Production engineers who are responsible for the design, operation and efficiency of water handling systems are familiar with the fact that thermal, pressure or chemical changes lead to scale deposition.

The differential scale loop by F5 Technologie provides an accurate, reproducible and fast method for selecting and quantifying the most effective means of controlling scale deposition under dynamic conditions.

The instrument is suitable to simulate process or reservoir temperatures of up to 250 °C and pressures up to 1000 bar / 14,500 psi. Higher ratings can be provided if required. An integrated pH probe is available. The system is very recommended where effects of pressure on scaling tendency are to be studied, and especially for examining the deposition of anhydride under dynamic conditions.

The system is equipped with an adjustable back pressure valve which keeps the absolute pressure in the system constant. The 3 high pressure, high precision HPLC pumps can have PEEK or stainless steel heads. Each pump delivers just one fluid - anionic brine, cationic brine, inhibitor -, which provides maximum accuracy. The 3 fluids are mixed automatically and flow through the exchangeable test pipeline.

The test pipeline is installed in a PC controlled oven with glass window for full control of the setup during the test.

A high-precision differential pressure transducer monitors the pressure drop across the test pipeline. Exceeding the set differential pressure limit indicates scale formation. If this limit is not exceeded within a set time, the system switches dynamically to the next lower inhibitor concentration. After the test, the system cleans itself automatically with two cleaning fluids.

This automated test procedure enables 24 h use of the instrument with minimal attendance.
Technical Data:

Data interface: USB
Data acquisition: Temperatures, absolute and differential pressure
Flow rate: 5 or 10.0 ml/min max, accuracy 2 µl/min
Absolute pressure: 100/200/400 bar with stainless steel or PEEK pump heads
600/1,000 bar with stainless steel pump heads
Differential pressure: 5 bar (73 psi) max
10 and 20 bar available
PC required: Standard PC with Windows 9x/NT/2k/XP/7
Software: WinDSL 1.3, test planning and data visualisation/storage
Power supply: 240 VAC @ 50/60 Hz, 120 VAC @ 60 Hz
alternatives available
Power consumption: 2000 W max