Tamson Instruments

Specification sheet

TV12LT

ASTM D445 - IP 71 - ISO 3104 - IP EM PJ - IEC 61868

- **Ultra-high stability**
- **Ideal for viscosity of jet fuel**
- **Fast cool down to -20°C and -40°C**
- **Small footprint**
- **Detachable front window**
- **Internal LED light**
- **Bath drain**
- **Built-in cooling**
- **4 places, small bath volume**

Item	Unit	TV12LT	
Range		-42..+20°C -43.6..+68°F	-42..+80°C -43.6..+176°F
P/N 230V/50Hz		00T0410	00T0425
P/N 115V/60Hz		00T0415	00T0430
P/N 230V/60Hz		00T0420	00T0435
Reading	[°C/°F]	Menu selectable	
Interface		RS232	
Setting	[°C]	0.01	
Stability ± *	[°C]	0.01	
Uniformity ± *	[°C]	0.01	
Heating	[W]	500 +700	
Heaters		2	
Bath volume	[L]	15	
Cover		1 cover with 4 x ø51 mm openings	
Window	[mm]	255 x 230	
Opening bath	[mm]	250 x 98	
Depth	[mm]	300	
Length	[mm]	670	
Width	[mm]	425	
Height	[mm]	720	
Power	[Watt]	Nominal 800, Maximum 2100	
Ambient condition	[°C]	18 .. 23	
CE	All models conform to CE regulations		
* Measured @-20°C in methanol			

TV12LT

General

Tamson visibility baths are specially designed for tests that require ultra-precise temperature control, or processes that need to be followed visually, e.g. viscometry, thermometer and sensor calibration, density and reaction rate measurement, etc. The window is heated preventing built up of condensate. The TV12LT is specially designed for kinematic viscosity determination of aviation fuels. Please see table 3. The TV12LT is able to cool down from ambient to -20°C (usual test temperature for aviation fuels) within 60 minutes. The TV12LT is ideal for ASTM D7566, where -40°C viscosity determinations are required for aviation turbine fuels containing synthesized hydrocarbons.

Fine adjustment and offset

After the bath has become stable, the set point may be more accurately adjusted in the range of –5.00° to + 5.00°, if necessary. The absolute temperature can be adjusted with 0.005°C accuracy.

Construction

The stainless steel construction ensures an exceptional stable bath temperature which is further improved by an ingenious stirring mechanism with baffle plates. The baffle plate directs the fluid which results in excellent temperature control and homogeneity. All wetted parts are made of stainless steel, providing resistance against all usual bath fluids. The cover of the bath has four round ø51 mm openings with lids, for suspending glass capillary viscometers in holders.

The bath is fitted with adjustable feet for levelling. Different covers can be used. The use of thermo insulated windows and window heating ensures clear sight. A permanent LED light is located in the top plate to supply clear light and guarantees optimal visibility inside the bath. A bath overflow outlet protects against expanding bath fluid or when the bath filling is too high.

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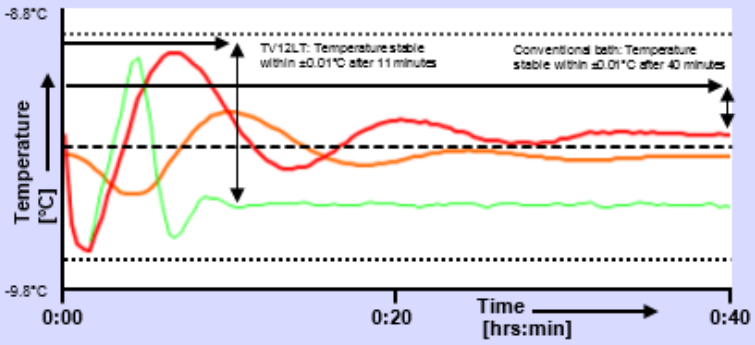
Span
Varies for different part numbers. Span lies from -42°C/-43.6°F up to + 80°C/176°F.

Safety
The bath conforms to CE-regulation. Further the bath is equipped with a mechanical over temperature device which cuts the power when in case of malfunction the bath exceeds the pre-set maximum temperature. This feature guarantees safe around the clock operation. The TV12LT is equipped with a float that switches off the bath when the level of bath fluid is too low.



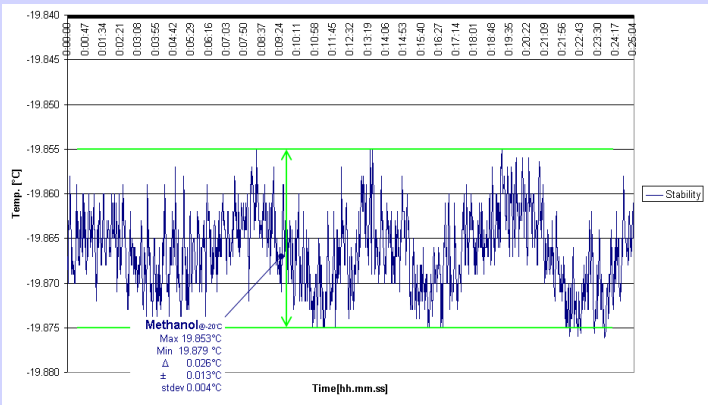
Accuracy
Recovery from temperature dip

TV12LT bath

Conventional rectangle bath

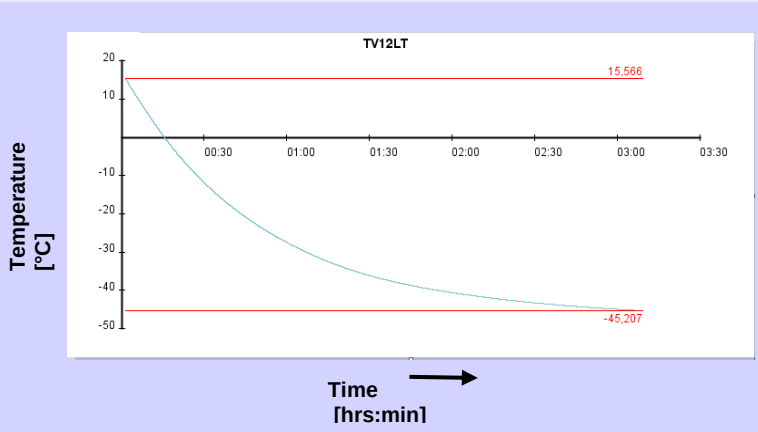
Inside glass viscometer capillary

Accuracy @ -20°C
Methanol
standard deviation ± 0.004°C
min / max ± 0.013°C



Homogeneity
Methanol
standard deviation ± 0.004°C
min / max ± 0.013°C

Cooldown
Reaches -20°C within 60 minutes
Reaches -40°C within 120 minutes



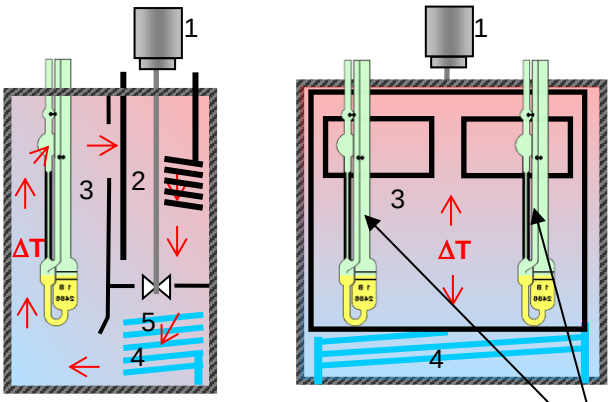
TV12LT

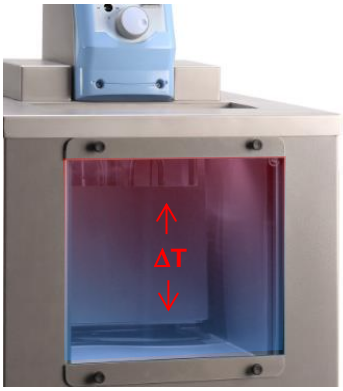
TV12LT

Principle of operation

Superior homogeneity

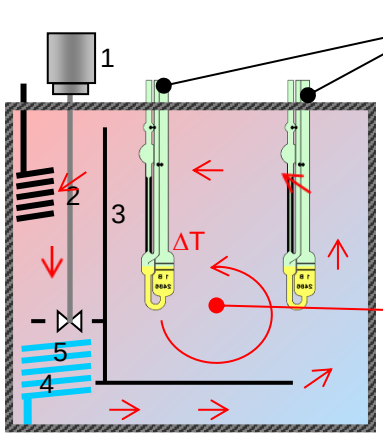
TV12LT design



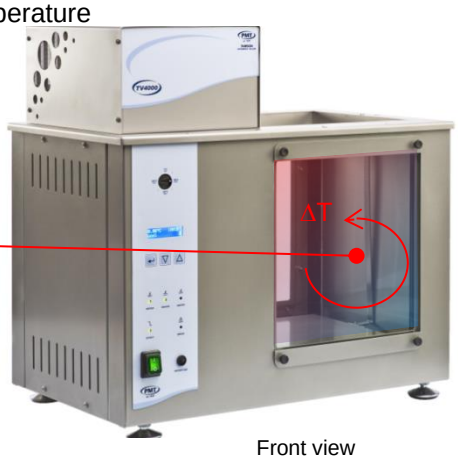


Side view | Front view | Front view

Conventional rectangle bath



Devices have different temperature



Front view | Front view

1 : Motor
2 : Heater
3 : Baffle plates
4 : Cooling
5 : Stirrer vane

TV12LT

TV12LT

Accessories

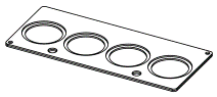
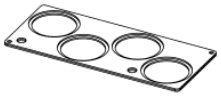
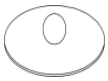
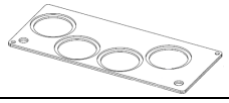
Table 1: TV12LT is standard included with:		
P/N	**Picture**	**Description**
23T2411		Cover with 4 openings: - 4 x ø51 mm opening - 2 x ø12.5mm opening for thermometer
		4 * lid for ø 51 mm opening

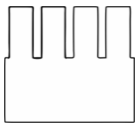
Table 2: Optional covers and levelling platform for TV12LT:		
P/N	**Picture**	**Description**
23T2413		Cover with 4 openings: - 4 x ø60 mm opening - 2 x ø12.5mm opening for thermometer
		4 * lid for ø60 mm opening
23T2412		Special cover for CFR (Cannon Fenske Routine) viscometers with 4 openings: - 4 x ø51 mm opening - 2 x ø12.5mm opening for thermometer
		4 * lid for ø 51 mm opening
13T6200		Levelling platform - without metal block (P/N 13T6210) - openings in cover can be custom designed (Please see final page for more information)
13T6210		Metal calibration block

TV12LT

TV12LT

Aviation Fuel Viscosity

Table 3: Suggested set-up to determine the kinematic viscosity of aviation fuel			
P/N	**Picture**	**Suggested quantity**	**Description**
00T0410		1	TV12LT (230V/50Hz)
00T0415			TV12LT (115V/60Hz)
00T0420			TV12LT (230V/60Hz)
10T6090		1	Timer, 8 positions
14T0303		1	Adapter to insert TT3B thermometer in to the bath cover
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")
10T6001		4	Ubbelohde viscometer holder
25T0814		1	ISO 17025 Calibrated Ubbelohde viscometer tube size 0C
25T0816		1	ISO 17025 Calibrated Ubbelohde viscometer tube size 0B
25T0817		1	ISO 17025 Calibrated Ubbelohde viscometer tube size 1
25T0818		1	ISO 17025 Calibrated Ubbelohde viscometer tube size 1C
N2B		1	N2B viscosity reference standard
06T1724		1	Stoppers

Table 4: Accessories and options		
Viscosity accessories		Please see specification sheet "Viscosity accessories", e.g. viscometers, viscometer holders, bath fluids, general purpose reference standards, etc
02T0204		Spill tray Protects your lab against dripping and spilling during operation or when replacing bath fluid. The tray has a drainage valve 3/8" BSP connection.
13T3021		White contrast plate to get better visibility when measuring transparent liquids like jet fuel