Tamson Instruments

Specification sheet

TV12LT - 80

ASTM D445 - IP 71 - ISO 3104 - IP EM PJ - IEC 61868 – ASTM D2386 – ASTM D2532

TV12LT-80

- **Excellent stability**
- **Quiet**
- **Compact build**
- **Drain to empty bath**
- **Heated windows, no condensate**
- **Heated topplate, less moisture**

Item	Unit	TV12LT-80	
P/N 230V/50Hz		00T0510	
P/N 230V/60Hz		00T0515	
P/N 115V/60Hz		Not Available	
Materials inside bath		Stainless steel / Teflon / Nylon	
Range		-85°C / -121°F …20°C / 68°F	
Reading		Standard °C, °F on request	
Setting ±	[°]	0.01	
Stability ±	[°C]	Better than 0.02	
Heating	[kW]	1 (1 heater)	
Bath volume	[L]	12	
Opening bath	[mm]	208 x 54	
Depth bath	[mm]	330	
Dimensions (W x D x H)	[mm]	970x780x375	
Stirrer		1	
		varible speed	
Cooldown		@-20°C/-4°F	0hr35
		@-40°C/-40°F	00hr55
		@-60°C/-76°F	01hr15
		@-80°C/-112°F	01hr40
		@-85°C/-121°F	01hr50
Power consumption	[kW]	1.5..2 max.	
Ambient	[°C]	18 .. 26	
Weight	[kg]	75	
CE	Conforms to CE regulation		

General

The TV12LT-80 is a low temperature bath with a bath volume of 12 Litres. The bath opening measures 208 x 54 mm, has a depth of 330 mm and offers space for three viscometer holders. The bath stirrerspeed can be regulated as bath liquid becomes more viscous at lower temperatures. This enables stable temperature control also at very low temperatures. The bath offers a drain and overflow outlet.

Construction

The TV12LT-80 has a powerful cooling unit which can reach working temperatures of minus 90°C. The bath cools down rapidly and offers excellent temperature stability. The drain located at the back provides easy removal of the bath fluid. The refrigerant used conforms EU regulation . At the front is a panel located which informs the user about the status of the compressors and overpressure safeties. The relative small footprint offers easy installation. The bath is specially designed for tests that require ultra-precise temperature control, or processes that need to be followed visually, e.g. viscometry, thermometer and sensor calibration, density and reaction rate measurement, manual freezing point of aviation turbine fuel, etc. The window is heated preventing built up of condensate. The TV12LT is specially designed for kinematic viscosity determination of aviation fuels, SAF and lubricants down to -85°C.

The TV12LT-80 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. The unit is placed on an adjustment frame for levelling[4].

After the unit is started, the system 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 unit relatively quiet when in use. No maintenance of the system is needed however air intake and outlet must be kept free from dust. Dust can be easily removed using a vacuum cleaner.

Control mechanism

With the compressor running continuously, the fluid temperature is regulated through a sophistated controlled heater system. The systems can be manually tuned for optimal precision. Stable control of ± 0.02°C (Min/Max value) can be achieved over 1 hour.

Accuracy

The set point can be set in steps of 0.005°C. The overall system accuracy is ± 0.02°C.

TV12LT-80

Tamson Low-Temperature Bath

Ambient condition
For proper cooling performance it is required that the ambient temperature lies within the range of 18.5°C…26°C.

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

Items
A led panel indicates the functions of the cooling circuit:

1 Function indicators [Green]
2 Alarm [Red]
3 Status indicators [White]
4 Adjustment frame for leveling

Example of cooling down curve
The unit needs approximately 5 minutes to start cooling. In practice a bath temperature of -80°C can be reached within a total of about 100 minutes. A high ambient temperature limits the minimum temperature of the bath. With ambient around 20°C a bath minimum temperature of