Tamson Instruments
Specification sheet

TV4000DC

Tamson visibility bath 40 litres with DC control, ASTM D445, ASTM D446, IP 71, ISO/EN 3104, ASTM D2170

Item	Unit	TV4000DC		
P/N 230V/50~60Hz		00T0802		
P/N 115V/60Hz		00T0804		
Range	[°]	Ambient . . 180C /356F		
Reading	[°C/°F]	Menu selectable		
Readout		Three decimals (0.001)		
Interface		RS232		
Setting ±	[°C]	± 0.01		
Stability	@40°C	st dev. ± **0.0007°C**	± 0.005°C	Min/ Max
	@100°C	st dev. ± **0.0013°C**	± 0.005°C	
	@150°C	st dev. ± **0.0027°C**	± 0.010°C	
Uniformity	@40°C	± 0.002°C		
	@100°C	± 0.006°C		
	@150°C	± 0.011°C		
Heating 230V	[kW]	2.4		
Heating 115V	[kW]	1.7		
Heaters		3		
Bath volume	[L]	40		
Window	[mm]	270 * 285		
Opening lid	[mm]	ø51		
Opening bath	[mm]	260 * 240		
Depth	[mm]	300		
Length	[mm]	350		
Width	[mm]	590		
Height	[mm]	585		
Weight	[kg]	41		
CE	All models conform to CE regulation			

TV4000DC

- **Stainless steel bath**
- **Calibration & Viscosity**
- **High precision ± 0.005°C**
- **Large windows**
- **Three decimal readout**
- **RS232 communication**
- **Detachable front window**

General
The Tamson TV4000DC 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 and brass, providing resistance against all usual bath fluids. The bath is fitted with adjustable feet for levelling. The cover of the bath has seven ø51 mm openings with lids, for suspending glass capillary viscometers in holders. To work at sub-ambient temperatures, use of cooling must be made. Cooling fluid can be pumped through the cooling coil inside the apparatus. Tap water or a combination with a Tamson circulator TLC15-5 can be used for this purpose. For cleaning purposes the glass panes are detachable. A power plug on the backside is mounted to provide power for an optional Z41 LED illumination unit.

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 this is creating an optimal temperature uniformity inside the TV4000DC.

Span
The TV4000DC can be operated from ambient +5°C up to +180°C/356°F. With the use of the built-in cooling coil, span lies 5°C above the temperature of the cooling liquid. The set point can be set in steps of 0.01°C. Readout is in three decimals (0.001°C)

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Fine adjustment and offset
After the temperature control is stable, the offset can be more accurately adjusted in the range of ± 0.005°C.

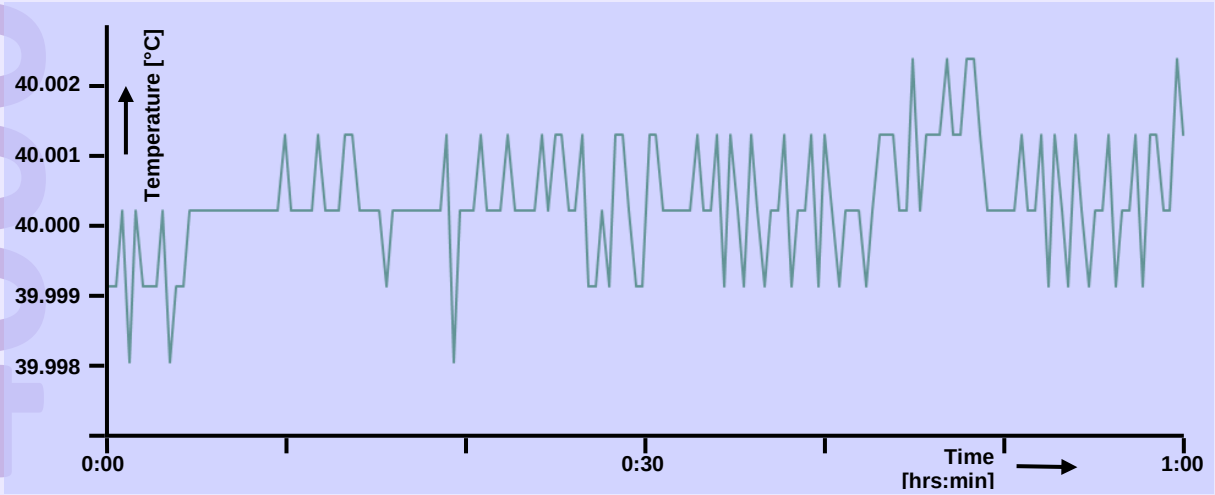
Viscometer arrangement
The stainless steel bath cover has seven openings with lids, arranged in two rows of respectively four and three. Optional is a cover with eight openings (2*4 openings). These ø51 mm openings can accommodate glass capillaries in holders (see our viscosity accessories specification sheet). Additionally, thermometers can be placed through two ø12.5 mm openings in the cover. For calibration a levelling platform is optional together with metal block. Please 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.

The viscosity baths are standard equipped with a float. In case the level of the bath fluid is too low, the float will switch-off the bath.

Stability of control
Bath medium is water
Set point temperature is 40.000°C
Temperature stability is ± 0.002°C measured over one hour (This is the delta between the measured minimum and maximum temperature)
Standard deviation is ± 0.0007°C



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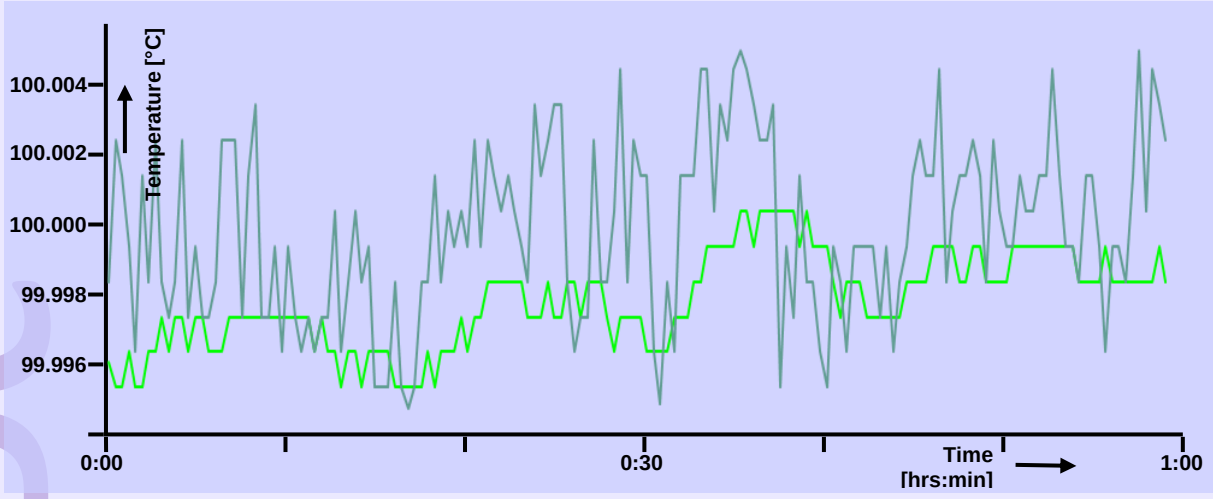
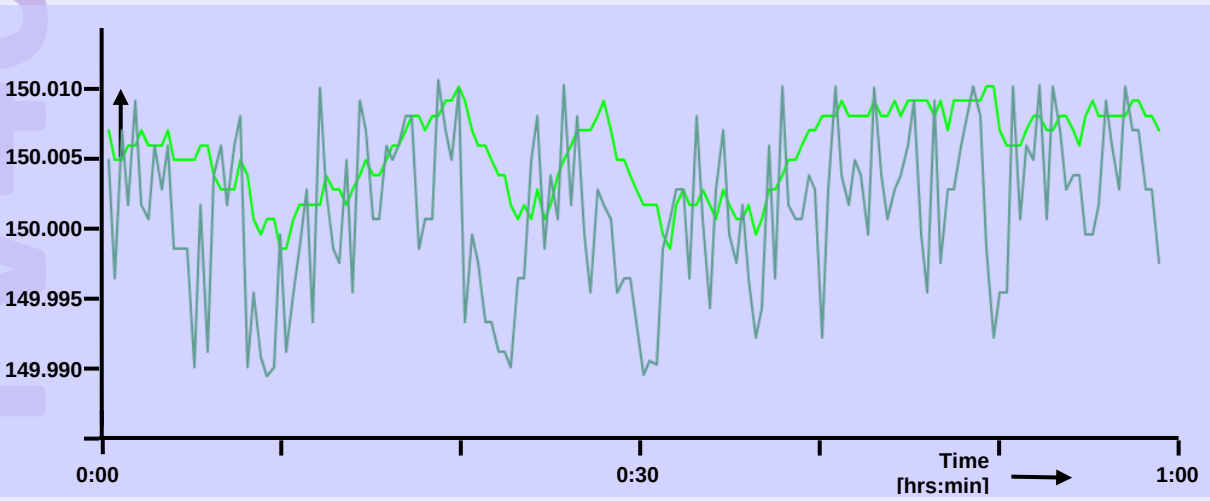
Stability of control
Bath medium is oil
Set point temperature is 100.000°C
Temperature stability is ± 0.0051°C measured over one hour (This is the delta between the measured minimum and maximum temperature)
Standard deviation is ± 0.0013°C

Metal block
Temperature stability is ± 0.0025°C measured over one hour (This is the delta between the measured minimum and maximum temperature)
Standard deviation is ± 0.0013°C



Stability of control
Bath medium is oil
Set point temperature is 150.000°C
Temperature stability is ± 0.010°C measured over one hour (This is the delta between the measured minimum and maximum temperature)
Standard deviation is ± 0.0028°C

Metal block
Temperature stability is ± 0.005°C measured over one hour (This is the delta between the measured minimum and maximum temperature)
Standard deviation is ± 0.0028°C



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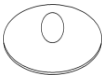
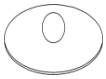
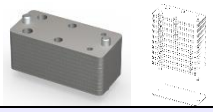
TV4000DC is standard included with:		
P/N	**Picture**	**Description**
23T2400		Cover with 7 openings: - 7 x ø51 mm opening - 2 x ø12.5mm opening for thermometer
		7 * lid for ø 51 mm opening

Optional covers for TV4000DC:		
P/N	**Picture**	**Description**
23T2401		Cover with 8 openings: - 8 x ø51 mm opening - 2 x ø12.5mm opening for thermometer
		8 * lid for ø 51 mm opening
23T2402		Cover with 8 openings: - 8 x ø60 mm opening - 2 x ø12.5mm opening for thermometer
		8 * lid for ø 60 mm opening
23T2403		Cover with 7 openings: - 4 x ø51 mm opening - 3 x ø60 mm opening - 2 x ø12.5mm opening for thermometer
		4 * lid for ø 51 mm opening
		3 * lid for ø 60 mm opening
23T2123		Levelling platform - without metal block (P/N 13T6210) - openings in cover can be custom designed
13T6210		Metal calibration block

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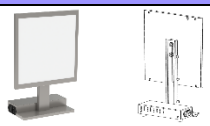
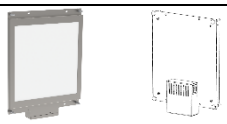
Accessories		
P/N	**Picture**	**Description**
00T0909		Illuminator "Z41" stand alone (85~230V/50~60Hz)
00T0908		Illuminator "Z41" backpanel (85~230V/50~60Hz)
00T0565		Cooling circulator TLC15-5 230V/50Hz
00T0567		Cooling circulator TLC15-5 230V/60Hz
00T0570		Cooling circulator TLC15-5 115V/60Hz
10T6090		Timer, 8 positions
02T0201		Spill tray. Protects your lab against dripping and spilling during operation or when replacing bath fluid. The tray has a drainage with valve and 3/8" BSP connection
12T1075		Tubing with connectors and clamps to be used between a TLC and a TV
10T6094		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		Adapter to insert a TT3B thermometer in the opening of the cover
Viscosity Accessories		Please see specification sheet "Viscosity accessories", e.g. viscometers, viscometer holders, bath fluids, general purpose reference standards, etc.

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