

### Specifications TV2000, TV4000, TV7000

ASTM D445, ASTM D446, IP71, ISO/EN 3104, ASTM D2170, ASTM D2167



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

#### 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. The windows are formed with two panes of tempered safety glass separated by 20 mm air space. Visibility through the bath is excellent.

#### Construction

The stainless steel construction with 25mm thick glass wool insulation ensures exceptionally stable temperatures which is further improved by an ingenious stirring mechanism with baffle plates. All wetted parts are made of stainless steel and PTFE, 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 mm holes with lids, for suspending glass capillary viscometers in holders. To work at temperatures lower than ambient

| Item                       | Unit   | TV2000                           | TV4000           | TV7000           |
|----------------------------|--------|----------------------------------|------------------|------------------|
| Ordering code 230V 50~60Hz |        | 00T0782                          | 00T0772          | 00T0792          |
| Ordering code 115V         |        | 00T0784                          | 00T0774          | 00T0794          |
| 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              | 2.8              |
| Heating 115V               | [kW]   | 2.3                              | 2.3              | 2.3              |
| Heaters                    |        | 2                                | 2                | 2                |
| Bath volume                | [L]    | 20                               | 40               | 70               |
| Number of lids             |        | 3                                | 4+3<br>or<br>4+4 | 4+3<br>or<br>4+4 |
| Window                     | [mm]   | 140*285                          | 270*285          | 270*585          |
| Opening lid                | [mm]   | 51(dia.)                         | 51(dia.)         | 51(dia.)         |
| 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] | 3100                             | 3100             | 3100             |
| Frequency                  | [Hz]   | Suited for both 50 & 60          |                  |                  |
| CE                         |        | All models conform CE regulation |                  |                  |

\* Value measured in water @ +50°C/+122°F

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 or TLC15 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. Visibility through the bath is excellent. A power plug on the back is mounted to provide power for an optional illumination unit (Z41 or Z71).

#### Agitation

A vane type stirrer with PTFE 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.

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#### 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.

#### Accuracy and set point

The set point can be set in steps of 0.01°. The system overall accuracy is within  $\pm 0.01^{\circ}\text{K}^*$ . After the temperature control is stable the set point can even be adjusted with + or - 0.005°K.

#### Viscometer arrangement

The stainless steel bath cover 7 openings with lids, arranged in two rows of resp. 4 and 3 or 8 openings (2\*4 openings), are provided for the TV4000 and TV7000. The TV2000 offers 3 openings (2 + 1 lid). These openings of 51 mm diam. will accommodate glass capillary in holders (see our viscometer datasheet). Additionally, a separate thermometer can be placed through two 13mm holes 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:

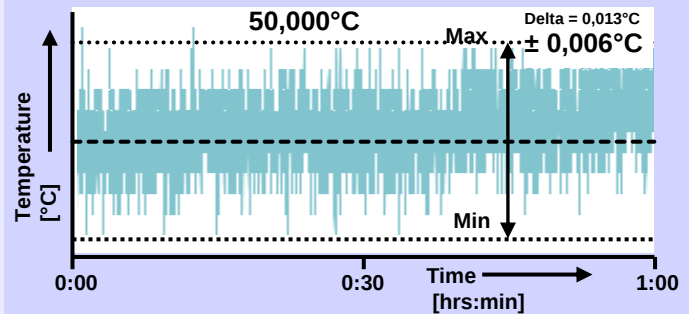
- Electronic- and processor system,
- Control and feedback from each heating,
- System accuracy.

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

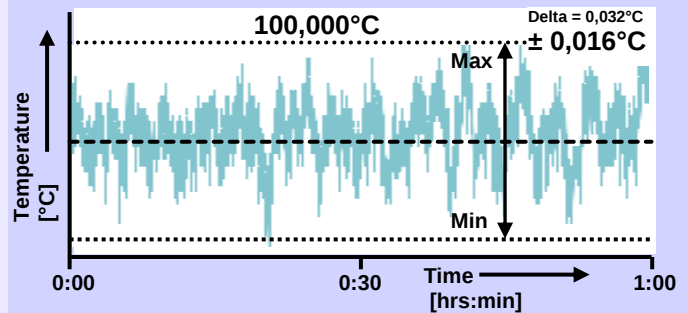
#### Optional equipment

See next page.

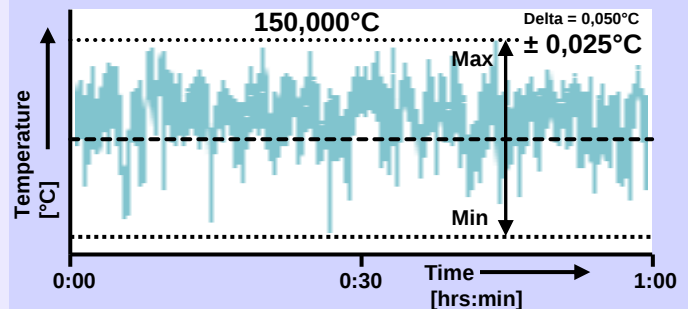
#### Working @ 50°C



#### Working @ 100°C



#### Working @ 150°C



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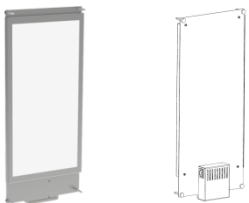
| Item                                                                                                                                                                                                                     |                                                                                     | TV2000                                                                                             | TV4000 / TV7000                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|
| Cover 3 lids:<br>- 3 x $\varnothing$ 51mm standard ASTM viscometer hole<br>- 3 x lid 03T3070<br>- 2 x $\varnothing$ 12.5mm hole for thermometer                                                                          |    | Standard included<br>(set of 1 x 03T2131 top & 1 x 03T3210 bottom)                                 |                                                                    |
| Cover 4 lids:<br>- 4 x $\varnothing$ 51mm standard ASTM viscometer hole<br>- 4 x lid 03T3070<br>- 2 x $\varnothing$ 12.5mm hole for thermometer                                                                          |    | Optional*<br>(set of 1 x 03T3210 top & 1 x 03T3211 bottom)                                         |                                                                    |
| Cover 3 lids:<br>- 3 x $\varnothing$ 60,5mm Pinkevitch viscometer<br>- 3 x lid 03T3075<br>- 2 x $\varnothing$ 12.5mm hole for thermometer                                                                                |    | Optional*<br>1 x 03T2119                                                                           |                                                                    |
| Cover 7 lids:<br>- 7 x ( $\varnothing$ 51mm) standard ASTM viscometer hole<br>- 4 x lid 03T3070<br>- 2 x $\varnothing$ 12.5mm hole for thermometer                                                                       |    |                                                                                                    | Standard included<br>(set of 1 x 03T2136 top & 1 x 03T2110 bottom) |
| Cover 8 lids:<br>- 8 x $\varnothing$ 51mm standard ASTM viscometer hole<br>- 8 x lid 03T3070<br>- 2 x $\varnothing$ 12.5mm hole for thermometer                                                                          |  |                                                                                                    | Optional*<br>(set of 1 x 03T2137 top & 1 x 03T2120 bottom)         |
| Cover 8 lids:<br>- 8 x $\varnothing$ 60,4mm Pinkevitch viscometer<br>- 8 x lid 03T3075<br>- 2 x $\varnothing$ 12.5mm hole for thermometer                                                                                |  |                                                                                                    | Optional*<br>(set of 1 x 03T2132 top & 1 x 03T2112 bottom)         |
| Cover 7 lids:<br>- 4 x $\varnothing$ 51mm standard ASTM viscometer hole<br>- 3 x $\varnothing$ 60.4mm Pinkevitch viscometer<br>- 4 x lid 03T3070<br>- 3 x lid 03T3075<br>- 2 x $\varnothing$ 12.5mm hole for thermometer |  |                                                                                                    | Optional*<br>(set of 1 x 13T3023.02 top & 1 x 13T3023.01 bottom)   |
| * Standard lid always is included. Optional lid consists out of one or two plates each to be ordered as indicated                                                                                                        |                                                                                     |                                                                                                    |                                                                    |
| Other lids on request possible!                                                                                                                                                                                          |                                                                                     |                                                                                                    |                                                                    |
| Lid for 51mm hole                                                                                                                                                                                                        |  | The standard cover lid already includes these items. Additional lids can be ordered when required. | 03T3070                                                            |
| Lid for 60.5 mm hole                                                                                                                                                                                                     |  |                                                                                                    | 03T3075                                                            |

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| Item                             |                                                                                     | TV2000                                                                                                                    | TV4000                                                                                                   | TV7000                              |
|----------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|-------------------------------------|
| Illuminator "Z41"<br>stand alone |    | 85 ~ 230V/50-60Hz <b>00T0909</b>                                                                                          |                                                                                                          |                                     |
| Illuminator "Z41"<br>backpanel   |    | 85 ~ 230V/50-60Hz <b>00T0908</b>                                                                                          |                                                                                                          |                                     |
| Illuminator "Z71"                |    |                                                                                                                           |                                                                                                          | 85 ~ 230V/50-60Hz<br><b>00T0907</b> |
| Cooling circulator<br>TLC10      |   | TLC10 - 230V/50Hz<br><b>00T0050</b><br><br>TLC10 - 230V/60Hz<br><b>00T0051</b><br><br>TLC10 - 115V/60Hz<br><b>00T0052</b> |                                                                                                          |                                     |
| Cooling circulator<br>TLC15      |  |                                                                                                                           | TLC15 - 230V/50Hz <b>00T0565</b><br>TLC15 - 230V/60Hz <b>00T0567</b><br>TLC15 - 115V/60Hz <b>00T0570</b> |                                     |
| Timer                            |  | <b>10T6090</b>                                                                                                            |                                                                                                          |                                     |