



TAMSON BATHS & ACCESSORIES

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TABLE OF CONTENTS

HIGH TEMPERATURE BATHS

How to select the appropriate circulator?.....	5
Tamson Circulator – TC Line	6
Tamson Circulator - TCB Line.....	7
Tamson Thermostatic Unit - TTU-A and Tamson Bracket - TB.....	8

LOW TEMPERATURE BATHS

How to select the appropriate cooler?	9
Tamson Cooling Circulators - TLC Line TLC10-3	10
Tamson Cooling Circulators – TLC Line TLC15-5, TLC30-5	11
Tamson Cooling Circulators – TLC Line TLC40-14	12
Tamson Cool Cube - Immersion Cooler and Bath.....	13
Tamson Low Temperature Bath TLB50.....	14

ACCESSORIES

ASTM Thermometers	15
Bath fluids	16

TEMPERATURE: CALIBRATION & MEASUREMENT

Calibration Baths	17
Digital E20 Contact Thermometer.....	18
TT3B Benchtop Thermometer	19

How to select the appropriate circulator?

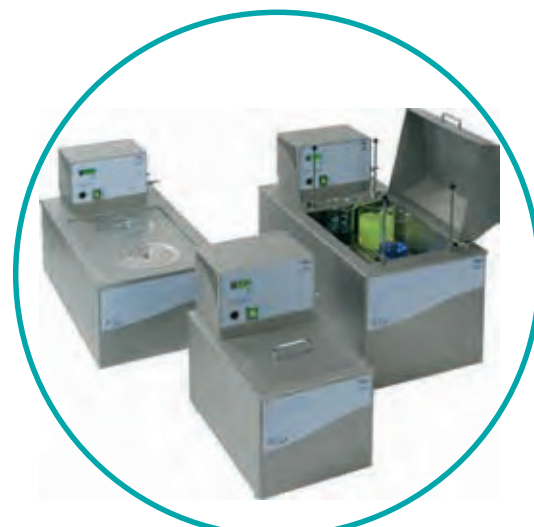
	Tamson Bracket	TTU-A	TC6B	TC10B	TC20B	TC16	TC40	TC58
Temperature range	Ambient...200°C	Ambient...200°C	Ambient...200°C	Ambient...200°C	Ambient...200°C	Ambient...250°C	Ambient...250°C	Ambient...250°C
Setting (°C)	0.1	0.01	0.1	0.1	0.1	0.1	0.1	0.1
Stability ± (°C)	Better then 0.03	0.02	Better then 0.03	Better then 0.02	Better then 0.02	0.02	0.02	0.02
Heating (W)	1100	1400	1100	1100	1550	1400	2800	2800
Heaters	1	1	1	1	1	1	2	2
Bath Volume (L)	max 50	max 60	6	10	20	16	40	58
Opening bath (mm)	>185*((<186*422)*190	140*180	148*120	185*200	300*320	180*210	420*275	420*275
Depth bath (mm)	>160	>160	150	150	150	220	200	300
Pump pressure (mBar)	300 max	300 max	300 max	300 max	300 max	300 max	300 max	300 max
Pump capacity	7.5 max	7.5 max	7.5 max	7.5 max	7.5 max	7.5 max	7.5 max	7.5 max
Dimensions (LxWxH)	-	-	350*213*440	440*250*440	555*375*425	455*295*440	705*375*440	705*375*590

Tamson Circulator – TC Line




The working temperature range offers many possibilities, e.g. routine applications, temperature control of samples, incubations, dental applications, material testing, corrosion tests, tempering of cultures as well as temperature testing of food and luxury articles. The "TC" baths are used for precise temperature control. The baths can be used as circulator and as water/oil bath.

Main Characteristics

The insulation of the bath and electronic design result in a very stable working temperature of $\pm 0.02^{\circ}\text{C}$ for the TC baths. The set point can be set in steps of 0.1° in the range from 0°C up to 250°C ($32\text{...}482^{\circ}\text{F}$). The accuracy on the display is displayed in 0.1°C . However, the controller has an internal accuracy of 0.01°C . Two decimal readout is also available via the RS232 and the free Tamcom software. Due to the friction-heat of the stirring mechanism and when using a top lid, the minimum temperature lies approximately 5°C above the ambient temperature. When using the standard built-in cooling coil the minimum temperature lies approximately 5°C above the temperature of the cooling liquid. In general the minimum temperature lies around 10°C .



TC Line

	TC16	TC40	TC58
			
Range	...250°C/...482°F		
Setting	0.1°C		
Stability \pm	0.02°C		
Bath volume	16 L	40 L	58 L
Opening bath	180 x 210 MM	420 x 275 mm	420 x 275 mm
Depth bath	220 mm	200 mm	300 mm
Dimension LxWxH	480 x 295 x 480 mm	705 x 375 x 440 mm	705 x 375 x 590 mm
Weight	21 kg	30 kg	35 kg

▶ TC16 **P/N** 00T0671 (230V/50-60Hz) • **P/N** 00T0861 (115V/60Hz)

▶ TC40 **P/N** 00T0681 (230V/50-60Hz) • **P/N** 00T0851 (115V/60Hz)

▶ TC58 **P/N** 00T0691 (230V/50-60Hz) • **P/N** 00T0881 (115V/60Hz)

▶ **For Accessories, see the specification sheet.**

Tamson Circulator - TCB Line




Circulators offer many application possibilities, e.g. routine laboratory applications, temperature control of samples, incubations, dental applications, material testing, corrosion tests, tempering of cultures as well as temperature testing of food and luxury articles. The 'TCB' baths can be used as circulator or as a water/oil bath.

Main Characteristics

The set point can be set in steps of 0.1° in the range from 0°C up to 200°C (32...392°F). The accuracy on the display is displayed in 0.1°C. However, the controller has an internal accuracy of 0.01°C. Two decimal readout is also available via the RS232 and the free Tamcom software. Due to the friction-heat of the stirring mechanism and when using a top lid, the minimum temperature lies approximately 5°C above the ambient temperature. When using the standard built-in cooling coil the minimum operating temperature lies approximately 5°C above the temperature of the cooling liquid. In general the minimum temperature lies around 10°C.



TCB Line

	TC6B	TC10B	TC20B
			
Range	...200°C/...392°F		
Setting	0.1°C		
Stability ±	Better then 0.02°C		
Bath volume	6 L	10 L	20 L
Opening bath (round edge)	148 x 120 mm	185 x 200 mm	300 x 320mm
Depth bath	150 mm	150 mm	150 mm
Pump (mBar)	Max pressure 300		
Pump (L/min)	Max flow 7		
Dimension LxWxH	350 x 213 x 440 mm	440 x 250 x 440 mm	555 x 375 x 425 mm
Weight	8 kg	11 kg	13 kg

- ▶ TC6B P/N 00T0030 (230V/50-60Hz) • P/N 00T0035 (115V/60Hz)
- ▶ TC10B P/N 00T0150 (230V/50-60Hz) • P/N 00T0155 (115V/60Hz)
- ▶ TC20B P/N 00T0160 (230V/50-60Hz) • P/N 00T0165 (115V/60Hz)

Tamson Thermostatic Unit - TTU-A and Tamson Bracket - TB

The Tamson Thermostatic Unit (TTU) can be used for heating and/or circulating purposes. The bath fluid is heated via a micro-processor controlled heating element. Tamson offers thermostatic controllers as a replacement unit or as a "plug and play" unit to heat a bath or application. Tamson also manufactures the Tamson Bracket (TB), a thermostatic head with a mounting bridge that can be fitted onto all tanks with a maximum opening of 452 mm.

Main characteristics

A choice for different applications is offered:

- Stirring with short or long shaft
- Heating with or without boost heater
- Circulating and pumping
- Below ambient temperature regulation using a cooling coil

The set point of the TTU is adjustable in steps of 0.01°C. The overall system accuracy is better than ± 0.02°C but depends on the application. Readout can be switched between °C or °F. When equipped with a pump, the pump pressure is 300 mBar and seven liters per minute (no counter pressure).

The set point of the TB can be set in steps of 0.1°C in the range of 0°C up to 200°C (32..392°F). The accuracy of the display is displayed in 0.1°C. However, the controller has an internal accuracy of 0.01°C. Two decimal readout is also available via the RS232 and the free Tamcom software.

- ▶ Long shaft, stirrer, cooling coil
- ▶ Long shaft, stirrer, boost heater
- ▶ Short shaft, stirrer and pump
- ▶ Short shaft, stirrer and boost heater
- ▶ Tamson Bracket

- ▶ P/N 19T1010 (230V/50-60Hz)
- ▶ P/N 19T1020 (230V/50-60Hz)
- ▶ P/N 19T3110 (230V/50-60Hz)
- ▶ P/N 19T3120 (230V/50-60Hz)
- ▶ P/N 00T0380 (230V/50-60Hz)
- ▶ P/N 19T1011 (115V/60Hz)
- ▶ P/N 19T1021 (115V/60Hz)
- ▶ P/N 19T3111 (115V/60Hz)
- ▶ P/N 19T3121 (115V/60Hz)
- ▶ P/N 00T0385 (115V/60Hz)

	TTU-A	TB
Range 200°C	
Used materials inside bath	Stainless steel, brass bearings	
Setting	0.01°C	0.1°C
Stability ±	0.01°C	0.03°C
Heating	1400 W or 2800 W	1100 W
Weight	4 kg	4 kg



TTU-A

P/N 19T1010 & P/N 19T3110



Tamson Bracket

How to select the appropriate cooler?

	TLC10-3	TLC15-5	TLC30-5	TLC40-14	TCC-B	TLB50
Temperature range	-10...+60°C (Optional -10...+120°C)	-15...+60°C (Optional -15...+120°C)	-30...+60°C (Optional -30...+120°C)	-40...+20°C + (Optional -45...+20°C)	-88°C...ambient	-5°C...+80°C
Setting (°C)	0.01	0.01	0.01	0.1	0.1	0.01
Stability ±	Better than 0.05°C	Better than 0.05°C	Better than 0.05°C	Better than 0.05°C	Better than 0.05°C	0.02°C
Heating (W)	1100	1100	1100	1550	1400	2800
Heaters	1	1	1	1	1	2
Bath Volume (L)	3.5	5	5	14..15	11	50
Opening bath (mm)	40*115	85*150	85*150	240*170	155*110	310*400
Depth bath (mm)	150	150	150	150	240	290
Pump pressure (mBar)	270 max	300 max	300 max	300 max	1000 max	Optional 300 max
Pump capacity (L/min)	7 max (optional 10)	7 max (optional 10)	7 max (optional 10)	7 max (optional 16)	16 max	Optional 7 max
Heat removal °C (WATT)	@50° - 320 @0° - 100 @-10° - 50	@2° - 250 @-7° - 200 @-10° - 150 @-12° - 75 @-14° - 50	@15° - 200 @0° - 170 @-3° - 150 @-25° - 100 @-30° - 50	@-10° - 1220 @-20° - 880 @-30° - 520 @-40° - 250	@-73° - 350 @-84° - 250	@-5° - 180 @10° - 250 @30° - 330
Dimensions(LxWxH)	355*195*410	420*26*565	420*265*565	810*460*770	770*380*780	720*440*720

Tamson Cooling Circulators - TLC Line TLC10-3

The TLC10-3 has been developed to be used as general purpose circulator and it can be used in various applications where cooling is needed. Experiments, refractometers, rotary-evaporators, distillation units, water baths, viscosity baths, flash point testers are applications for which the TLC10-3 can be used.

Main Characteristics

The apparatus holds a small bath containing 3.5 litres and the filling opening measures 40 x 120 mm. Due to its special design the system is extremely quiet, compact and saves costly laboratory space. Readout is in degrees °C or in °F. The bath comes standard with RS232 communication and when using the free software tool Tamcom, it provides temperature logging or a predefined temperature set point curve. A pump provides circulation in the bath or via an external circuit. The pump offers seven litres per minute with a maximum counter pressure of 300 mBar.



TLC10-3

Range	-10..60°C* / 14..140°F
Setting	0.01°C
Stability ±	Better than 0.05°C
Heating	1100 W
Bath volume	3.5 L
Opening bath	40 x 120 mm
Depth bath	150 mm
Pump (mBar)	Max pressure 300
Pump (L/min)	Max flow 7
Dimension LxWxH	360 x 200 x 560 mm
Weight	18 kg
Heat removal	See section 3.1

* On request the TLC10-3 can have a working range from -10..120°C

► TLC10-3 **P/N** 00T0050 (230V/50Hz) • **P/N** 00T0051 (230V/60Hz) • **P/N** 00T0052 (115V/60Hz)

Tamson Cooling Circulators – TLC Line TLC15-5, TLC30-5



The TLC15-5 and TLC30-5 have been developed to be used as general purpose circulator and they can be used in various applications where cooling is needed. Examples are experiments, refractometers, rotary-evaporators, distillation units, water baths, viscosity baths, flash point testers, foaming tests and ductility tests.

Main Characteristics

The apparatus holds a small bath containing five litres and the filling opening measures 85 x 150 mm. Due to its special design the system is extremely quiet, compact and saves costly laboratory space. Readout is in degrees °C or in °F. A pump provides circulation in the bath or to an external circuit. The pump offers seven litres per minute with a maximum counter pressure of 300 mBar.



TLC15-5

	TLC15-5	TLC30-5
		
Range	-15..60°C*/-5..140°F	-30..60°C**/-5..140°F
Setting	0.01°C	
Stability ±	Better than 0.02°C	
Bath volume	5 L	
Opening bath	85 x 150 mm	
Depth bath	150 mm	
Pump (mBar)	Max pressure 300	
Pump (L/min)	Max flow 7	
Dimension LxWxH	420 x 265 x 565 mm	
Weight	30 kg	
Heat removal	See section 3.1	

* On request the TLC15-5 can have a working range from -15..120°C

** On request the TLC30-5 can have a working range from -30..120°C

- ▶ TLC15-5 **P/N** 00T0565 (230V/50Hz) • **P/N** 00T0567 (230V/60Hz) • **P/N** 00T0570 (115V/60Hz)
- ▶ TLC30-5 **P/N** 00T0555 (230V/50Hz) • **P/N** 00T0562 (230V/60Hz) • **P/N** 00T0560 (115V/60Hz)

Tamson Cooling Circulators – TLC Line TLC40-14

The TLC40-14 cooling circulator can be used for multiple heat removal purposes such as replacement of tap water, fast cool down, flash point, distillation, density or cloud and pour point testing. Also, this unit can be used to cool down water baths and viscosity baths which have a large bath volume.

Main Characteristics

The apparatus holds a bath containing 14 litres and the filling opening measures 240 x 170 mm. Due to its special design the system is extremely quiet, compact and saves costly laboratory space. The minimum temperature which can be reached with the TLC40-14 is -40°C. Readout is in degrees °C or in °F. A pump provides circulation in the bath or pumps the flow to an external circuit. The pump offers seven litres per minute with a maximum counter pressure of 300 mBar. Optional is a performance pump which offers 16 litres per minute.



TLC40-14

Range	-40..+20°C*/-40..+68 °F
Reading	Standard °C, °F on request
Used materials inside bath	Stainless steel 304, brass bearings
Setting	0.1°C
Stability ±	Better than 0.05°C
Heating	1550 W
Bath volume	14 .. 15 L
Opening bath	240 x 170 mm
Depth bath	150 mm
Pump (mBar)	Max pressure 300 (optional 1 Bar)
Pump (L/min)	Max flow 7 (optional 16)
Dimension LxWxH	810 x 460 x 770 mm
Weight	65 kg
Heat removal	See section 3.1

* On request the TLC40-14 can have an optional working range from -45..+20°C.

► TLC40-14 **P/N** 00T0520 (230V/50Hz) • **P/N** 00T0522 (230V/60Hz) • **P/N** 00T0525 (115V/60Hz)

Tamson Cool Cube - Immersion Cooler and Bath

The Tamson Cool Cube (TCC) is a compact cooler which is used as a heat removal platform enabling low temperatures of -80°C and below. The TCC functions as basis for three different models. Available are a thermostatic bath (TCC - B) and an Immersion cooler (TCC - IC). A circulator system (TCC - C) is under development.

Main Characteristics

The TCC comprises of a two stage compressor system which is switched in cascade. The unit is low noise and once it reaches temperatures below -70°C it is relatively energy efficient.

The cooling probe of the TCC-IC is formed by a stainless steel corrugated hose attached to an insulated flexible hose. The probe can be immersed in a fluid which has to be cooled down.

The TCC-B model has an internal bath and can be closed with a lid. The lid can be removed to insert a product inside the bath fluid. Alternatively, the standard integrated pump can be used to circulate the bath fluid to an external application.

The TCC - C is under development at the moment. The TCC - C will be a closed system (no bath lid). The standard pump will circulate the bath fluid to an external application for heat removal purposes.



TCC - IC



TCC - B

	TCC - IC	TCC - B
Minimum Probe temp	-100°C/-112°F	N/A
Practical working temperature	-80°C/-112°F	-88°C/-126°F
Body	Top lid stainless steel, powder coated Zincor frame	
Hose length	2000 mm	N/A
Probe length	200 mm	N/A
Probe diameter	47 mm	N/A
Height + Display	660 mm	
Height casing without display	610 mm	
Width	380 mm	
Depth	830 mm	
Depth with distance spacers	920 mm	
Power	1200 Watt	

- ▶ TCC - IC **P/N** 00T0300 (230V/50Hz) • **P/N** 00T0301 (230V/60Hz)
- ▶ TCC - B **P/N** 00T0310 (230V/50Hz) • **P/N** 00T0311 (230V/60Hz)

Tamson Low Temperature Bath TLB50

TLB50 is a thawing bath for sample preparation. The bath has an operating range of -5°C up to 80°C. The bench top bath with integrated cooling can replace the combination of a water bath with an external cooling circulator. This not only saves bench space, but also save costs because of its high cooling efficiency.

Main characteristics

The TLB50 has a wide bath opening and several options like a fixed or split levelling platform and an adjustable rack for placing different sized sample bottles. The primary use of the TLB50 is sample pre-conditioning. Before most samples are analysed, they require to be conditioned to a specified temperature as described in specific test methods i.e.:

- ASTM D323 Reid vapor pressure test between 0 to 1°C (32 to 34°F),
- ASTM D5 penetration tests for bitumen,
- ASTM D86 sample preparation,
- Long-term storage of gasoline <10°C or <20°C (<50°F or 68°F).

The set point is adjustable in steps of 0.01°. The overall system accuracy is better than ± 0.02°C. Readout can be switched between °C or °F. Due to a specific cooling construction, the unit switches to an energy friendly operating mode when reaching the desired bath set point temperature. In comparison to standard equipment this can save up to 600 Watt. When cooling down to the desired bath temperature the bath switches to maximum cooling power.



TLB50

Range	-5..+80°C/23..+176°F
Reading	°C or °F menu selectable
Setting	0.01°C
Stability ±	0.02°C
Uniformity ±	0.02°C
Heating	2800 W
Heaters	2
Bath volume	50 L
Opening bath L x W	310 x 400 mm
Depth	290 mm
Dimensions LxWxH	720 x 440 x 720 mm
Weight	65 kg
Power	Nominal 800 W Maximum 3000 W
Ambient condition	18 .. 23°C

- ▶ TLB50 **P/N** 00T0072 (230V/50Hz) • **P/N** 00T0071 (115V/60Hz) • **P/N** 00T0073 (230V/60Hz)
- ▶ TLB50 with pump **P/N** 00T0076 (230V/50Hz) • **P/N** 00T0075 (115V/60Hz) • **P/N** 00T0077 (230V/60Hz)
- ▶ **For Accessories, see the specification sheet.**

ASTM Thermometers

As of the 10th October 2017, Tamson Instruments B.V. is not supplying mercury in glass thermometers anymore. This is in accordance with EU Regulation 847/2012 restricting the sales of measuring devices that contain mercury. As an alternative, Tamson is supplying alternative precision thermometers, manufactured as per latest specifications of ASTM E2251 (standard specification for liquid-in-glass ASTM thermometers with low-hazard precision liquids); for the temperature range from -50°C up to 250°C; fine subdivision up to 0.01°C; all instruments are for government calibration. The thermometers with a 'B' in the part number have the following characteristics: white backed, round or prismatic, with blue special filling, non-wetting because of capillary tube specially coated inside, durable pigment, round top finish, in transparent square plastic case. When a 'G' or 'T' is used in the part number, the thermometer is filled with gallium or toluene. All thermometers mentioned in the table below are low hazardous to ship. Thermometers are supplied with a conformity certificate. A works certificate or ISO 17025 verification certificate are on request.

ASTM No.	P/N Cat.	Range	Subd ivision in °C	Immersion In mm
1 C	25T0901B	-20 à +150	1	76
2 C	25T0902G	-5 à +300	1	76
3 C	25T0903G	-5 à +400	1	76
S5 C	25T0904B	-38 à +50	1	108
6 C	25T0905T	-80 à +20	1	76
7 C	25T0906G	-2 à +300	1	Total
8 C	25T0907G	-2 à +400	1	Total
9 C	25T0908B	-5 à +110	0.5	57
10 C	25T0909G	+90 à +370	2	57
11 C	25T0910G	-6 à +400	2	25
S12 C	25T0911B	-10 à +102	0.2	Total
13 C	25T0912B	+155 à +170	.5	Total
14 C	25T0913B	+38 à +82	0.1	79
S15 C	25T0914B	-2 à +80	0.2	Total
16 C	25T0915B	+30 à +200	0.5	Total
17 C	25T0916B	+19 à +27	0.1	Total
18 C	25T0917B	+34 à +42	0.1	Total
19 C	25T0918B	+49 à +57	0.1	Total
20 C	25T0919B	+57 à +65	0.1	Total
21 C	25T0920B	+79 à +87	0.1	Total
S22 C	25T0921B	+95 à +103	0.1	Total
23 C	25T0922B	+18 à +28	0.2	90
24 C	25T0923B	+39 à +54	0.2	90
25 C	25T0924B	+95 à +105	0.2	90
26 C	25T0925B	+130 à +140	0.1	Total
33 C	25T0927B	-38 à +42	0.2	50
34 C	25T0928B	+25 à +105	0.5	50
35 C	25T0929B	+90 à +170	0.2	51
36 C	25T0930B	-2 à +68	0.2	45
38 C	25T0931B	+24 à +78	0.2	100
39 C	25T0933B	+48 à +102	0.2	100
40 C	25T0932B	+72 à +126	0.2	100
41 C	25T0934B	+98 à +152	0.2	100
42 C	25T0935G	+95 à 255	0.5	100
44 C	25T0937B	+18.5 à +21.5	0.05	Total
45 C	25T0938B	+23.6 à +26.4	0.05	Total
46 C	25T0939B	+48.6 à +51.4	0.05	Total
47 C	25T0940B	+58.6 à +61.5	0.05	Total
49 C	25T0941B	+20 à +70	0.2	65
52 C	25T0942B	-10 à +5	0.1	Total
54 C	25T0943B	+20 à +100.6	0.2	Total
S56 C	25T0956B	+19 à +35	0.02	Total
57 C	25T0944B	-20 à +50	0.5	57
61 C	25T0946B	+32 à +127	0.2	79
S62 C	25T0947B	-38 à +2	0.1	Total

ASTM No.	P/N Cat.	Range	Subd ivision in °C	Immersion In mm
S63 C	25T0948B	+8 à +32	0.1	Total
S64 C	25T0949B	+25 à +55	0.1	Total
S65 C	25T0950B	+50 à +80	0.1	Total
S67C	25T0952B	+95 à +155	0.2	Total
68 C	25T0953G	+145 à +205	0.2	Total
71 C	25T0955B	-37 à +21	0.5	76
73 C	25T0957B	-41.4 à +38.6	0.05	Total
82 C	25T0958B	-15 à +105	1	30
83 C	25T0959B	+15 à +70	1	40
84 C	25T0960B	+25 à +80	1	249
85 C	25T0961B	+40 à +150	1	181
86 C	25T0962B	+95 à +175	1	35
87 C	25T0963G	+150 à +205	1	40
88 C	25T0964G	+10 à +200	1	57
89 C	25T0965B	-20 à +10	0.1	76
90 C	25T0966B	0 à +30	0.1	76
S91 C	25T0967B	+20 à +50	0.1	76
92 C	25T0968B	+40 à +70	0.1	76
93 C	25T0969B	+60 à 90	0.1	76
94 C	25T0970B	+80 à +110	0.1	76
95 C	25T0971B	+100 à +130	0.1	76
96 C	25T0972B	+120 à +150	0.1	76
98 C	25T0973B	+16 à +82	0.5	Total
99 C	25T0974B	-48 à +4	0.2	35
102 C	25T0975B	+123 à +177	0.2	100
103 C	25T0976G	+148 à +202	0.2	100
104 C	25T0977G	+173 à +227	0.2	100
105 C	25T0978G	+198 à +252	0.2	100
106 C	25T0979G	+223 à +277	0.2	100
107 C	25T0980G	+248 à +302	0.2	100
110 C	25T0981B	+133.6 à +136.4	0.05	Total
111 C	25T0982G	+170 à +250	0.2	100
112 C	25T0983B	+4 à +6	0.02	Total
113 C	25T0984B	-1 à +175	0.5	Total
114 C	25T0985T	-80 à +20	0.5	Total
S116 C	25T0986B	+18.9 à +25.1	0.01	Total
S117 C	25T0987B	+23.9 à +30.1	0.01	Total
118 C	25T0988B	+28.6 à +31.4	0.05	Total
119 C	25T0989B	-38 à +30	0.1	100
S120 C	25T0990B	+38.5 à +41.5	0.05	Total
121 C	25T0991B	+98.5 à +101.5	0.05	Total
122 C	25T0992B	-45 à -35	0.1	Total
126 C	25T0993B	-27.4 à -24.6	0.05	Total
127 C	25T0995B	-21.4 à -18.6	0.05	Total
128 C	25T0994B	-1.4 à +1.4	0.05	Total

► **P/N 00T0239** Thermometer holder 325 x 10 mm

► **P/N 00T2154** Thermometer holder 425 x 10 mm

► **For our digital contact thermometer, conforming to ASTM E20, please see section 5.2**

Bath fluids

To replace water as a bath fluid. Viscosity, volatility and other properties that change with temperature affect the performance of fluids in controlled baths and circulators. Tamson has tested and used each of the fluids we sell, over the ranges recommended in the following table, each fluid remains at a low enough viscosity to be adequately pumped or stirred. Whether your application is industrial or critical lab calibration work, Tamson fluids give you top performance and stability.



Can with 20L of mineral oil

Main Characteristics

Type	Remarks	Life			Viscosity [mm ² /s] ^x				Temp. Range	Package
		150°C	200°C	250°C	80°C	100°C	150°C	200°C		
Mineral	T150 Yellow Mineral oil	1/2 yr	X	X	3	2.2	1.8		80..150°C	20 ltrs
Silicon	200-10 Transparent Dimethyl siloxane polymer	No limit	200hrs	<10hrs	4	3.5	2.5		20..150°C	20 ltrs
Silicon	200-50 Transparent Dimethyl siloxane polymer	No limit	200hrs	<10hrs	20	15	9		80..150°C	20 ltrs
Silicon	Silicon 210 Dark Dimethyl poly siloxane	No limit	<2yrs	<1yr	(35)	30	22	12	80..250°C	20 ltrs
Silicon	Silicon 550 Colourless Polyphenyl methyl dimethyl siloxane	No limit	<1yr	<1200 hrs	(50)	20	12	5	80..250°C	20 ltrs

- ▶ **P/N 00T0220** Tamson mineral oil T150 20 L (80..150°C/176..302°F)
- ▶ **P/N 08T0001** Silicon 200-10 mm²/s 20 L Transparent (20..150°C/ 68..302°F)
- ▶ **P/N 00T0226** Silicon 200-50 mm²/s -20 L Transparent (80..150°C/176..302°F)
- ▶ **P/N 00T0229** Silicon 200-100 mm²/s - 20 L Transparent (80..150°C/176..302°F)
- ▶ **P/N 00T0231** Silicon 210-20 ltrs Darkish (80..250°C/176..482°F)
- ▶ **P/N 00T0238** Silicon 550-20 ltrs Transparent (80..250°C/176..482°F)

Calibration Baths

Calibration of temperature measuring instruments with thermostats.

The most important prerequisite for calibration is very precise temperature stability. Thermostats with bath liquids are the most precise devices for this application as they allow especially good temperature stability and homogeneity. Liquid bath thermostats are superior to incubators and metal block thermostats, since liquids transfer heat between 40 and 60 times better than air.

As the world's leading manufacturer of precise thermostats, we offer a line of calibration thermostats with various performance levels. Depending on your specified bath size, temperature range, temperature stability, and other technical features, you are sure to find the ideal device for your application.



**TV12
Calibration**

Calibration Baths	TV12	TV12LT	TV4000DC	TV16000
Temperature Range °C	Ambient..120	(1) -42..+20 (2) -42..+80	Ambient..230	10..60
Temperature Stability °C	Stdev ± 0.002	±0.01	± 0.002 @40°C	± 0.005
Setting °C	0.01	0.01	0.01	0.005
Bath volume L	12..15	15	40	160
Bath opening mm	248 x 73	248 x 112	260 x 240	250 x 365
REF 230V/50Hz	00T0400	(1) 00T0410 (2) 00T0425	00T0802	00T0490
REF 230V/60Hz	00T0400	(1) 00T0420 (2) 00T0435	00T0802	00T0495
REF 115V/60Hz	00T0405	(1) 00T0415 (2) 00T0430	00T0804	00T0492

► **We offer many other calibration baths. To offer you the right bath for your calibrations, please contact Tamson.**

- For the **TV12**, see section 1.7
- For the **TV12LT**, see section 1.10
- For the **TV4000DC**, see section 1.6
- For the **TV16000**, see section 1.23

Digital E20 Contact Thermometer

This thermometer is referred to as a Resistive Contact Thermometer (RCT) or Resistive Thermometer Device (RTD). It uses a six points ITS 90 calibration to guarantee the precision of $\pm 0.01^{\circ}\text{C}$ over its full range. The maximal available range is $-40..140^{\circ}\text{C}$ with 0.001° reading and $\pm 0.01^{\circ}\text{C}$ precision. The probe is very fast and ensures $T_{63} < 3$ sec. That means that at least 63 percent of the temperature change is displayed within three seconds. This reading is so fast because the measuring probe is a PT-100 encapsulated in a thin walled stainless steel tube. As a result there is very few thermal mass filtering thermal fluctuations, resulting in a fast and precise displayed temperature.

Construction

The thermometer consists of a stainless steel PT100 probe, a small electronic circuit board which is placed in a plastic (ABS) housing. The PT100 probe is thermally insulated from this housing using a PTFE ring. The electronics are powered via USB cable. The probe is designed to accommodate a wide range of voltages and frequencies (85~260V/ 50-60Hz).



E20 Thermometer

Calibration

The probe is factory calibrated for the specific range which is specified in the table on the next page. Outside this range the thermometer will display "Low" or "High". Each thermometer is individually calibrated and will meet the specified accuracy. Each thermometer also is tested at a minimum of five other temperatures. Additional test points at specific temperatures can be requested. Each thermometer comes with a works calibration certificate.

USB

The thermometer can be connected to a USB device to power it. Special software enables upload of calibration parameters over the USB. The thermometer meets the following standards and regulations: CE, IEC 751, ITS 90, ASTM E644, ASTM E1137, and ASTM E2877.

Part number		For range, please see specification sheet
Range		$-40 .. + 140^{\circ}\text{C}/-40..302.^{\circ}\text{F}$, please see specification sheet
Reading		*C or *F menu selectable
Interface		USB
Resolution	[$^{\circ}\text{C}/^{\circ}\text{F}$]	0.001, please see specification sheet
Accuracy	[$^{\circ}\text{C}$]	± 0.01 , please see specification sheet
Linearity	[$^{\circ}\text{C}$]	± 0.01
Drift annual	[$^{\circ}\text{C}$]	± 0.001
Response T_{63}	[Sec]	< 3
Power	[V]	5 - mains adapter RJ11
Dimensions	[mm]	62 x 39 x 22 (excluding probe)
Probe	[mm]	65 x 6 mm - 115 x 3
Probe material		304 stainless steel
Weight	[gr]	42
CE		Conforms to CE regulation

- ▶ E20 thermometer is delivered with PT100 probe, works calibration certificate and a protective suitcase.
- ▶ **Please see the specification sheet 'E20 thermometer' for more details**

TT3B Benchtop Thermometer

The TT3B thermometer is a benchtop thermometer that can be used to verify the bath temperature or to calibrate probes, thermometers, instruments, indicators or temperature measurements of baths.

Main Characteristics

The Tamson thermometer has a three decimal reading. A PT-100 probe is used for measurements from -80...+140°C. Readout in °F or °K can be selected with the front button. The thermometer uses IEC90 correction and is adjusted with an uncertainty of $\pm 0.01^\circ\text{C}$. A works certificate is included. The calibration data is kept in the internal memory of the TT3B. A second memory offers the possibility for data logging. Sampling time can vary between 1, 5, 10, 30 and 60 seconds.

Data can be logged over 8 hours with an interval of one second or it can be logged for 480 hours with an interval of 60 seconds. Logging stops when the memory is full. Free software is provided on our website to analyse the logged data. In this program, the data can be zoomed in and exported as graph or as comma separated value (CSV). Each log session has an individual time stamp and can be recalled easily using the PC software.

The thermometer operates on a battery pack. A fully charged battery supplies power for 50 hours of use. As alternative the thermometer can be permanently powered using the provided adapter.



TT3B

Range		-80 .. + 140°C/-112..284°F
Reading		*C, *F or *K, menu selectable
Interface		USB
Resolution	[°C/°F]	0.001
Accuracy	[°C]	± 0.01
Linearity	[°C]	± 0.01
Drift annual	[°C]	± 0.001
Response T_{63}	[Sec]	< 3
Power	[V]	5 - mains adapter RJ11. Battery operated
Dimensions	[mm]	105 x 32 x 150 (excluding probe)
Probe material		304 stainless steel
Weight	[gr]	355
CE		Conforms to CE regulation

Hoskin Scientific Limited has been supplying testing and monitoring instruments since 1946. Our range is broad, we focus on three major markets including:

Geotechnical & Materials Testing
Environmental Monitoring
Test & Measurement Instrumentation

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