

Specifications TV4000DC

Tamson Visibility bath 40 Litres with DC control: ASTM D445 - ASTM D446 - IP71 - ISO/EN 3104 - ASTM D2170



- ⊕ **Stainless steel bath**
- ⊕ **Calibration**
- ⊕ **High precision $\pm 0.002^{\circ}\text{C}$**
- ⊕ **Large windows**
- ⊕ **0.001°C readout**
- ⊕ **RS232 communication**
- ⊕ **Detachable front window**

General

This Tamson viscometer and calibration bath is specifically designed for tests that require ultra-precise temperature control. The bath offers front and back windows ensuring excellent visibility through the bath.

Construction

The stainless steel construction with 25 mm thick glass wool insulation ensures exceptionally stable temperatures. Homogeneity further is improved by an ingenious stirring mechanism with baffle plates. All wetted parts are made of stainless steel, providing resistance against all usual bath fluids. The bath is fitted with adjustable feet for levelling. The cover of the bath has a number of round 51 \varnothing mm holes with lids, for suspending glass capillary viscometers in holders. To work at temperatures lower than ambient, use of cooling must be made. Cooling fluid can be pumped through the cooling coil inside the apparatus. Tap water or a combination with the small circulator TLC10-3 or TLC15-5. For cleaning purposes the glass panes are detachable. A power plug on the back is mounted to provide power for an optional illumination unit (Z41).

Item	Unit	TV4000DC
Ordering code 230V 50-60Hz		00T0802
Ordering code 115V		00T0804
Range	Ambient.. 230°C /..446°F	
Reading	°C or °F menu selectable	
Interface	RS232	
Setting \pm	[°C]	± 0.01
Stability*	@40°C	st dev. $\pm 0.0007^{\circ}\text{C}$ $\pm 0.002^{\circ}\text{C}$
	@100°C	st dev. $\pm 0.0013^{\circ}\text{C}$ $\pm 0.005^{\circ}\text{C}$
	@150°C	st dev. $\pm 0.0027^{\circ}\text{C}$ $\pm 0.010^{\circ}\text{C}$
Uniformity*	@40°C	$\pm 0.002^{\circ}\text{C}$
	@100°C	$\pm 0.006^{\circ}\text{C}$
	@150°C	$\pm 0.011^{\circ}\text{C}$
Heating 230V	[kW]	2.5
Heating 115V		2.5
Heaters		3
Bath volume	[L]	40
Lid		
Window	[mm]	270*285
Opening lid	[mm]	51(dia.)
Opening bath	[mm]	260*240
Depth	[mm]	300
Length	[mm]	350
Width	[mm]	590
Height	[mm]	585
Weight	[kg]	41
Frequency	[Hz]	Suited for both 50 & 60
CE	All models conform to CE regulation	

Agitation

A vane type stirrer with brass bearings moves the bath fluid past the heaters and then from under the main baffle plate, thus directing the freshly heated fluid to the walls as well as window areas and creating an optimal temperature uniformity.

Span

All baths can be operated from ambient +5 up to +230°C(41..446°F). With the use of the built-in cooling coil, span lies 5°K above the temperature of the cooling liquid. The set point can be set in steps of 0.01°C.

Fine adjustment and offset

After the bath has stabilized the set point may be more accurately adjusted in the range of $\pm 0.005^{\circ}\text{C}$.

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Viscometer arrangement

The stainless steel bath cover offers custom design or a standard cover with 7 or 8 openings. Each opening is 51 mm in diameter. The openings are arranged in two rows of resp. 4 and 3 or 2*4 openings. Additionally, two separate thermometers can be placed through two 12.5 mm holes in the cover. For calibration a levelling platform is optional together with metal block. Ask our sales team for options and possibilities.

Safety

The bath conforms to CE regulations. It also is equipped with a mechanical adjustable and resettable safety thermostat. Advanced safety features are microprocessor control of:

- Electronic- and processor system,
- Control and feedback from each heating,
- System accuracy.

System error results in total cut-off from the power supply.

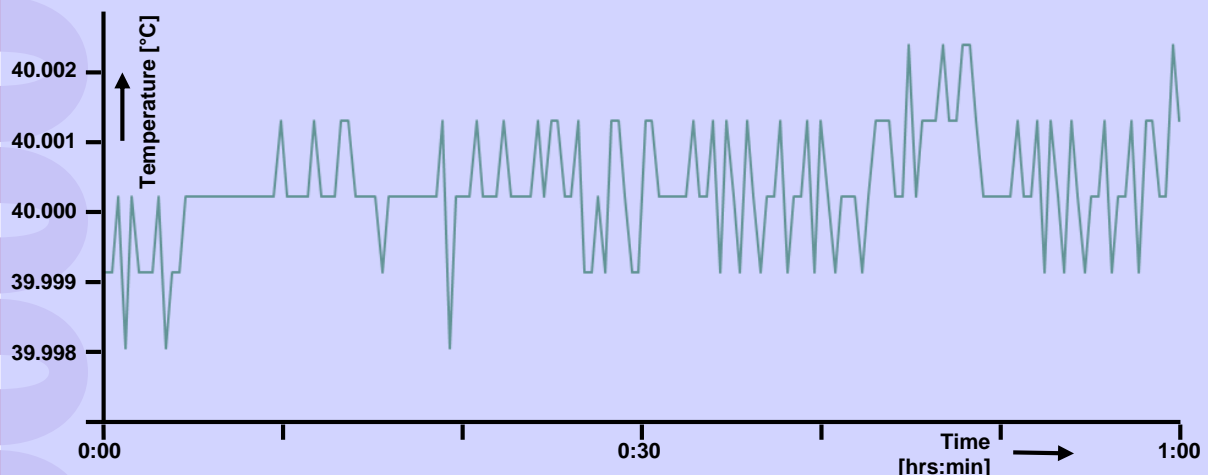
Stability of control

Bath medium is water

Set point temperature is 40.000°C

Temperature ripple is $\pm 0.002^\circ\text{C}$ measured over one hour (This is a measured minimum maximum value)

Standard deviation is $\pm 0.0007^\circ\text{C}$



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Stability of control

Bath medium is oil

Set point temperature is 100.000°

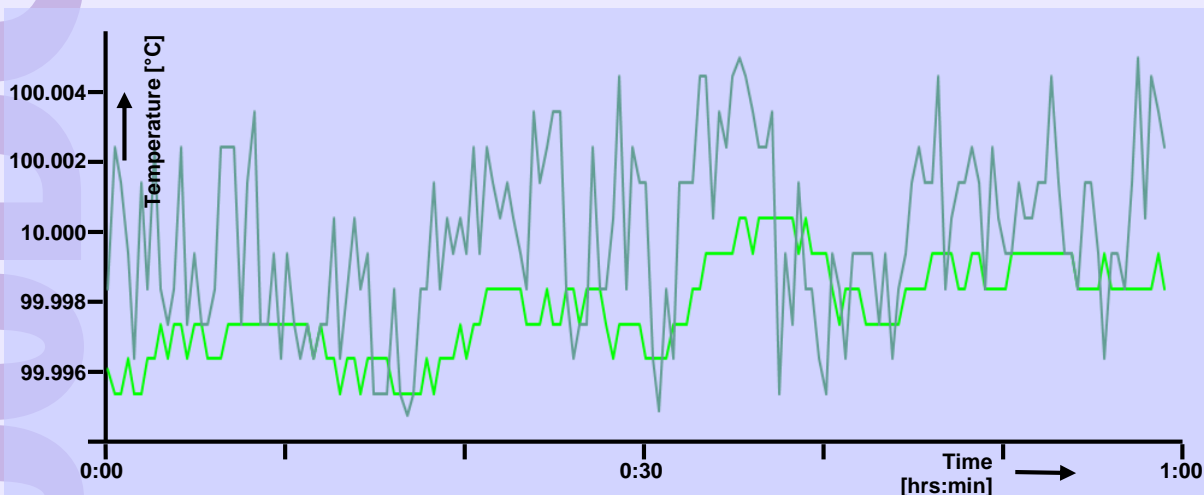
Temperature ripple is $\pm 0.0051^{\circ}\text{C}$ measured over 1 hr (This is a measured minimum maximum value)

Standard deviation is $\pm 0.0013^{\circ}\text{C}$

Metal block

Temperature ripple is $\pm 0.0025^{\circ}\text{C}$ measured over 1 hr (This is a measured minimum maximum value)

Standard deviation is $\pm 0.0013^{\circ}\text{C}$



Bath medium is *oil*

Set point temperature is 150.000°

Temperature ripple is $\pm 0.010^{\circ}\text{C}$ measured over 1 hr (This is a measured minimum maximum value)

Standard deviation is $\pm 0.0028^{\circ}\text{C}$

Metal block

Temperature ripple is $\pm 0.005^{\circ}\text{C}$ measured over 1 hr (This is a measured minimum maximum value)

Standard deviation is $\pm 0.0028^{\circ}\text{C}$




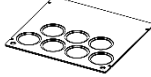
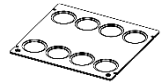




(Light Green)

Tamson Instruments

Specification sheet

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Item	TV4000	
Levelling platform - without metal block - holes can be custom designed		23T2123 - platform 23T2122.xx - top lid
Metal calibration block		 13T6210
Cover 7 lids (ø 51mm) + hole for thermometer (ø 12.5mm)		Standard included (set of 1 x 03T2136 top & 1 x 03T2110 bottom)
Cover 8 lids (ø 51mm) + hole for thermometer (ø 12.5mm)		Optional* (set of 1 x 03T2137 top & 1 x 03T2120 bottom)
Illuminator "Z41" stand alone		85 ~ 230V/50-60Hz 00T0909
Illuminator "Z41" backpanel		85 ~ 230V/50-60Hz 00T0908
Cooling circulator TLC15		TLC15 - 230V/50Hz 00T0565 TLC15 - 115V/60Hz 00T0570 TLC15 - 230V/60Hz 00T0576
Timer		10T6090

Also see following datasheets:

- Bath fluid
- Viscometer accessories
- Viscometers (glas capillary)
- Reference oil for viscosity measurement.