

FALEX

FALEX THERMAL FOULING TESTER & REFINERY PROCESS ANALYZER (RPA)

A Reliable Instrument for Research and Production Studies!



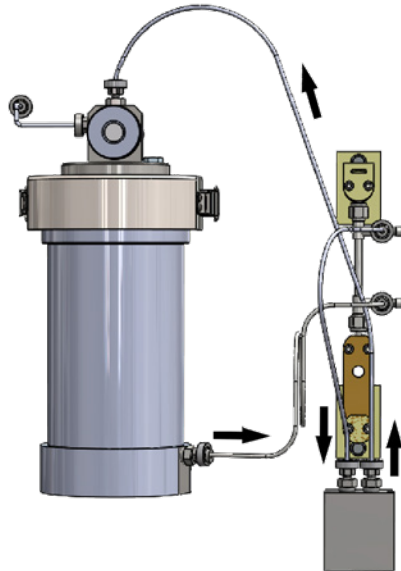
The Falex Thermal Fouling Tester and Refinery Process Analyzer (RPA) is helpful for research projects and production studies of heat exchanger fouling tendencies, antifoulant efficiency studies, and crude oil fouling studies.

A fluid sample is passed over a pressurized tube-in-shell heat exchanger for a set duration of time. Fouling is shown by a decrease in outlet temperature, an increase in system power required to maintain heater tube temperature, or physical deposit on the heater tube.

The optional Differential Pressure (ΔP) System allows for monitoring heat-induced particulate in real time for lower viscosity samples such as gasoline, diesel fuel, and light naphthas.

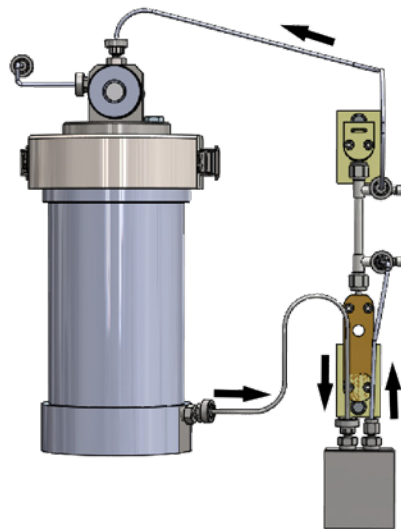
FT² delivers the most requested features, for the ultimate in easy use and fully flexible programmability and simultaneous customizable safety and shutdown protocols.

- » Redundant safety system keeps the unit self-sufficient in the event of a leak, mishap or power outage
- » High-speed data acquisition of all critical thermocouples and system outputs
- » Fully automated start-up and runtime for maximum daily productivity
- » External cooler for enhanced power control stability
- » Fully customizable test conditions with easy-to-use software
- » Heater Tube material available in 316 Stainless, 1018 Carbon Steel or 6061 T6 Aluminum.



Pull Configuration

For the standard machine configuration, 'pull' tubing lines are ideal for low viscosity fluids and reducing flow turbulence within the system. The pump pulls the test fluid from the reservoir, through the heater tube holder assembly containing the heater tube, through the pump and back to the reservoir.



Push Configuration

'Push' tubing lines are sold as an option for use with high viscosity fluids. The pump pulls the test fluid directly from the reservoir and 'pushes' the fluid through the heater tube holder assembly containing the heater tube back and back to the reservoir. With minimal flow turbulence from high viscosity fluids, the extra 'push' assists a consistent laminar fluid flow through the system.

System options include:

- Heated Lines and Pump** – Allows easy flow of viscous fluids to and from the tube-in-shell heat exchanger. Temperature is variable from ambient to 150 °C.
- Single Pass Option** – Provides ability to collect tested fluid in separate reservoir for a once-through operation.
- Mechanical Stirrer** – Keep your sample homogenized at a consistent temperature!
- Multipoint Thermocouple** – Monitor various temperatures of the test tube for additional data in heat transfer coefficient studies.

Falex FT² RPA Technical Data

Operation

Sample Volume	100mL to 1.5L
Tube Temperature Range	50°C to 650°C
Heated Reservoir Range	25°C to 150°C
Heated Line Range	50°C to 150°C
Heated Pump Range	50°C to 150°C
Units of Temperature	°C, °F
Pressure	0 to 1,000 psi
Units of Pressure	kPa, psi
Fluid Flow Rate	.55 to 40 ml/min

Data Management

Display	Real time on screen trend data
Results download	Hot spot profile, Test data
File type	.csv

Interface

User Interface	12" LCD can be used with gloves, USB, keyboard and mouse
Data input/output	USB (5), Ethernet (2)
Printer options	USB, Ethernet

Calibration

Temperature	2-point temperature calibration
Pressure	2-point pressure calibration

Power Requirements

Voltage x 2	230V, 50/60 Hz
Plug Type	2 NEMA 6-15

Utility Requirements

Pressure	Nitrogen or Air
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Physical

Dimensions	30" x 30" x 22"
Weight	175 lbs. (without options)

Ordering Information

Part Number Description

450-001-004	Falex Thermal Fouling Tester (FT ²), Refinery Process Analyzer (RPA) 230 V, 50/60 Hz
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System Options

450-106-002	Pump Heater Kit
450-109-006	Remote Emergency Stop
450-200-003	Differential Pressure Assembly
450-200-004	2nd Reservoir for Single-Pass Testing (includes 450-105-033, Standard 2nd Reservoir Return Line, unheated)
450-200-007	Mechanical Stirring Option
450-097-004	Heated Line Set, Standard "Pull" Flow Configuration
450-097-010	Heated Line Set, Alternative "Push" Flow Configuration
450-097-011	Unheated Line Set, Alternative "Push" Flow Configuration
450-105-064	Reservoir Return Line, Cleaning Extension

Consumables and Spare Parts

400-018-003	Insulation Bushing Set (2 pairs)
400-027-003	Pre-filter Screen
450-041-005	Tube Holder (dual tube)
450-050-006	Drip Assembly (customer should also buy 620-011-010 O-Ring kit)
450-097-003	O-Ring Kit for 20 tests Includes O-Rings for reservoir lid (1 ea., 620-238-003) heater tubes (45 ea., 620-008-005) and tubing connections (220 ea., 620-006-003)
450-097-006	O-Ring Kit, Sight Glass
450-097-008	DP Filters, 25/pk
450-097-012	Pump Gasket Kit (package of 2)
450-097-013	Replacement Pump Kit
450-099-001	Heater Tube Holder Assembly
450-106-008	Heater Jacket (split-ring clamping collar)
450-109-004	Thermocouple Assembly-inlet/outlet
450-105-074	Reservoir (1.5L split-ring clamping collar) with sight glass assembly

Ordering Information (contd.)

Part Number Description

Consumables and Spare Parts (contd.)

620-006-004	O-Ring, Tubing (100 ea. of 620-006-003)
620-008-006	O-Ring, Heater Tube (23 ea. of 620-008-005)
620-210-001	Pre-Filter O-Ring (5/bag)
520-238-005	O-Ring, Reservoir Lid (5 ea. of 620-238-003)
648-400-005	Box of Prefilters (25/box)
648-400-007	Hex Socket Wrench
648-400-009	Ceramic Insulator Removal Tool
648-450-001	Heater Tube Cleaning Brush
650-009-061	Thermocouple, Heater Tube

Heater Tube Specimens

400-560-001	Heater Tube, aluminum, with dp filter (12/box)
400-560-003	Heater Tube, 316 Stainless Steel (12/box)

Lines

450-105-033	2nd Reservoir Return Line, Unheated (included with 2nd Reservoir option)
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Included with FT² Standard "Pull" Flow Configuration, Unheated Lines

450-105-009	Standard Inlet Line, Unheated
450-105-020	Standard Reservoir Return Line, Unheated
450-105-021	Standard Outlet Line, Unheated
450-105-010	Bypass Cleaning Line Assembly

Part Number Description

Included with 450-097-004 Heated Line Set, Standard "Pull" Flow Configuration

450-105-022	Standard Inlet Line, Heated
450-105-023	Standard Outlet Line, Heated
450-105-024	Standard Reservoir Return Line, Heated
450-105-056	Standard 2nd Reservoir Return Line, Heated

Included with 450-097-011, Unheated Line Set, Alternate "Push" Flow Configuration

450-105-048	Outlet Let, Unheated, Alternate "Push"
450-105-049	Inlet, Unheated, Alternate "Push"
450-105-050	Reservoir Return, Unheated, Alternate "Push"
450-105-051	Reservoir Return (2nd Reservoir), Unheated, Alternate "Push"

Included with 450-097-010, Heated Line Set, Alternate "Push" Flow Configuration

450-105-052	Outlet Let, Heated, Alternate "Push"
450-105-053	Inlet, Heated, Alternate "Push"
450-105-054	Reservoir Return, Heated, Alternate "Push"
450-105-055	Reservoir Return (2nd Reservoir), Heated, Alternate "Push"

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