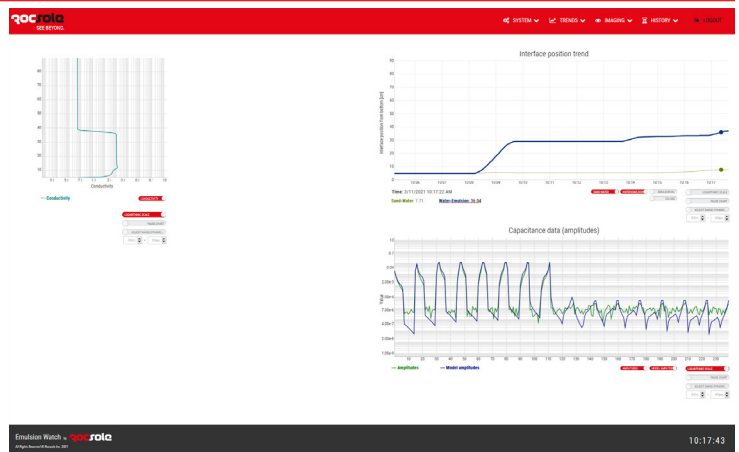


### ROCSOLE SAND PROBE IN DESANDER:

### BENEFITS:

- Avoid costly unplanned shutdowns
- Maintain production capacity of the process system
- Real-time, reliable data
- Easy to install into existing vessels, suitable for high pressures and different nozzle sizes
- Can be installed in multiple orientations
- No re-calibration required
- Customized reporting available
- User-friendly interface

### USER INTERFACE:



ROCSOLE is the world's leading provider of tomographic equipment for the process industries. We have invented and innovated the area of robust and reliable in-situ sensors paired with our software using electrical tomography through our own design, development and testing. We have carried out a vast number of trials and pilot project with customers. Our solutions are industrial scale with fast-acting and high-resolution technology capable of determining and monitoring deposits and emulsified liquids in real-time for critical processes.

Our solutions are used in multi-industry. Oil & Gas has challenges with emulsion layers and quick deposit build-ups. The similar challenges are found not only in Pulp & Paper, Food Processing, Detergent production (FMCG), Chemical Industry but also in the Semiconductor Production Process. ROCSOLE™ is commercially active in these sectors, with the focus area being Oil & Gas.

ROCSOLE™ has a broad IP portfolio with worldwide granted patents. We are backed by Shell Ventures, Repsol Energy Ventures, Equinor Energy Ventures as well as the Finnish TESI investment company.

For more information, visit  
[www.rocsole.com](http://www.rocsole.com)

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