Tamson Instruments

Specification sheet

Tamson Cool Cube - Bath

Tamson Low-Temperature Bath & Circulator

Item	Unit	TCC - B	
P/N 230V/50Hz		00T0310	
P/N 230V/60Hz		00T0311	
P/N 115V/60Hz		Not Available	
Materials inside bath		Stainless steel / Teflon / Nylon	
Range		-85°C / -121°F …ambient	
Reading		Standard °C, °F on request	
Setting ±	[°]	0.1	
Stability ±	[°C]	Better than 0.1	
Heating	[kW]	1.4 (1 heater)	
Bath volume	[L]	11	
Opening bath	[mm]	175 x 130 (effective use: 155 x 110)	
Depth bath	[mm]	240	
Dimensions (W x D x H)	[mm]	380 x 770 x 780	
Pump pressure	[Bar]	1	
Pump flow	[L/min]	max 16	
Heat removal	[W]	@-84°C/-119°F	250
		@-82°C/-116°F	300
		@-73°C/-99°F	350
		@-64°C/-83°F	400
		@-53°C/-72°F	450
Power consumption	[kW]	1.5..2.6 max.	
Ambient	[°C]	15 .. 26	
Weight	[kg]	73	
CE	Conforms to CE regulation		

- **Excellent heat removal capacity**
- **Quiet**
- **Compact**
- **Drain to empty bath**
- **Auto tune, high precision**
- **Performance pump**

General
The TCC-B is a low temperature circulator with a bath volume of 11 Litres. The bath opening measures 175 x 130 mm and has a depth of 240 mm. Because of the cooling coil inside the bath, only a space of 155 x 110 mm can be used to place something inside the bath. Also, the TCC-B is equipped with a performance pump (max 1 Bar, 16L per minute) which can circulate the bath fluid to an external application. The pomp speed can be adjusted according to the requirements using the control knob located on the front panel.

Construction
The TCC-B is based on a powerful cooling unit called the Tamson Cooling Cube (TCC). The minimum temperature which can be reached is minus 88°C. At this low temperature the heat removal capacity lies around 150 Watt. The bath can be used for general low temperature use and shows excellent heat removal capacity. The drain located at the back provides easy removal of the bath fluid. Low fluid level is detected electronically. The refrigerant used is HCFK free. The TCC-B has a status panel which informs the user about the status of the compressors and overpressure safeties. The relative small footprint offers easy installation under a workbench.

The low temperature bath is mounted on four wheels. Two are fitted with a brake to lock the system in place. The casing is constructed from powder coated zincor panels. The top plate, inner bath and frame are constructed from stainless steel.

After the unit is started, the TCC-B rapidly cools down to the set point. At this point the consumed power also decreases to less than 1.5 kW. The use of silent fans make the TCC-B quiet when in use. No maintenance of the system is needed but the air intake in the in- and outlet must be kept clear and free of dust. The dust can be easily removed using a vacuum cleaner.

Control mechanism
With the compressor running continuously, the fluid temperature is regulated through a PID controlled heater. Auto-tune can be started manually and PID parameters can be read out afterwards or set manually.

Accuracy
The set point can be set in steps of 0.1°C. The overall system accuracy is ± 0.1°C, depending on external application.

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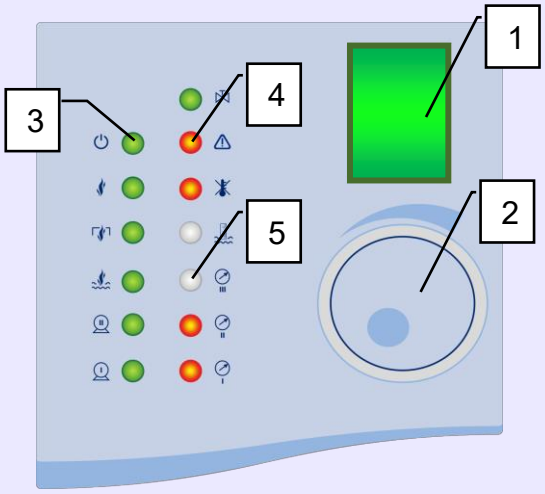

Ambient condition
For proper cooling performance within the specifications it is required that the ambient temperature is within the range of 15°C…26°C.

Safety
The bath conforms to CE regulation. It also is equipped with a mechanical resettable safety thermostat and fluid level detection.

A led panel indicates the functions of the cooling circuit:

1 On / Off switch
2 Pump speed knob
3 Function indicators [Green]
4 Status indicators [Red]
5 Alarm [White]

Example of cooling down curve
A bath temperature of -80°C can be reached within 70 minutes. A high ambient temperature limits the minimum temperature of the bath. With ambient around 20°C a bath minimum temperature of -88°C can be expected.

Use **Free Tamcom software**:

Run a temperature curve,
Preset temperatures,
Setting PID parameters
Temperature readout (2 decimals)
Temperature logging

Optional remote control via RS232 P/N**02T3025**

Optional external PT100 P/N **06T1660**

TCC-B Cooldown Time