

Filter Blocking Tendency

ASTM D2068 - IP387 - CEN N403 - EN590 IPPM EA/08



- ⊕ **Small footprint**
- ⊕ **Easy to use, menu guided test**
- ⊕ **Graphic touch display**
- ⊕ **Printer included**
- ⊕ **Electronic calibration**

General

The Tamson Filter Blocking Tendency-tester (TFBT) is an automatic instrument designed to test the Filter Blocking Tendency (FBT) of distillate fuels including diesel, biodiesel (B100 & B5/7/20/30), gas oil, gas turbine fuel, and kerosene. It conforms to ASTM D2068 and IP 387. Cold flow issues with diesel containing FAME (biodiesel) and FAME material has resulted in the development of the new EI Industry test (IPPM EA/08) method standard to check quality of FAME and diesels to avoid major fuel operability problems.

Fuel cleanliness is also an important issue as modern fuel injectors and injection pumps are being manufactured to more precise tolerances. Particles due to contamination, degradation, or corrosion of storage vessels can quickly clog filtration systems.

The FBT-test determines whether fuel can potentially block filters in the distribution network or during use in a vehicle or power plant.

The automatic FBT provides a graphical guided user interface using a resistive touch screen. This screen guides the user through the test procedure. The guidance results in reliable performance of this test and the user can see what the apparatus is doing when it strictly follows the prescribed steps in the test method.

Item	Unit	
Ordering code		00T0942
Adapter type A*		15T0002 (Milli-Pore)
Adapter type B*		15T0003 (Whatman)
FBT range		1.0 to 30 (low number is best)
Output		Printer
Temperature	[°C]	+/- 0,05°C
		IEC 751
Pressure	[%]	nonlinearity 0,5
	[mBar]	Accuracy 1
	[mBar]	Max pressure 1500
Volume	[ml]	Linearity +/- 0,2
	[ml]	Range 0 - 300
	[ml]	Resolution +/- 0,5
Voltage	[Vac]	85 .. 264
Frequency	[Hz]	47 .. 63
Power	[W]	40
Dimensions	[mm]	280x350x620 (LxWxH)
Weight	[gr]	11
CE		Conforms to CE regulation

* Specify method(s) when ordering 00T0942

The fuel sample for this test is drawn from the integral fuel reservoir with a constant flow of 20 ml/min. by the pump. A pulse damper provides smooth and continuous flow. Fluid level, pressure and temperature of the sample are continuously monitored while it is pumped through the specified filter into the waste container. Depending on the test, the result is calculated when 300 ml of sample is pumped or the test is aborted when the maximum pressure is exceeded. When 300 ml of fluid is pumped, the end pressure is used to calculate the FBT number. However when the pressure reaches 105 kPa before the 300 ml is passed, the volume of fluid pumped at this point is used to calculate the FBT number.

Result

Test result are displayed on screen and can be printed out, multiple copies if required. In the menu different parameters can be set for the test and calibration of the temperature, pressure, pump speed, and level sensor. The display provides the operator with test procedure information. Following test results are printed:

- Date / time
- Operator
- Method (A or B, C is obsolete)
- Test result
- Time
- Flow (calculated)
- Sample temperature
- Pressure
- Volume
- FBT Value

Filter Blocking Tendency

ASTM D2068 - IP387 - CEN N403 - EN590 IPPM EA/08

The thermal printer is integrated and provides a permanent record of all the test parameters. A graph is available when the full 300 ml of sample has been pumped.

The software permits the operator to set a different maximum pressure (up to 150kPa), fluid level and testing time. This way the test can be trimmed to specific individual demand.

The fuel sample is drawn from the integral fuel reservoir by the pump, and a pulse damper provides smooth and continuous flow. The pressure and temperature of the fuel are continuously monitored while it is pumped through the specified filter into the waste container. The test result is calculated depending on the test:

- When 300ml of sample were pumped
- If a maximum pressure is exceeded

The graphical screen offers the following:

- Easy menu guided operation,
- Step by step guidance of the test,
- Easy entrance, one guest user and seven operators*
- Screen to edit passwords and users*
- Service screen* to check sensor values
- Service for setting all test parameters*
- Separate service screen to set pump speed, and calibrate** level, pressure and temperature sensor.

* Password protected

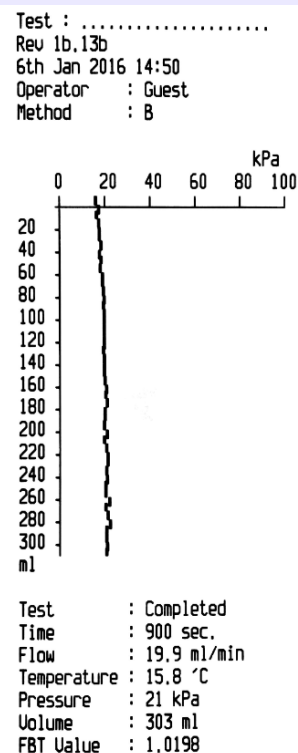
** Calibration fully is performed using the graphical display

Method "A" and "B"

The FBT is equipped to operate according method "A" or Method "B". An adaptor block for each test is available and must be ordered as an accessory part. Method "A" consists of a stainless steel reusable filter body and a small disposable filter discs. The filter disc is replaced for each test. Filter "B" uses a disposable filter (disc in plastic housing).

Method "A" is for experienced operators, Method "B" is less error prone and more easy to perform.

Graphical print out :



Test screen:

5: Empty cup and mount filter

Measure --- [Sec]

mL	°C	kPa
0	20.0	0




Mount filter, empty cup

Next

Tamson Instruments

Specification sheet

Part no.	Picture	Description
15T0002		Adapter "A" Millipore
24T0064		Pack (100) of Filter discs for adapter "A" Whatman GF/A (FBT)
24T0060		Sparepart Filter housing "A" Millipore M5
24T0061		Sparepart kit adapter "A" Millipore 4 x set of : O - ring (thick) O - ring thin Stainless disc
15T0003		Adapter "B" Whatman
24T0067		Pack (98) of Filter for adapter "B" Whatman Syringe GF/A
24T0052		Hose Tygon 15mtrs 3,2 x 6,4mm
31T2002		Beaker 400 ml
31T2004		Beaker 150 ml
19T9030		Level and pressure calibration kit Volume Scale 10ml Pressure resolution 1mBar Works certificate (pressure readout)

Part no.	Picture	Description
28T7035		Printer paper, thermally, set of 5 rols, 57mm x dia 30mm x 8mm
24T0049		Blue tubing 4 x 2.5 mm
25T2230		FBT Reference Fluid

Compare our unique selling points to competition:

- Single voltage from 85-230V, 50-60Hz.
- Excellent pump flow regulation due to torque feedback. Guarantees a constant flow independant of pump counter pressure.
- Small dimensions, portable, suitcase model is optional.
- Equipped with a graphical touch screen.
- Real-time curve is shown (PC not required to view).
- Visually guided test using step-by-step instruction graphs.
- Equipped with integrated printer is.
- Fully electronic calibration.
- Temperature calibration traceable to IEC 751.
- PT100 can be replaced and calibrated using standard 1/10 DIN and an IEC 751 certificate.
- Touch screen can be used to select the proper test, set parameters, and calibrate the sensors.
- Service screen checks all sensors.
- Password protected service screen for calibration data.
- Password protected service screen for test parameters.
- One guest and seven password protected pre-set users.
- Resolution of temperature ($\pm 0.05^{\circ}\text{C}$), pressure (non- linearity = 0.5%), and volume ($\pm 0.5 \text{ mL}$) are exceptional.
- Printout of calibration data.

FBT