

Continuous Flowmeter Spinner (CFSM)

The Continuous Flowmeter Spinner is run at the bottom of a PL tool string to monitor downhole fluid flow rates. Each model should be chosen to optimize the measurement and enable passage through completion restrictions.



Description

The spinner is mounted on precision roller bearings and turns as fluid passes by, this rotation is converted to signal pulses by zero drag Hall effect sensors. The pulses are then used to calculate flow rates and fluid direction (up or down flow); the flowmeter requires very little energy to initiate motion and is ideal for low flow rate surveys. The design and mechanical construction of the spinner assembly have been optimized to cope with very fast flow, sand production, and high viscosity liquids. Each model has a different size housing and impeller, and should be chosen to suit the well completion and flow regime.

Features

- Flow profiling in complex well completions and flow regimes
- Rugged spinner housing protects against debris
- Injection monitoring
- Surface readout or memory logging
- Spinner ported shroud or open cage options available
- Connects to either a Flowmeter Electronics (CFBE) or a Capacitance/Temperature/Flow tool (CTF)

Specifications

Model	1 3/8 in. CTF	1 11/16 in. CTF	1 11/16 in. std
Temperature rating	350°F (177°C)		
Pressure rating	15,000 psi (103.4 MPa)		
Shroud diameter	1 3/8 in. (35 mm) 1 1/2 in. (38 mm) 1 11/16 in. (43 mm) 2 1/8 in. (54 mm)	1 11/16 in. (43 mm) 2 1/8 in. (54 mm) 3 1/8 in. (79 mm)	
Tool length ^a	8 in. (203 mm)		
Tool weight ^a	1.7 lb (0.77 kg)		
Sensor measure point (from the bottom of the tool)	2.5 in. (64 mm)		
Minimum restriction	Shroud OD + 1/8 in. (+3 mm)		
Output	10 pulses/rev (directional)		
Spinner threshold	5 ft/min (0.03 m/s)		
Max fluid velocity ^a	>2,500 ft/min (12.7 m/s)		
Materials	Corrosion resistant throughout		

a) Depends on CFSM Model.



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