



Oil and Gas

Inline density and viscosity across the whole hydrocarbon chain: downhole fluid identification, ESP and separator monitoring, pipeline pumping and interface detection, crude and fuel storage and petrochemical processing.



The Rheonics Answer

Across oil and gas, density and viscosity define fluid behavior: mud weight downhole, hydrocarbon quality at the terminal, and solids loading in a separator. Manual sampling and lab turnaround leave long gaps where conditions drift undetected. Traditional measurement methods are slow, labor-intensive, and often prone to inaccuracies. Real-time control of these variables is essential to achieve:

Density must be constantly maintained to apply the correct "mud weight" and pressure on the well walls. Continuous density data enables proactive control, reducing the risk of kicks or lost circulation.

SAFETY

Drilling mud must flow freely while drilling but gel when circulation stops to hold cuttings in suspension. Inline tracking keeps both properties inside the operational window without stopping to sample.

EFFICIENCY

Accurate density and viscosity data underpin custody transfer, blending and reservoir modeling. Viscosity and density data are key factors in quality and marketability of produced oil, gas and condensates.

QUALITY

Rheonics sensors feed live fluid data straight to PLC, SCADA and cloud systems, turning reactive lab checks into automated, closed-loop control.

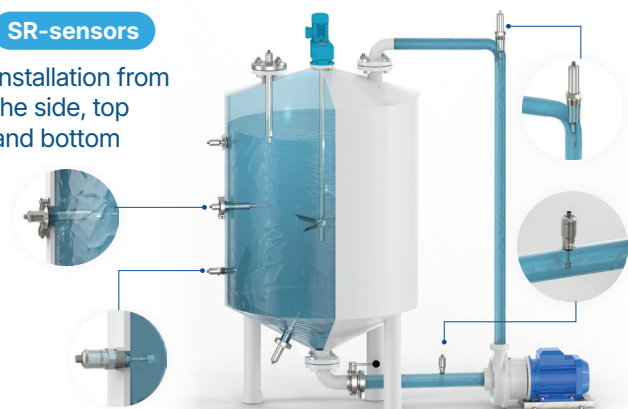
ENERGY 4.0

Installation and Integration

Rheonics provides a complete platform for hydrocarbon monitoring and control, from the rig floor to the storage tank. Our sensors deliver continuous, real-time density, viscosity and temperature in hazardous, high-pressure and cryogenic environments, with no bypass line required. The sensors can be installed inline; flow rate and vibration do not affect measurement stability or accuracy. **Rheonics sensors are in service with operators and service companies worldwide.**

SR-sensors

Installation from the side, top and bottom



Installation in recirculation line

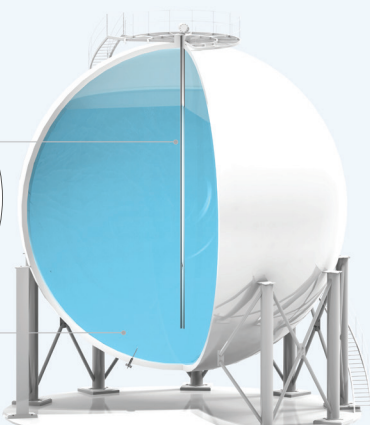
Downhole HPHT RHDV Sensor

Probe and electronics rated for 25K psi 200°C



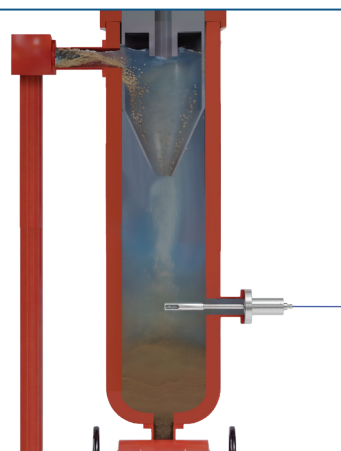
Downhole installation

CRYO-DVT



Installation in LNG tanks

SDP sensor



Installation in desander

Sensors and Systems for Oil and Gas

MudSense



MudSense
Drilling Mud Sensor

SDP



Sand Detector
Sensor

DVM



HPHT density, viscosity
& temperature sensor

CRYO-DVT



Cryogenic density,
viscosity & temperature
sensor

SRV



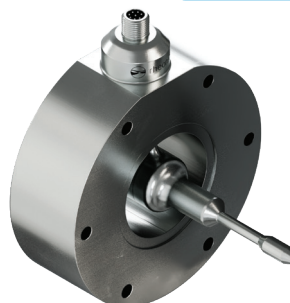
Inline process viscosity
& temperature meter

SRD



Inline process
density, viscosity &
temperature meter

Stargate



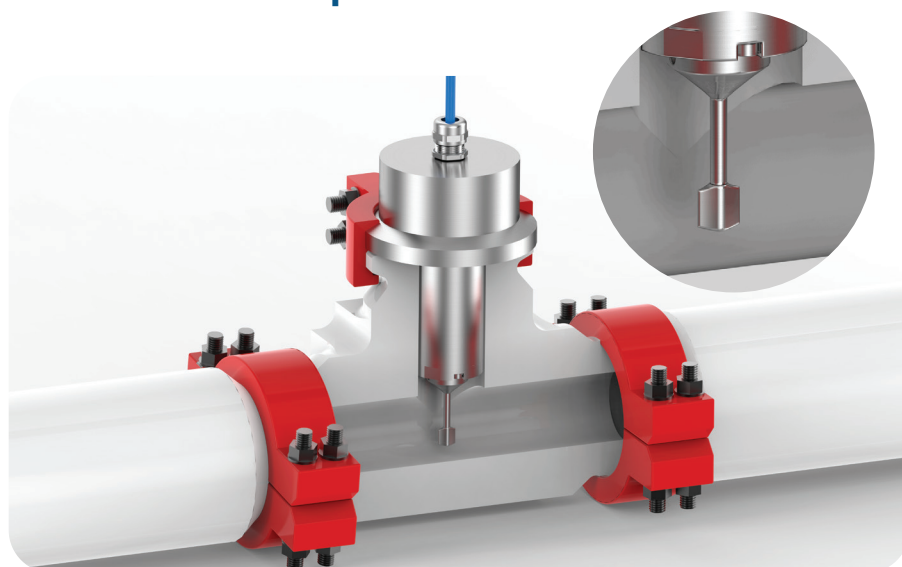
Through-Tube Cell
Viscosity Sensor

RPA



RPA Retractable
Probe Sensor

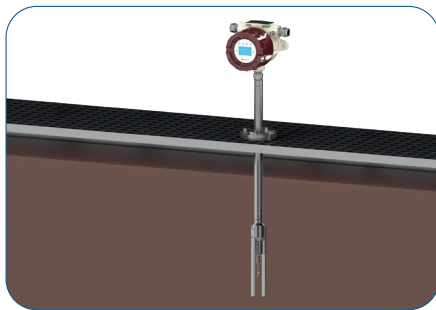
Installation example



High-Pressure API 6A hub-connection density meter

- Installs directly into wellhead piping
- Rated for API 6A pressure class (5K/10K/15K/20K), matching upstream HPHT conditions
- Available with ATEX and IECEx approval for explosive atmospheres
- Smaller, lighter and easier to assemble than API flanges

Oil and Gas Industry Applications



Drilling Mud Management

Applications: Mud weight monitoring, suction line and mud tank measurement, surface logging



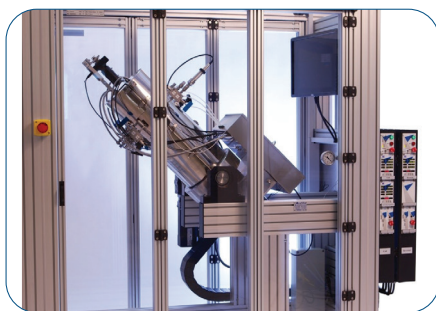
Manual measurement lag

Mud checks are slow; by the time a cause is identified, stuck pipe or lost circulation has already developed.



Key benefit – Control

SRD MudSense delivers continuous density, viscosity and temperature from one probe for precise bottom hole pressure control.



Reservoir Fluid & PVT Studies

Applications: PVT cells, EOR studies, core flood setups & EOS validation



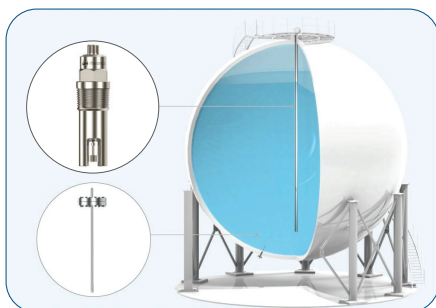
Sample cost

Separate instruments consume large volumes of irreplaceable sample and rarely hold identical P,T conditions.



Key benefit – Efficiency

DVM measures viscosity and density across the full P,T range to 30,000 psi and 400 °F, from 0.7 ml of sample.



LNG Storage & Transport

Applications: LNG carriers, FSRU & storage tanks, terminal transfer



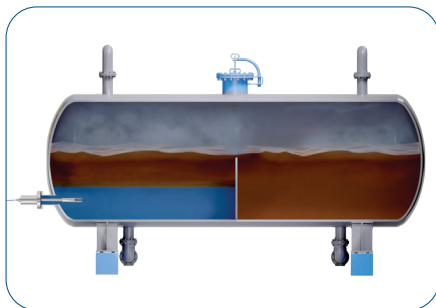
Composition drift

LNG density changes throughout transit, distorting energy-based custody calculations and risking tank rollover.



Key benefit – Assurance

CRYO-DVT sensors at multiple tank levels track liquid density directly, in liquid or vapor phase, under natural or forced boil-off - early warning of stratification.



Separator Sand Management

Applications: Production separators, test separators, sand bed level, purge control



Hidden buildup

Settled sand steals vessel volume and carries over downstream, invisible until the vessel is opened.



Key benefit – Reliability

SDP reports the sand bed as it builds, so purging runs on measured level, not a fixed schedule.

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