Tamson Instruments

Specification sheet

Specifications TV2000, TV4000, TV7000DC

ASTM D445 - ASTM D446 - IP 71 - ISO/EN 3104 - ASTM D2170 - ASTM D2162

TV series

- **Completely stainless steel**
- **Conforms to ASTM D445**
- **High precision stability**
- **Large windows**
- **Easy to operate**
- **RS232 communication**
- **Drain and overflow outlet**

Item	Unit	TV2000	TV4000	TV7000DC
P/N 230V/50~60Hz		00T0782	00T0772	00T0796
P/N 115V/60Hz		00T0784	00T0774	00T0798
Range	Ambient.. 230°C /446°F			
Reading	°C or °F menu selectable			
Interface	RS232			
Setting ±	[°C]	0.01		
Stability* ±	[°C]	0.01		
Uniformity* ±	[°C]	0.01		
Heating 230V	[kW]	2.8	2.8	2.4
Heating 115V	[kW]	2.3	2.3	2.0
Heaters		2	2	3
Bath volume	[L]	20	40	70
Number of lids		3	4+3 or 4+4	4+3 or 4+4
Opening lid	[mm]	ø51	ø51	ø51
Window	[mm]	140 * 285	270 * 285	270 * 585
Opening bath	[mm]	130 * 165	260 * 240	260 * 240
Depth	[mm]	300	300	630
Length	[mm]	350	400	460
Width	[mm]	470	590	410
Height	[mm]	590	590	1010
Weight	[kg]	40	41	61
Power	[Watt]	2900	2900	2600
Frequency	[Hz]	Suited for both 50 & 60		
CE	All models conform CE regulation			
* Value measured in water @ +50°C/+122°F				

General

Tamson viscometer and Tamson calibration baths are specially designed for tests that require ultra-precise temperature control, or processes that need to be followed visually, e.g. viscometry, thermometer calibration, crystal growing, density and reaction rate measurement, etc. All models are fitted with double windows in front and rear walls. Visibility through the bath is excellent.

Construction

The stainless steel construction with 25 mm thick rock wool insulation ensures an exceptionally stable bath temperature which is further improved by an ingenious stirring mechanism with baffle plates. All wetted parts are made from 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 ø51 mm openings with lids, for suspending glass capillary viscometers in holders. To work at temperatures below 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 external Tamson TLC10-3 or TLC15-5 cooling circulators can be used for this purpose. All models are fitted with double windows in front and rear walls. The windows are formed with two panes of tempered safety glass separated by 20 mm air space. A power plug on the backside is mounted to provide power for an optional Z41 or Z71 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 bath fluid to the walls as well as window areas and is creating an optimal temperature uniformity inside the bath.

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

Accuracy and set point
The set point can be set in steps of 0.01°. The system overall accuracy is within ± 0.01°C. Please see the graphs for more details. After the temperature control is stable, the offset can even be adjusted with ± 0.005°C.

Viscometer arrangement
The TV4000 and TV7000DC stainless steel bath cover has seven openings with lids, arranged in two rows of resp. four and three openings. An optional cover with eight openings is available. The TV2000 offers three openings (2 + 1 lids). These openings of ø51 mm will accommodate glass capillary in holders (please see our specification sheet "viscosity accessories"). Additionally, separate thermometers can be placed through two ø12.5 mm openings in the cover.

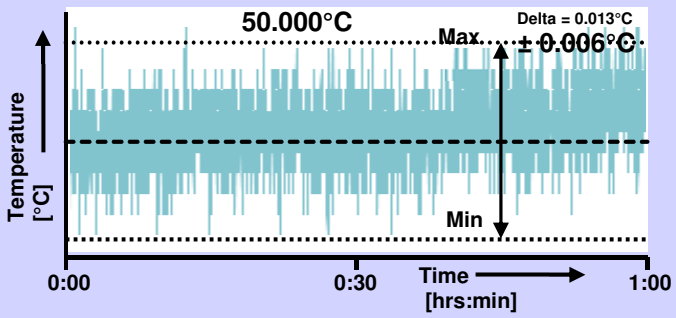
Safety
The bath conforms to CE regulations. It also is equipped with a mechanical adjustable and resettable safety thermostat. Advanced safety features are microprocessor control of:

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

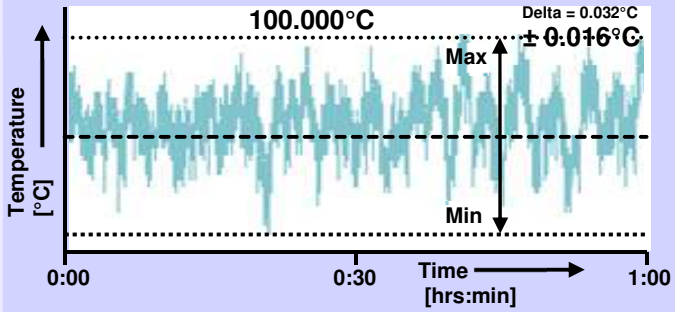
System error results in total cut-off from the power supply.

Optional equipment
See next page.

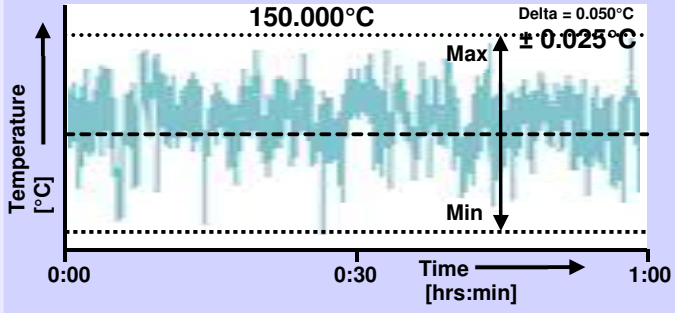
Temperature stability @ 50°C



Temperature stability @ 100°C



Temperature stability @ 150°C



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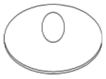
TV2000 is standard included with:		
P/N	**Picture**	**Description**
23T2404		Cover with 3 openings: - 3 x ø51 mm opening - 2 x ø12.5mm opening for thermometer
		3 * lid for ø 51 mm opening

Optional covers for TV2000:		
P/N	**Picture**	**Description**
23T2405		Cover with 4 openings: - 4 x ø51 mm opening - 2 x ø12.5mm opening for thermometer
		4 * lid for ø 51 mm opening
23T2406		Cover with 3 openings: - 3 x ø60 mm opening - 2 x ø12.5mm opening for thermometer
		8 * lid for ø 60 mm opening

TV series

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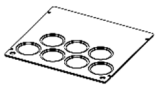
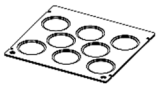
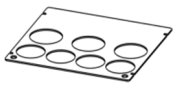
TV4000 or TV7000DC is standard included with:		
P/N	**Picture**	**Description**
23T2400		Cover with 7 openings: - 7 x ø51 mm opening - 2 x ø12.5mm opening for thermometer
		7 * lid for ø 51 mm opening

Optional covers for TV4000 or TV7000DC:		
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

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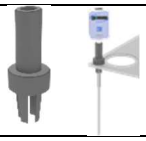
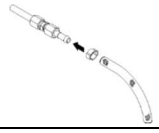
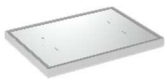
Accessories				
P/N	**Picture**	**TV2000**	**TV4000**	**TV7000DC**
00T0909		Illuminator "Z41" stand alone (85 ~ 230V/50-60Hz)		
00T0908		Illuminator "Z41" backpanel (85 ~ 230V/50-60Hz)		
00T0907				Illuminator "Z71" backpanel (85 ~ 230V/ 50-60Hz)
00T0050		Cooling circulator TLC10-3 - 230V/50Hz		
00T0051		Cooling circulator TLC10-3 - 230V/60Hz		
00T0052		Cooling circulator TLC10-3 - 115V/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		
E20 Thermometer		Please see specification sheet “E20 thermometers”		
14T0303		Adapter to insert an E20 thermometer in the opening of the cover		
07T0086		Level detector/float		
07T0087			Level detector/float	
07T0088				Level detector/float
Viscosity accessories		Please see specification sheet "Viscosity accessories”, e.g. viscometers, viscometer holders, bath fluids, general purpose reference standards, etc		

Accessories				
P/N	**Picture**	**TV2000**	**TV4000**	**TV7000DC**
12T1075		Tubing with connectors and clamps to be used between a TLC and a TV		
02T0203		Spill tray		
02T0201			Spill tray	

TV series