

i-Trak AFM unit

Real-time fluids density and rheology measurements

Applications

- Real-time, remote fluids monitoring of:
 - Mud density
 - Rheology
 - Gel strengths
 - Mud temperature
 - Eight different shear rates
 - 16 unique pressure readings
- Remote support and management for drilling fluids
- Automated drilling activities

Benefits

- High-quality drilling fluids performance
- 24-hour real-time aggregation, monitoring, and analysis of drilling fluids data
- Superior operational efficiency
- Reduced health, safety and environmental risks
- Integrated drilling advice from wellsite, operator, and remote support teams

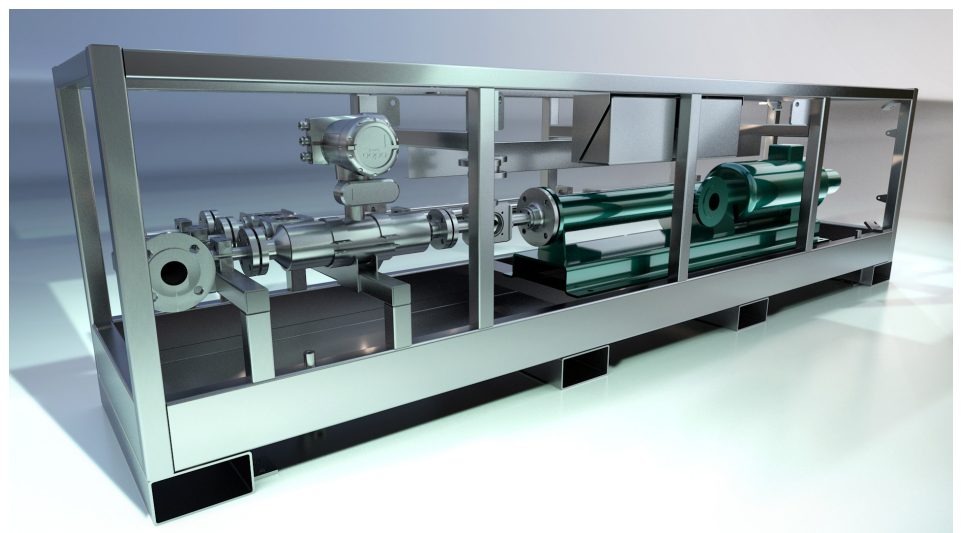
The Baker Hughes **i-Trak™ Automated Fluids Monitoring (AFM) unit**, a part of the **i-Trak™ remote fluids monitoring service**, is an automated fluids measurement device that captures accurate, real-time density, rheology, and temperature for drilling fluids entering the wellbore. The i-Trak AFM unit is a fully contained transportable module and consists of a dual differential pressure (DP) system. This system contains:

- Piping with two sets of DP sensors
- Control system with signal processing for reporting rheology data, such as standard Fann 35 dial reading values, gel strengths, and fluid densities
- Coriolis flowmeter to provide secondary density data and flow data to allow pump speed setting
- Temperature and pressure sensors to compensate for how these effect the fluid

- Pump for circulating the drilling fluid through the mud skid together with a pressure sensor to compensate for pump efficiency effects
- Rupture disc mounted after the pump to prevent overpressure
- Process piping and valves

The i-Trak AFM unit is installed close to the mud pump suction. Alternatively, it can sample from the active pits with flex hose. The unit offers the following features:

- Real-time fluid density, rheology, and temperature measurements
- 10-minute cycle time
- 8 shear rates per cycle
- 16 pressure readings
- Gel strengths can be initiated as a user-defined setpoint with the default set at every two hours.



Real-time data transfer

Measured data from the i-Trak AFM unit can be streamed to the **Baker Hughes WellLink™ RT server**. The AFM-101 skids are connected via wired ethernet to the “rignet” and data will be available for analysis via the OPC Unified Architecture (UA) communication protocol. Then, data are read into the surface acquisition for processing via the WellLink server. Data are displayed locally at the rig and are transferred via the **Baker Hughes RigLink™ service** to a remote operations center which can be accessed globally.

Integrated solutions

Integrating the Baker Hughes i-Trak AFM unit with the Baker Hughes **i-Trak™ drilling automation services** delivers enhanced monitoring for upstream operations. The system uses real-time engineering to create an evergreen model of downhole conditions and then layers smart alarms and monitoring algorithms on top of this to bring detailed awareness of events unfolding downhole.

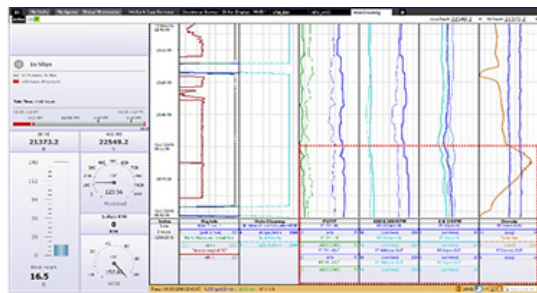
Intelligent fluids solutions

The i-Trak AFM unit is one of a portfolio of drilling and completion fluids products and services that offer Intelligent Fluids Solutions to address your greatest well construction and production challenges.

Additionally, the measurements captured by these units can be integrated into numerous other i-Trak drilling automation applications to drive more-consistent, more-efficient, and more-accurate wellbore construction and placement operations.

i-Trak AFM unit specifications

Dimensions	129.9 x 35.4 x 27.6-in (3300 x 900 x 700 mm)
Power supply	
Pump and fan motor	380 – 690 VAC 3-phase
Control cabinet and local operation panel	115 – 230 VAC 1-phase
New skid weight	1,598.4 lb (725 kg)
Process input flange	DN65 PN 16 (2½-in.)
Process output flange	DN50 PN 16 (2-in.)
Air supply	ANSI B16.5 (2.54 mm) 1-in. CI 150 RF (purging only)
Water/base oil supply	ANSI B16.5 (2.54 mm) 1-in. CI 150 RF (flushing only)
Certification/Alignment/Approvals	DNVGL-OS-E101, DNVGL-2.7-3, EU 97/23/EC (PED), CE, NORSOK Z-015 ATEX Zone 1



Trend/validation readings such as fluids density, rheology, and ECD as displayed via a WellLink RT system.

