

### Specifications TV12

Tamson visibility bath 12 litres ASTM D445, ASTM D446, IP71, ISO/EN 3104, ASTM D2170



- ⊕ **Small footprint**
- ⊕ **Detachable front window**
- ⊕ **Internal LED light**
- ⊕ **Ultra high stability**
- ⊕ **Only vertical temperature gradient**
- ⊕ **Bath drain**
- ⊕ **Standard cooling coil**
- ⊕ **Low power consumption**
- ⊕ **4 places, small bath volume**

#### 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 (Conforms to ASTM D445, IP71-1), Thermometer and Sensor calibration, Density and Reaction rate measurement, etc. The bath is fitted with a double window of which the front pane is detachable for cleaning purposes. The windows are panes of tempered safety glass separated by 20 mm air space.

#### Construction

The stainless steel construction ensures exceptionally stable temperatures which is further improved by an ingenious stirring mechanism with baffle plates. All

Item	Unit	TV12
TV12 230V		<b>00T0400</b>
TV12 115V		<b>00T0405</b>
Range	°C °F	ambient ..120°C(302°F)
Reading		°C or °F (menu selectable)
Interface		RS232
Setting ±	[°C]	0.01
Stability*	[°C]	±0.01 (stdev 0.002)
Uniformity*	[°C]	±0.01 (stdev 0.008)
Heating	[kW]	0.5 + 0.7
Heaters		2
Bath volume	[L]	12 ..15
Number of lids		4 x round diameter 51mm
Window	[mm]	140x285
Opening bath	[mm]	250*75
Depth	[mm]	300
Length	[mm]	318
Width	[mm]	365
Height	[mm]	640
Weight	[kg]	20
Power	[kW]	0.2 .. 1.3 max
Frequency	[Hz]	Suited for both 50 & 60
CE		All models conform to CE regulation
*Measured in water @40°C		

wetted parts are made of stainless steel and PTFE, providing resistance against all usual bath fluids. The bath is fitted with adjustable feet for leveling. The cover of the bath has 4 round 51 mm holes with lids, for suspending glass capillary viscometers in holders. To work at temperatures lower than ambient plus 5°C, 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 TLC10-3 can be used for this purpose. The windows are formed with two panes of tempered safety glass separated by 20 mm air space. A permanent light is located in the top plate to supply clear light and guarantee optimal visibility inside the bath. A bath overflow outlet protects against expanding bath oil when the bath filling is too high.

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#### Accuracy

##### Agitation

A vane type stirrer with maintenance free bearings moves the bath fluid past a special heater then from under the main baffle plate, thus specifically directing the fluid creating an optimal temperature and excellent uniformity

##### Span\*\*

All baths can be operated from ambient +5 up to +120°C (...302°F). With the use of the built-in cooling coil, span lies 5°K above the temperature of the cooling liquid.

##### Safety

The bath conforms to CE-regulation. Further the bath is equipped with a mechanical over temperature device which trips when in case of malfunction the bath exceeds the pre-set maximum temperature. This feature guarantees safe around the clock operation.

##### Accuracy

The system overall accuracy is within  $\pm 0.005^\circ\text{K}^*$

##### Fine adjustment and offset

After the bath has stabilised the set point may be more accurately adjusted in the range of  $-5.00^\circ$  to  $+5.00^\circ$ , if necessary.

##### Options

- Optical Level indicator **07T0080**

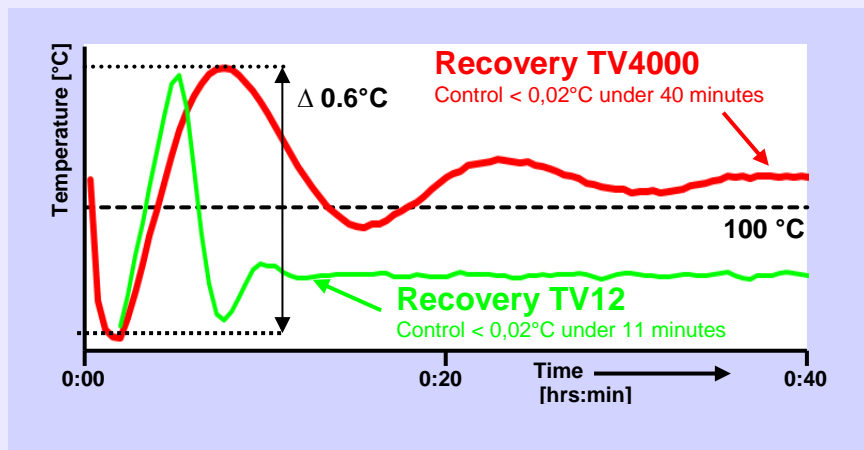
##### Dynamic control

Temperature recovery after placement of 1 viscometer with holder

TV12 bath recovers stable control within  $\pm 0,02^\circ\text{C}$  after 11 minutes

Conventional bath TV4000 needs 40 minutes to recover and resumes stable control within  $\pm 0,02^\circ\text{C}$

Measured in oil at 100°C



##### Control accuracy

Measured over 1 hour



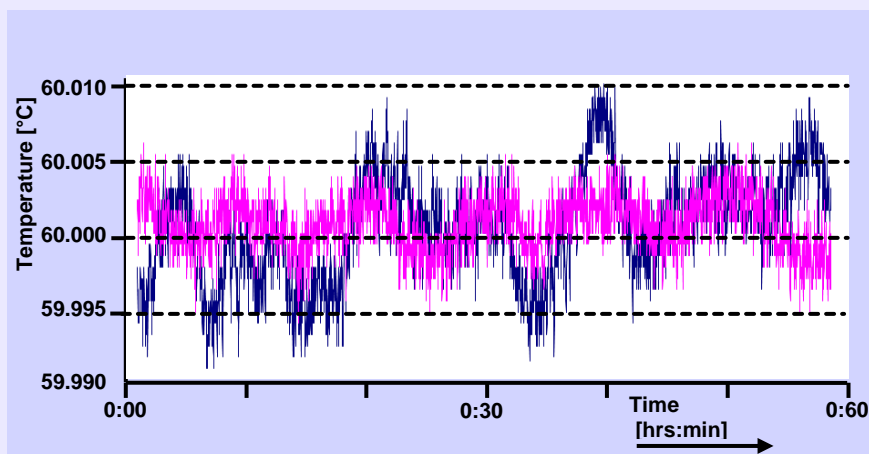
##### In water

standard deviation  $\pm 0.002^\circ\text{C}$   
min / max  $\pm 0.008^\circ\text{C}$



##### In oil

standard deviation  $\pm 0.005^\circ\text{C}$   
min / max  $\pm 0.014^\circ\text{C}$



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#### Homogeneity

#### Temperature Homogeneity

##### In water

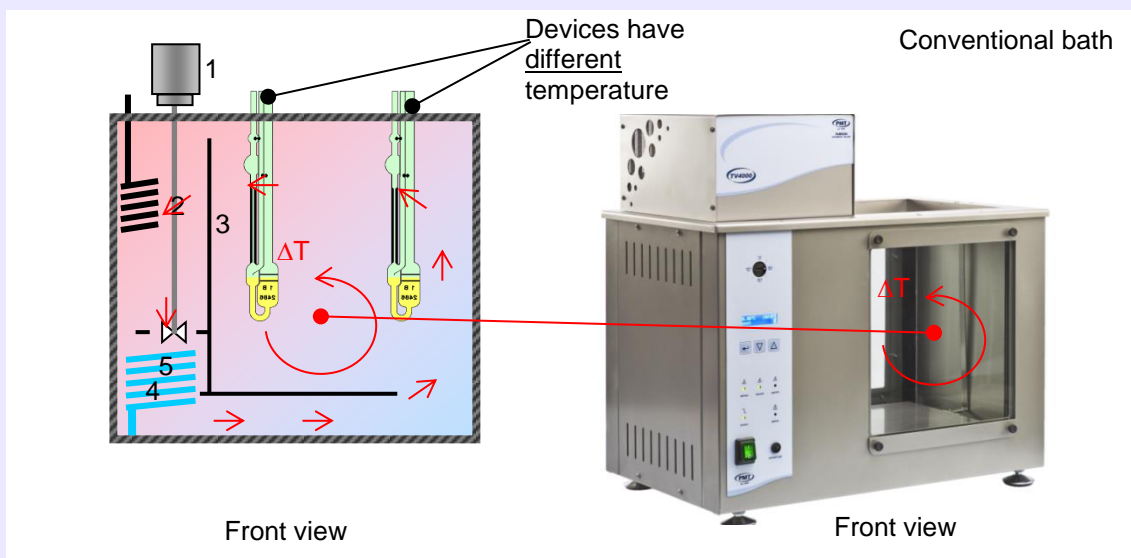
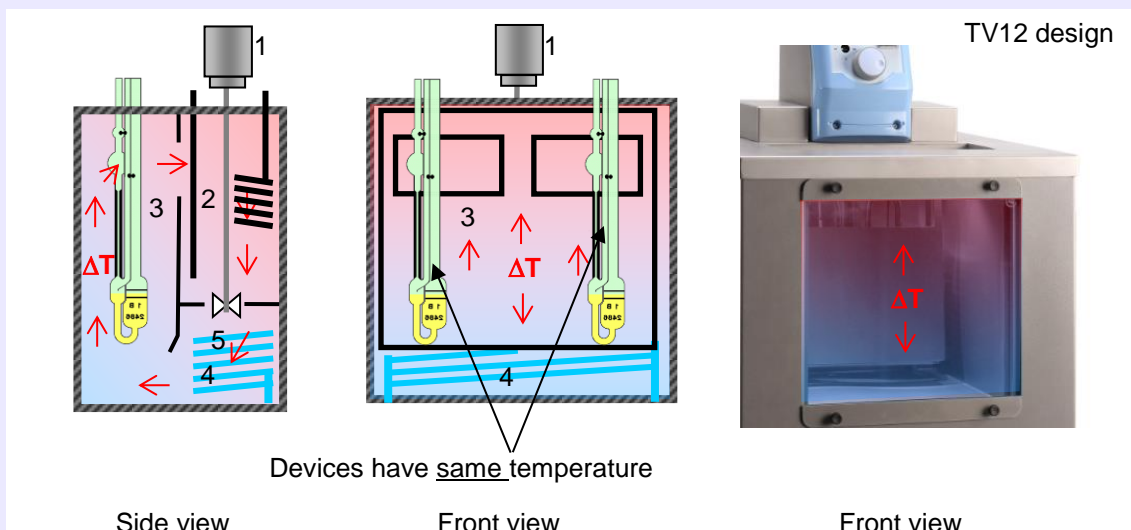
standard deviation  $\pm 0.002^{\circ}\text{C}$   
min / max  $\pm 0.008^{\circ}\text{C}$

##### In oil












standard deviation  $\pm 0.005^{\circ}\text{C}$   
min / max  $\pm 0.014^{\circ}\text{C}$

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

#### Temperature gradient TV12 vs conventional bath

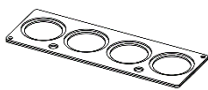
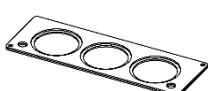







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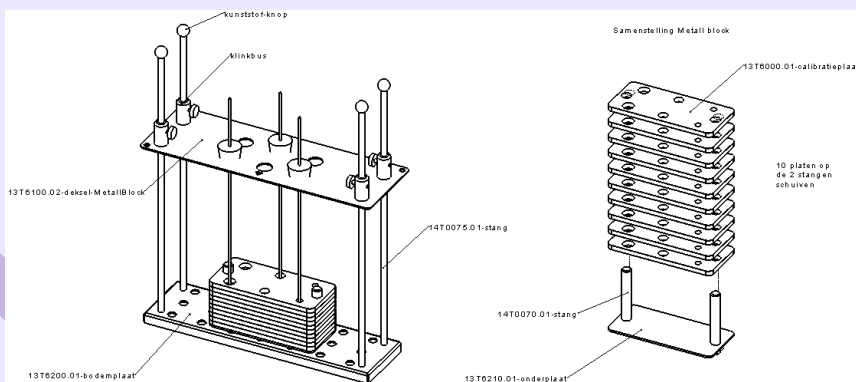
Accessories and options		
Contrast screen		 <b>13T3022</b>
Spillage tray		 <b>13T3220</b>
Cooling circulator TLC10-3		TLC10-3 - 230V/50Hz <b>00T0050</b> TLC10-3 - 230V/60Hz <b>00T0051</b> TLC10-3 - 115V/60Hz <b>00T0052</b>
Timer		<b>10T6090</b>
Bath fluid		See datasheet "Bath fluids"
Thermometers		ASTM nr.   Ordering no.   Range°C
		44C   25T0937   +18.5 ... +21.5
		46C   25T0938   +48,6 .. +51,4
		120C   25T0990   +38.6 ... +41.4
		46C   25T0939   +48.6 ... +51.4
		47C   25T0940   + 58.6 ... +61.5
		121C   25T0991   +98.6 ... +101.4
Other ranges available on request		
Thermometer holder		<b>00T0239</b>
Calibration,reference oils		See datasheet "Viscosity calibration standards"
Glass viscometers		See datasheet "Viscometer to ASTM D446, IP71 and BS188"
Viscometer holders		See datasheet "Viscometer holders"

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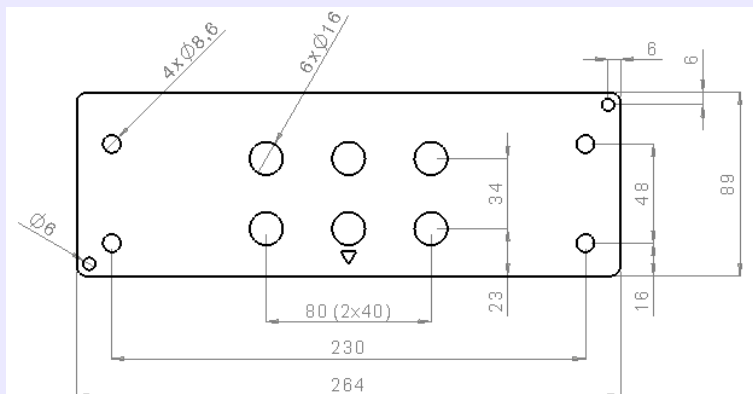
#### Accessories and options

Accessories and options			
Cover lid		Cover lid 4 x 51mm holes: - 4 x $\varnothing$ 51mm standard ASTM viscometer hole - 4 x lid 03T3070 - 2 x $\varnothing$ 12.5mm hole for thermometer	Standard included (set of 1 x 03T3016.01 top & 1 x 03T3016.02 bottom)
Cover lid		Cover lid 3 x 60,5mm holes: - 3 x $\varnothing$ 60.5mm Pinkevitch viscometer - 3 x lid 03T3075 - 2 x $\varnothing$ 12.5mm hole for thermometer	Optional (order separately) (set of 1 x 13T3018.02 top & 1 x 13T3018.01 bottom)
Lid 51mm hole		The standard cover lid already includes these items. Additional lids can be ordered when required.	<b>03T3070</b>
Lid 60.5 mm hole			<b>03T3075</b>
Leveling platform			<b>13T6200</b>
Calibration/metal block			<b>13T6210</b>

#### Levelling platform(13T6200) and metal block(13T6210)

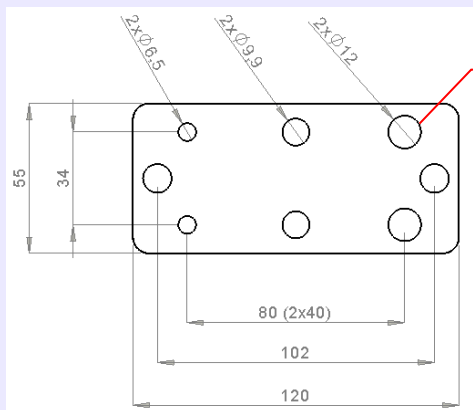


#### Dimensions top plate

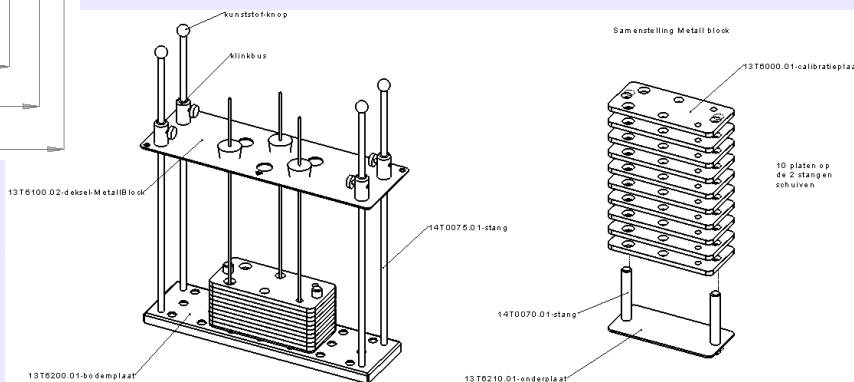


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#### Accessories



☞ Number of holes, dimensions and position. Other dimensions on request ☞



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