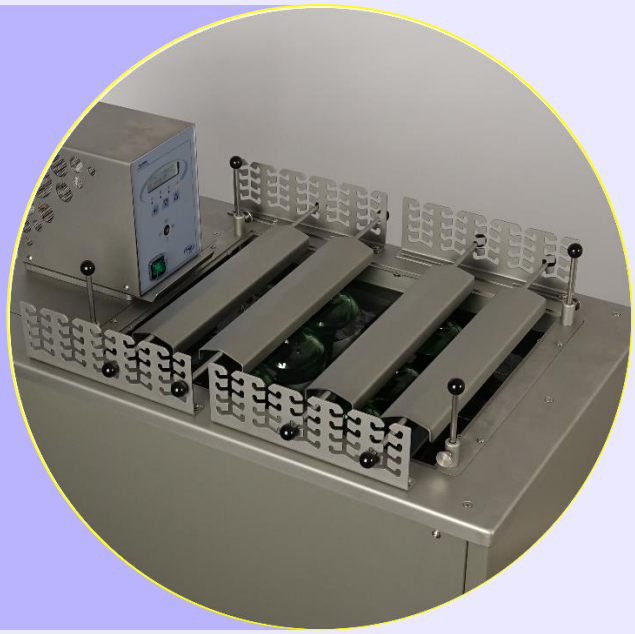
Tamson Instruments

Specification sheet

Cold Soak Filtration Test (CSFT) of Biodiesel

ASTM D7501 - IP PM EA - CEN N 403 - CGSB 3.0 No. 142



- **Completely stainless steel**
- **Drain to empty bath**
- **Overflow protection**
- **Large bath**
- **Very quiet**
- **Smart rack to position flasks**
- **Up to 12 x 500 mL jars**
- **Optional alarm**

Item	Unit	TLB50
Range		-5..+80°C 23..+176°F
P/N 230V/50Hz		**00T0082**
P/N 115V/60Hz		**00T0081**
P/N 230V/60Hz		**00T0083**
Reading	[°C/°F]	menu selectable
Interface		RS232
Setting	[°C/F]	0.01
Stability* ±	[°C]	0.02
Uniformity* ±	[°C]	0.02
Heating 230V	[kW]	1.4 (1 heater)
Heating 115V	[kW]	1.4 (1 heater)
Bath volume	[L]	50
Opening bath	[mm]	400 x 314
Depth	[mm]	280
Length	[mm]	720
Width	[mm]	440
Height	[mm]	720
Weight	[kg]	65
Power	[kW]	Nominal 0.8 Maximum 3
Ambient condition	[°C]	18 .. 23
CE		All models conform to CE regulation
* Measured @20°C in water.		

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General
In this test method, 300 mL of biodiesel (B100) is stored at 4.5 ± 0.5°C (40 ± 1°F) for 16 hours, allowed to warm to 25 ± 1°C (77 ± 2°F), and vacuum filtered through a single 0.7 µm glass fiber filter at controlled vacuum levels of ~70–85 kPa (21–25 in. of Hg).

Construction
TLB50 bath (please see also TLB50 specification sheet) is specially designed to condition the biodiesel samples in 500 mL jars at 4.5°C for sixteen hours. The Tamson TLB50 bath can be used to maintain the samples at +25°C after the cold soak test. From 4.5°C, the TLB50 can reach 25°C within 30 minutes. A separate laptop with TamCom software can be used to control the setpoint temperature. The cold soak bath is delivered complete with a levelling platform, rack and bottle holders, to prevent the bottles from floating.

The TLB50 cold soak bath is a specially designed bench top unit with digital temperature control suitable for cooling and heating samples in accordance with IP PM EA, CEN N 403, ASTM D7501, and CGSB 3.0 No. 142.

Filtration kit for ASTM D7501 (P/N 31T2000) consists of 0.7 micron filters (100 pcs), glass filter funnel and clamp, filter forceps, one litre safety flask, one litre receiving flask, 500 mL cylinder, graduated in 5 mL increments, petri dishes (ten pieces), watch glasses (ten pieces), glass piece with earth lead, stopper with hole (two pieces), stopwatch, and tubing.

Temperature control
With the compressor running continuously, the fluid temperature is regulated through an electronic controlled heater. The cooling power of the bath is maximized when cooling down to the set point. When the set point temperature is reached cooling power is strongly reduced and it is saving significant energy. In comparison to other standard instruments the TLB50 can save up to 600 Watt of electric energy. Above 40°C cooling is switched-off automatically to save energy.

Cooling medium
The used cooling system is ozone friendly and doesn't contain any CFK/HCFK gas.

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Safety
The bath conforms to CE regulation. The bath has a standard built-in mechanical safety over temperature protection. In case of electronic failure, the bath will be mechanically switched-off when the temperature rises above the set temperature of this protection device. The bath is equipped with a float that will warn the user with an acoustic signal when the level of the bath fluid is too low.

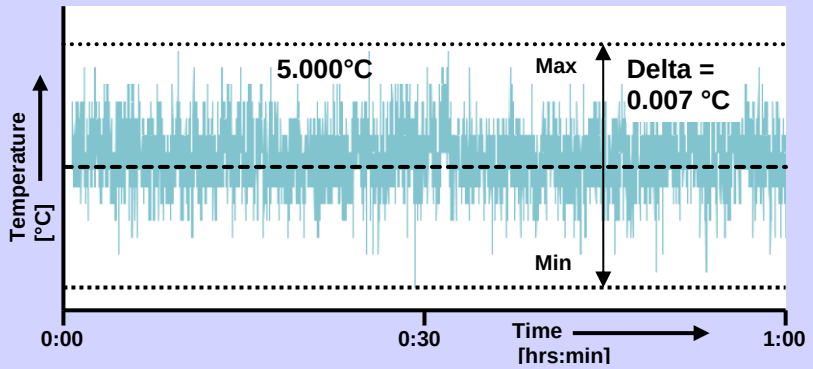
Accuracy and performance TLB50

Accuracy of control
Stability
Better than ± 0.01°C

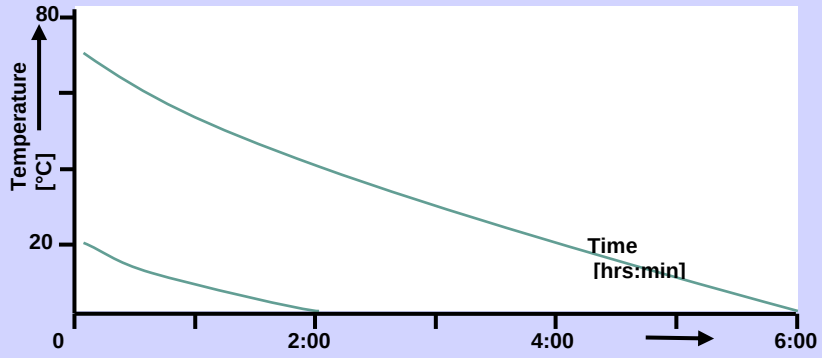
Homogeneity
Better than ± 0.01°C
- In water
- Over temperature 5 .. 70°C
- Values are measured min / max (no average)

RS232
The bath comes standard with RS232 communication and when using the free software tool Tamcom, it provides temperature logging or a predefined temperature set point curve.

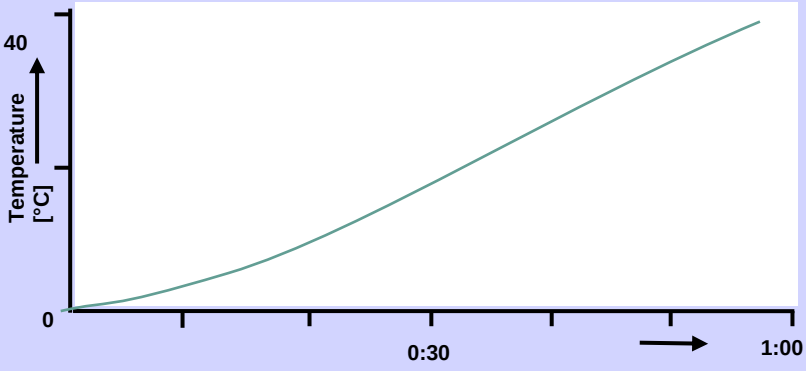
Stability @5.000 °C



Cooling



Heating



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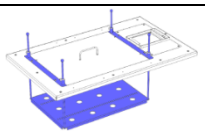
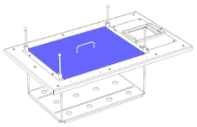
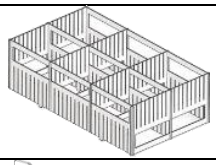
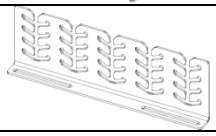
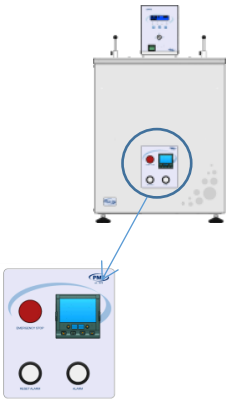
Options and accessories

TLB50 Cold Soak Bath (P/N 00T0082, 00T0081 and 00T0083) consists of:			
P/N	**Picture**	**Quantity**	**Description**
00T0072		1	TLB50 230V/50Hz
00T0071			TLB50 115V/60Hz
00T0073			TLB50 230V/60Hz
03T0071		1	Single levelling platform - Adjustable - One platform - Without lid P/N 03T0080
03T0080		1	Top lid with handle for single levelling platform (P/N 03T0071).
03T1049		2	Rack to hold bottles or glassware P/N 03T1049 comes with: - Three long spacers - Four small spacers
03T1040		4	Rail to hold bottle bracket(s) preventing bottles from floating. Four pieces are needed for P/N 03T0071.
03T1041		4	Bottle holder

Optional accessory for Cold Soak Bath			
P/N	**Picture**	**Suggested quantity**	**Description**
11T0040		1	Optional alarm to operate within temperature band. Three temperatures are pre set for operation: - Set point temperature, - Minimum allowed bath temperature, - Maximum allowed bath temperature. After reaching the set point temperature, minimum and maximum temperatures are monitored. When the bath temperature exceeds the pre set values following options are available: - Audible alarm, - Potential free external contact, - Switching-off the bath, - A combination of the above. Please contact sales for more specific details.

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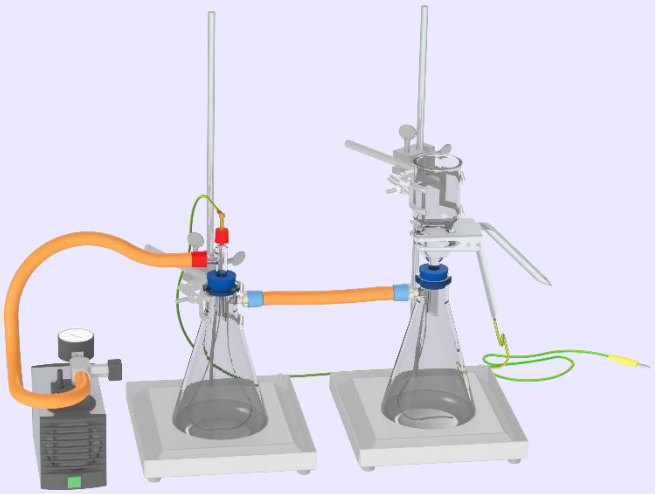
Consumables



Necessary accessories for ASTM D7501			
P/N	**Picture**	**Suggested quantity**	**Description**
31T2000**	Please see picture above	1	Filtration kit for ASTM D7501: 0.7 micron filters (100 pieces), glass filter funnel and clamp, filter forceps, 1 litre safety flask, 1 litre receiving flask, 500 mL cylinder, graduated in 5 mL increments, petri dishes (10 pieces), watch glasses (10 pieces), glass piece with earth lead, stopper with hole (2 pieces), stopwatch, and tubing. **
11T0033		1	Vacuum Pump (230V/50-60Hz), capable of maintaining -80 kPa during filtering.
11T0034			Vacuum Pump (115V/60Hz), capable of maintaining -80 kPa during filtering.
10T6094		1	Tamson TT3B thermometer with external probe, three decimal reading, precision ± 0.01°C, short PT-100 probe with range -40 .. +140°C including a works calibration certificate. (Please see specification sheet "TT3B thermometer")
14T0303		1	Adapter to insert a TT3B thermometer into the TLB50.
31T0018		1	500 mL bottle (set of 10 bottles).
13T8046		2	Tripod complete with clamps.

** Please see final page for automated alternative, conforming to IP PM EA.

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Consumables

Consumables for ASTM D7501		
P/N	**Picture**	**Description**
31T0019		Box with 100 glass fiber filters (GF/F), 3 plain, 47-mm diameter, nominal pore size 0.7-µm.
31T0020		Glass funnel and glass filter support with a stainless steel filter screen for a 47-mm diameter glass fiber filter, and locking clamp and stopper, capable of receiving 300 mL.
31T0405		Vacuum filtering flask 1000 mL, Erlenmeyer shape.
31T0023		Glass piece with ground wire
31T0024		Forceps
31T0025		500 mL cylinder, graduated in 5 mL increments.
31T0026		Petri dishes (ten pieces), approximately 120 Ø mm x 20 mm (height).
31T0027		Small watch glasses (ten pieces), approximately 60 Ø mm.

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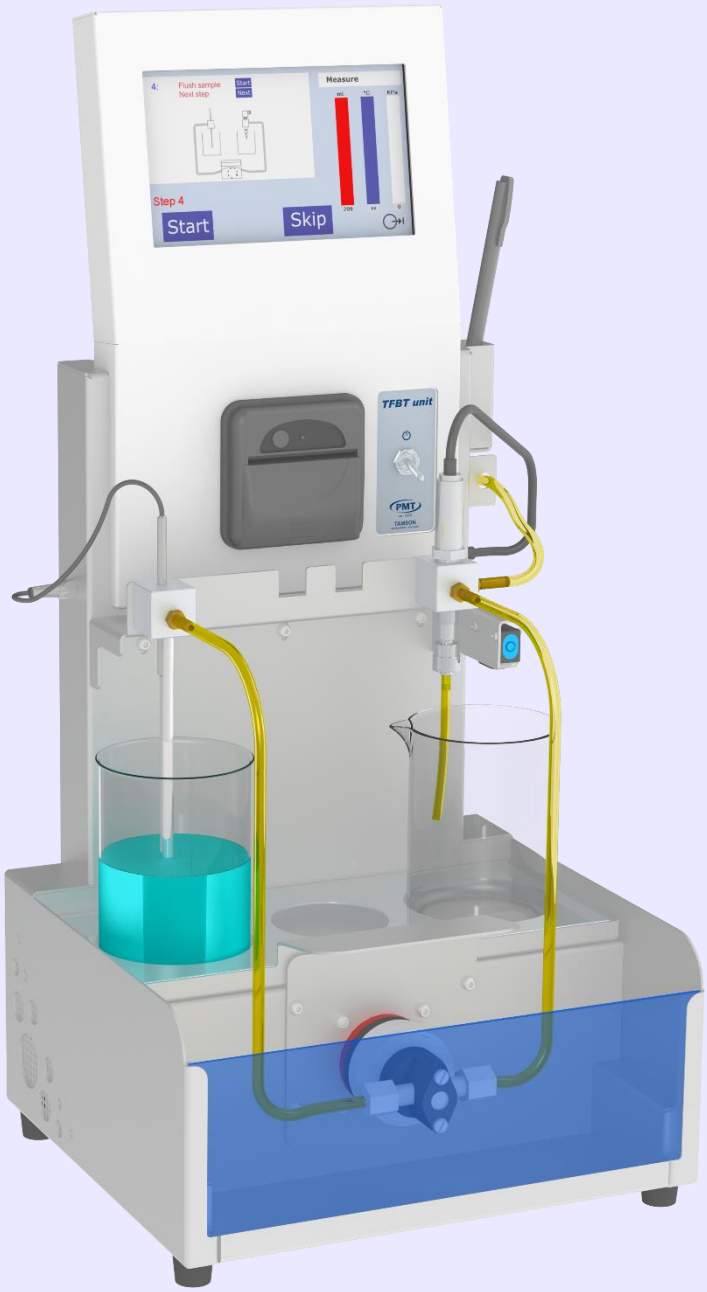
Tamson Filter Blocking Tendency tester

** This manual set-up can be replaced by automated Tamson Filter Blocking Tendency tester. Fully conforms to the latest ‘Cold Soak’ filterability test requirements for FAME and bio diesel to be used with the TLB50 for IP PM EA. Please see specification sheet “TFBT”.



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