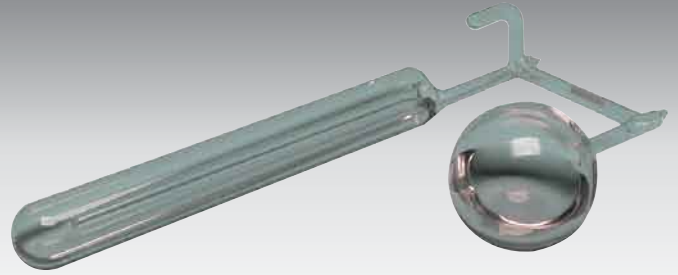


Isotech's unique KT Water Triple Point Cell



Quartz vs Borosilicate Glass

The special cleaning and ageing of the usual borosilicate glass ensure, and the evaluations demonstrate, the long life of the cells. Selected cell types are available in quartz construction which are expected to last ten times longer.

Performance

The cells include a certificate of conformance.

A UKAS calibration service is available for all of our water triple point cells. The larger cells can be UKAS certified to $\pm 0.000070^{\circ}\text{C}$, 2 Sigma. This will benefit the most demanding of NMIs and users.

More cost effective calibration options to uncertainties of ± 0.1 and $\pm 0.5\text{mK}$ are also available. Regardless of calibration the Jarrett-Isotech cells are reproducible to $\pm 0.000020^{\circ}\text{C}$ and after equilibrium has been reached the inner melt of the ice mantle will give stability of $\pm 0.00001^{\circ}\text{C}$

Reverting to the very first designs of water triple point cells, Isotech produce a cell with Isotopic analysis, a McLeod gauge to assess any trapped air and an attached flask where the cell's water can be transferred and redistilled. By accounting for these sources of uncertainty we claim that this cell represents the ultimate reference for those requiring cells as close to ITS-90 as possible. Please ask for a copy of a comprehensive report describing the cell, its operation and performance.

Model Types

Premium Water Triple Point Cells - Borosilicate Glass

These Premium Cells can be calibrated to an uncertainty of $\pm 0.000070^{\circ}\text{C}$ (0.07mK)

- A11-50-270*
- A13-50-270*
- B11-50-270
- B11-65-270*
- B13-65-270
- B16-65-270

**Also available in Quartz Glass*

Further Laboratory Water Triple Point Cells

These cells have shorter immersion depth and can be calibrated to an uncertainty of $\pm 0.000100^{\circ}\text{C}$ (0.1mK)

- B12-40-210
- B12-46-210

Slim Water Triple Point Cell

- B8-30-130

This small cell fits into portable Dry Block Calibrators for use outside of the calibration laboratory. It can be calibrated to $\pm 0.0005^{\circ}\text{C}$ (0.5mK)

Performance

Accuracy

The equilibrium temperature of the Jarrett-Isotech Triple Point of Water Cell is within $\pm 20\mu\text{K}$ of the 2005 definition as described in CCT/05-07/rev(2). Isotopic Analysis can be provided to give the exact composition within $\pm 3\mu\text{K}$.

Reproducibility

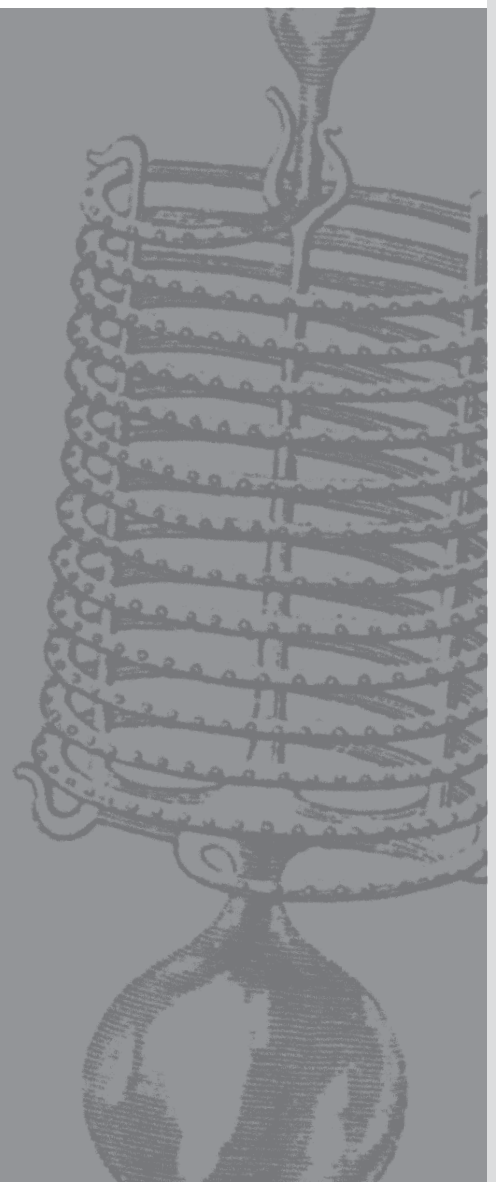
The equilibrium temperature of a cell will repeat to within $\pm 0.000,02^{\circ}\text{C}$ of the mean equilibrium temperature.

Stability

After equilibrium is reached, the temperature of the inner melt of an ice mantle will remain constant to within $\pm 0.000,01^{\circ}\text{C}$ for as long as the mantle can be preserved (up to 90 days in some instances).

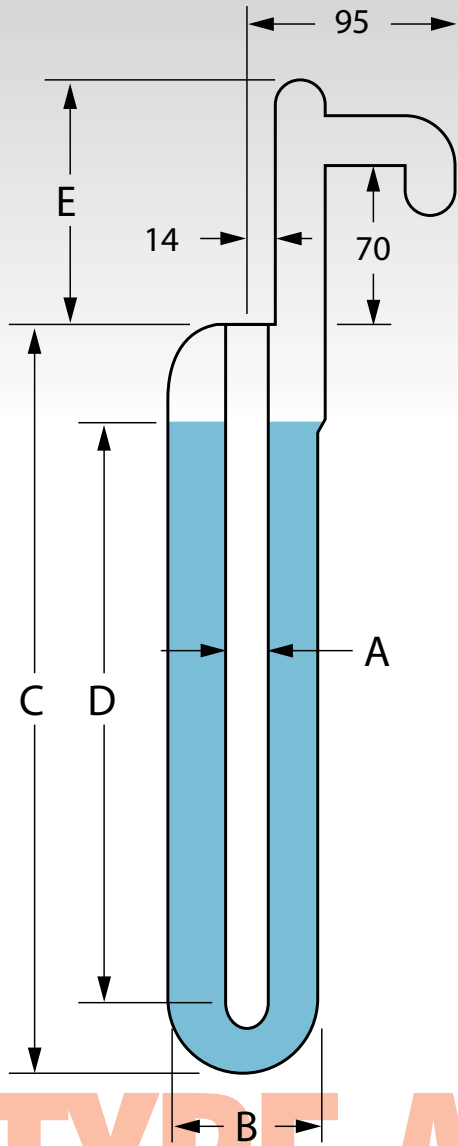
Life

Cells made from Borosilicate Glass may drift lower in temperature by up to 0.1mK after 10 to 20 years. Cells made from Quartz are expected to last 10 times longer.



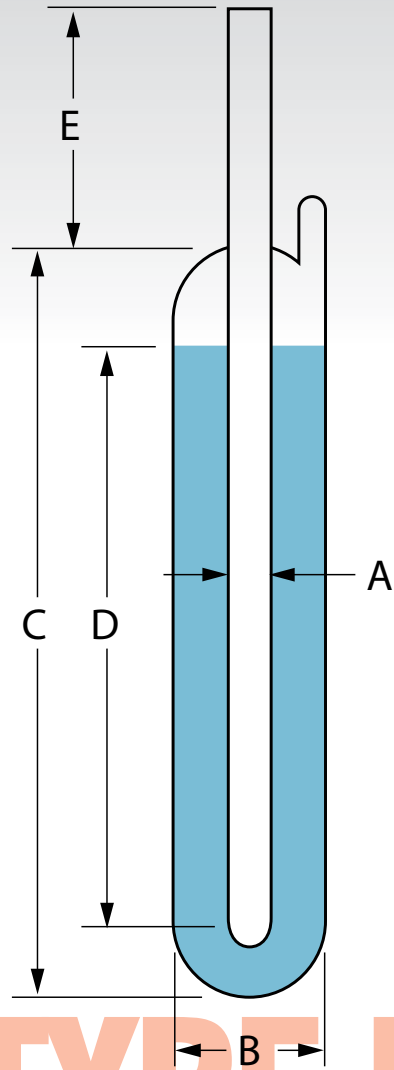
Physical Features

Type A cells were designed by Dr. H. F. Stimson at NBS. A tubular glass extension at the top of the cell serves as a convenient handle for lifting and carrying the cell, as a hook for supporting it in an ice bath, and as an indicator of partial pressure of air in the cell.



TYPE A

Type B cells were designed at NRC of Canada. The thermometer well extends 100mm above the top of the cell. Heat transfer to the ice mantle may be essentially eliminated by keeping these cells packed in ice to the top of the well extension, or by immersing them sufficiently in a Water Triple Point Maintenance Bath.



TYPE B

Nominal Dimensions in mm

Model	A	B	C	D	E	Comments
A11-50-270	11	50	350	270	100	Highly recommended (1) (2)
A13-50-270	13	50	350	270	100	Large re-entrant tube (1)
B8-30-130	8	30	160	130	0	Slim Cell - Fits Isotech Dry Blocks
B12-40-210	12	40	290	210	75	Replacement for NPL, UK Type 32 Cells
B12-46-210	12	46	290	210	75	Recommended for Isotech Oceanus
B11-50-270	11	50	350	270	100	Highly recommended (1) (2)
B11-65-270	11	65	350	270	100	NRCC's favourite Cell (1) (2)
B13-65-270	13	65	350	270	100	Large re-entrant tube (1)
B16-65-270	16	65	350	270	100	Larger re-entrant tube (1)

(1) Isotopic Analysis is available.
 (2) Available in Quartz Glass.