

# Examine Wax Appearance and Deposition

## with the Wax Flow Loop

### Characteristics

- Examine wax inhibitor and dissolver
- Shear dependent deposition testing
- Fully automated with real-time graphs
- Small sample volumes from 100 ml
- Pressurized testing option
- Exchangeable model pipeline
- Yield stress and pipeline restart tests

### Fully automated lab instrument

The Wax Flow Loop is a compact laboratory instrument that allows you to examine the effects of wax, paraffin and asphaltene precipitation and deposition in pipelines directly in your lab. The Wax Flow Loop provides fast, accurate and reliable results for research of inhibiting and dissolving agents or quality control. The Wax Flow Loop is fully automated with its integrated PC. Start a test run in the morning, get your results by midday and in the meantime get the current state of the measuring by real-time diagrams.



### Easy measuring

The sample is heated to a set start temperature and pumped through a cooled/heated model pipeline, while the differential pressure and differential or outlet temperature are measured. Pressure changes indicate wax depositions to the inner wall of the model pipeline and temperature changes indicate wax crystallisation in the medium itself.

### Real-time diagrams

The differential pressure and temperature are displayed as real-time diagrams on the monitor. This allows precise conclusions about development of wax depositions and crystallisation in the medium during a test run. To maximize deposition effects and to shorten test-times shock-cooling is possible.

### Small sample volumes

Only 100 ml of sample are sufficient to come to conclusions about the efficiency and effectiveness of wax inhibitors or solvers. As an additional feature, pipeline restart and yield stress tests can be executed.

### Exchangeable model pipeline

The model pipeline can easily be exchanged. Thus you can vary the length and diameter of the model pipeline for different measuring approaches. By changing the pump rate you can measure the deposition at different shear rates.

The instrument features different operation modes to execute automated test schedules with fixed configuration as well as flexibly arranged test conditions. For example short

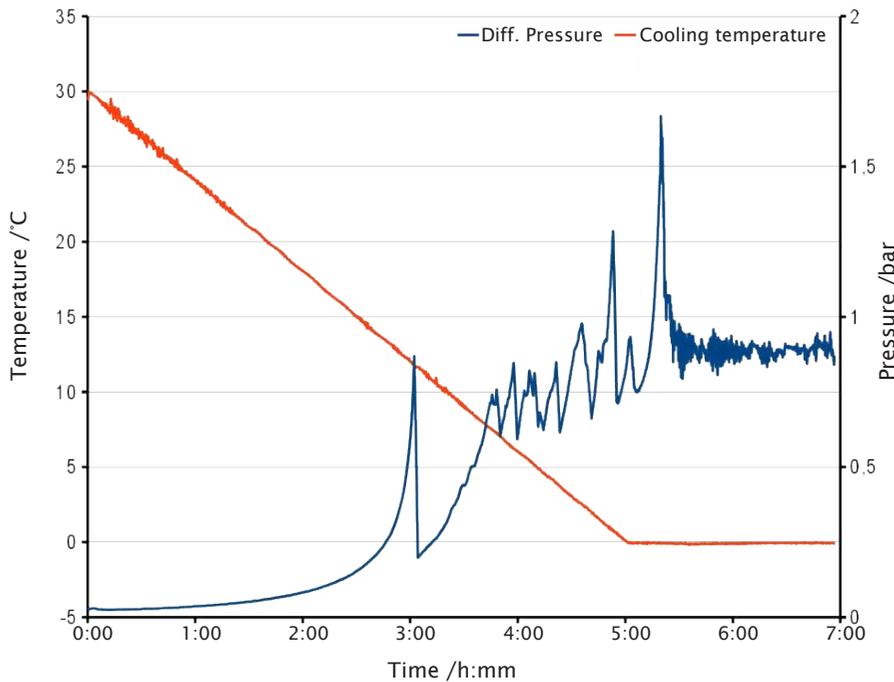
tests can be performed in open loop or long-term experiments in closed loop, on fixed temperature or temperature ramp. Direct injection at model pipeline is possible, too.

### Easy use and automatic cleaning

The integrated PC and the software allow an easy usage of the instrument.

The software supports the definition and management of standardized experiment runs. So repeated runs under similar conditions can be done in time-saving quick succession. To clean the model pipeline from remains of chemicals, it is possible to execute an automatic cleaning after every test run.

The Wax Flow Loop can be adapted to your requirements.



Measurement example for wax deposition

### Specifications:

	WL 508	WL 4012	WL 20012
Temperature range:	-20 .. 80 °C (-4 .. 176 °F)	-40 .. 120 °C (-40 .. 248 °F)	-25 .. 120 °C (-13 .. 248 °F)
Sample inlet:	25 .. 80 °C (77 .. 176 °F)	25 .. 120 °C (77 .. 248 °F)	25 .. 120 °C (77 .. 248 °F)
Pressure range:	0 .. 5 bar (0 .. 72 psi)	0 .. 40 bar (0 .. 580 psi)	0 .. 200 bar (0 .. 3,000 psi)
Flow rate:	0.1 .. 200 ml/min	0.1 .. 260 ml/min	0.1 .. 100 ml/min
Sample volume:	all models: min. 100 / 250 / 1,000 ml		
Stirrer speed:	all models: 100 ... 1,400 rpm		
Voltage input:	all models: 230 V / 50 Hz or 115 V / 60 Hz		
Dimensions (WxDxH):	130 x 60 x 70 cm	130 x 60 x 70 cm	140 x 60 x 70 cm