



## Liquid Calibration Baths

The Techne liquid calibration bath (LCB) series offer compact, accurate and reliable liquid baths which can be used for external circulation or temperature calibration of thermal sensors.

- -35°C to 250°C
- Three different capacities available; 5, 7 or 12 litres
- Temperature stability;  $\pm 0.005^\circ\text{C}$  depending on choice of control unit
- Fully insulated bath for excellent heat retention
- Analogue or digital temperature selection, depending on choice of control unit
- Includes cover, lid and bridging plate

When temperature calibration is required the compact liquid baths offers excellent stability over the entire temperature range. The LCBs can be also be used for external circulation to maintain temperatures of samples in viscometers, photometers, refractometers, fermenters and other reaction vessels.

All models of LCB offer exceptional thermal stability from  $-35^\circ\text{C}$  to  $250^\circ\text{C}$ . The baths are fully insulated on all sides and base and are fitted with a cooling coil for connection to a cold water supply for use at temperatures around ambient. The minimum temperature achievable is  $-35^\circ\text{C}$  when a Dip or Flow Cooler is added to the system.\* For the full specifications of the thermoregulators see pages 24 and 25.

Each bath is supplied complete with lid, drain tap, carry handles, a cooling coil and hole with bung to position a certified sensor.

The TechneWorks software package is available for the TU-20 thermoregulators free of charge from [www.techne.com](http://www.techne.com) (see page 11 for details).

### Technical Specification

|                                | 5 litre         | 7 litre         | 12 litre        |
|--------------------------------|-----------------|-----------------|-----------------|
| Working depth L x W x H (mm)   | 125             | 175             | 300             |
| Dimensions L x W x H (mm)      | 351 x 260 x 183 | 351 x 260 x 233 | 351 x 260 x 358 |
| Thermoregulator L x W x H (mm) | 237 x 124 x 260 | 237 x 124 x 260 | 237 x 124 x 260 |
| Bath opening (mm)              | 140 x 140       | 140 x 140       | 140 x 140       |

### Ordering Information

| Product Code | Description  |
|--------------|--|
| FBCAL05D     | LCB insulated liquid calibration bath with cooling coil, 5 litre capacity  |
| FBCAL07D     | LCB insulated liquid calibration bath with cooling coil, 7 litre capacity  |
| FBCAL12D     | LCB insulated liquid calibration bath with cooling coil, 12 litre capacity |

\*LCB baths fitted with a TU-20HT thermoregulator are not suitable for use with a Flow Cooler.

| Liquid Calibration Bath                        | LCB-5/7/12                   | LCB-5/7/12                           |
|--|------------------------------|--------------------------------------|
| Thermoregulator                                | /TU-20D                      | /TU-20HT                             |
| Bath Capacity                                  | 5 / 7 / 12 litres            | 5 / 7 / 12 litres                    |
| Operating temperature range <sup>1</sup>       | $-35$ to $200^\circ\text{C}$ | ambient $+10$ to $250^\circ\text{C}$ |
| Working temperature range <sup>2</sup>         | $25$ to $200^\circ\text{C}$  | $30$ to $250^\circ\text{C}$          |
| Stability at $-35^\circ\text{C}$ (short term*) | $\pm 0.015$                  | N/A                                  |
| Stability at $0^\circ\text{C}$ (short term*)   | $\pm 0.020$                  | N/A                                  |
| Stability at $50^\circ\text{C}$ (short term*)  | $\pm 0.005$                  | $\pm 0.005$                          |
| Stability at $100^\circ\text{C}$ (short term*) | $\pm 0.015$                  | $\pm 0.015$                          |
| Stability at $200^\circ\text{C}$ (short term*) | $\pm 0.024$                  | $\pm 0.024$                          |
| Stability at $250^\circ\text{C}$ (short term*) | N/A                          | $\pm 0.040$                          |
| Uniformity $^\circ\text{C}$ (full range**)     | 0.008                        | 0.008                                |
| Accuracy $^\circ\text{C}$ (full range)         | $\pm 0.5$                    | $\pm 0.5$                            |

1) With an FC-500 flow cooler;

2) ambient of  $20^\circ\text{C}$

\*Short term stability is over a 15 minute period, for 1 hour double the values shown

\*\*Two SPRT's 3" apart in the working area of bath



## TU-20D Tempunit®

- A wider temperature range of -40°C\* to 200°C
- Excellent temperature stability:  $\pm 0.005^\circ\text{C}$  at 40°C
- 1.8kW heater power for fast heat up
- 4 digit setting with a bright LED digital temperature display
- This unit incorporates an RS232 connection
- User adjustable over-temperature cut-out
- Low liquid level cut-out as standard

## TU-20HT Tempunit®

- This sophisticated Tempunit® covers a wide temperature range of -40°C\* to 250°C
- Excellent temperature stability:  $\pm 0.005^\circ\text{C}$  at 40°C
- 1.8kW heater power for fast heat up
- 4 digit setting with a bright LED digital temperature display
- RS232 connection supplied with TechneWorks software package and connecting lead as standard
- User adjustable over-temperature cut-out with an audible alarm fitted
- Low liquid level cut-out as standard

### Technical Specification

| Specifications to DIN 12876              | TU-20D                    | TU-20HT                       |
|--|---------------------------|-------------------------------|
| Temperature range *                      | -40°C to +200°C           | -40°C to +250°C               |
| Temperature selection                    | Digital                   | Digital                       |
| Temperature stability using water @ 40°C | $\pm 0.005^\circ\text{C}$ | $\pm 0.005^\circ\text{C}$     |
| Method of control                        | PID                       | PID                           |
| Temperature sensor                       | PRT                       | PRT                           |
| Adjustable over-temperature cut-out      | Yes                       | Yes                           |
| Low liquid level cut-out                 | Yes                       | Yes                           |
| PC Interface                             | Yes RS232                 | Yes RS232                     |
| Heating/Pumping                          |                           |                               |
| Pump capacity litres/minute              | 10                        | N/A internal circulation only |
| Pump capacity (mbar)                     | 145                       | -                             |
| Nominal heater power at 120V (W)         | 1500                      | 1500                          |
| Nominal heater power at 240V (W)         | 1800                      | 1800                          |
| Cooling coil                             | Option                    | Option                        |
| Extension below base (mm)                | 145                       | 145                           |
| Dimensions L x W x H (mm)                | 237 x 124 x 260           | 237 x 124 x 260               |
| TechneWorks software package             | TechneWorks#              | TechneWorks#                  |

\* Refrigeration or cooling coil required for below ambient cooling (see Techne Flow and Dip Coolers and the cooling coil). The TU-20HT can only be used with the Dip Coolers.

# (See page 11 for details)

### Ordering Information

| Product Code | Description  |
|--------------|--|
| FTU20DDC     | TU-20D, advanced thermoregulator with RS232, -40°C to 200°C, (supplied with clamp)   |
| FTU20HDC     | TU-20HT, advanced high temperature thermoregulator with RS232 and TechneWorks software, -40°C to +250°C, (supplied with clamp) |
| FCCO1        | Cooling Coil   |



TU-20D



TU-20HT