Sondex™
a Baker Hughes business

Fluid Density Radioactive (FDR)

Uses low energy gamma rays to determine the downhole fluid density during a production log

Application

- Multi-phase production profiling
- Fluid identification
- Identify borehole levels in static and flowing conditions
- Locate product levels in storage wells

Features

- Americium 241 gamma ray source
- Shielded detector highly resistant to radioactive scale interference
- Used in all well deviations
- Density measurements in a range of fluid flow rates
- Protective radiation shield (type A rated) can be locked on the tool so that the source can be left in place between jobs
- Fully combinable with all Sondex **Ultrawire™ production logging tools**
- Surface readout or memory operation

The Sondex **Fluid Density Radioactive (FDR020) tool** uses low energy gamma rays to determine the downhole fluid density during a production log. It provides a safe and reliable measurement that is unaffected by well deviation and flow rates.

Gamma rays are emitted from an Americium-241 source at one end of a measuring cell and are detected at the opposite end by a scintillation detector and photomultiplier.

Well fluid flows through the cell and attenuates the received count rate in an inverse logarithmic function of the average fluid density. The detector is temperature stabilized and matched to the gamma energy of the source.

The tool can be calibrated in air and freshwater using Sondex supplied multipliers to derive calibration values applicable to oil and saltwater densities.

Specifications

	FDR020
Temperature rating	350°F (177°C)
Pressure rating	15,000 psi (103.4 MPa)
Tool diameter	1 1/16 in. (43 mm)
Tool length	23.0 in. (585 mm)
Tool weight	9.6 lb (4.4 kg)
Toolbus	Ultrawire production logging tool
Current consumption	35 mA
Protective shield weight	12.0 lb (5.4 kg)
Measurement range	0 to 1.25 g/cc
Accuracy	+/-0.03 g/cc
Resolution	0.01 g/cc
Sensor measure point	4.3 in. (110 mm)
Materials	Corrosion resistant throughout