

# Isotech Metrology Instruments for the Millennium

## The Jarrett-Isotech Range of Water Triple Point Cells

### Why the Jarrett-Isotech Cell is the best standard.

The Jarrett-Isotech range of Water Triple Point Cells is unique.

Unique in being in production for over 45 years. Unique in having 12 steps in the water purification process.

Unique in having the most comprehensive evaluations ever made on Water Triple Point Cells performed on it.

One assumes that every Water Triple Point Cell, no matter from which source will be the same.

This is not so. Each manufacturer employs his own design of distillation plant to produce the pure water that goes into the Cell, and cleans the Cell in different ways.

The Jarrett Instrument Company and in particular its proprietor James L. Cross devoted 45 years with no other product in his range, to the understanding and perfection of the Water Triple Point Cell.

As improvements became possible, or research showed that additional precautions were necessary, additional steps were placed in the distillation process until, for the past 20 or more years the design as it is currently produced has been available as the World's Temperature Standard.

In 1980 a full evaluation of over 20 Jarrett Cells was undertaken and the results showed the high reproducibility of the Jarrett production over a very long period of time.

It will keep its value for between 10 and 20 years, no other manufacture has sufficient data to justify this claim.

In 1997 the late Henry Sostmann wrote a report summarising a number of important International and National Comparisons on Water Triple Point Cells. The Jarrett-Isotech Cells in many cases formed the reference to which other cells were compared, and in the other intercomparisons our cells were always the best. Before you choose a water triple point cell ask for a copy of Henry's summary report.

Three fundamentally different designs of Cells are available from Isotech, the type A Cell design with a McLeod gauge which enables the vacuum to be assessed, or the type B in which the reentrant tube is longer and hence sticks out of the apparatus and our unique K. T. cell.

For optimal realisations we use, and recommend the type A11.

Isotech offers the following range of Cells, the A11 and B11 are the preferred models. You can purchase the cells with a certificate of conformity, or preferably a UKAS certification to an uncertainty of  $\pm 0.000075^\circ\text{C}$  (1 sigma).

### Isotech's unique K.T. Water triple point cell.

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 these 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.

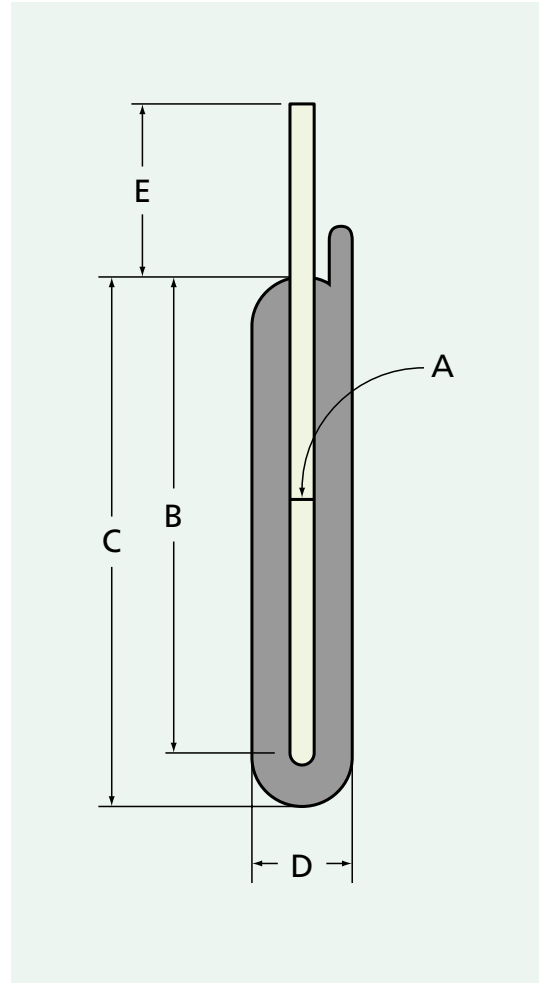
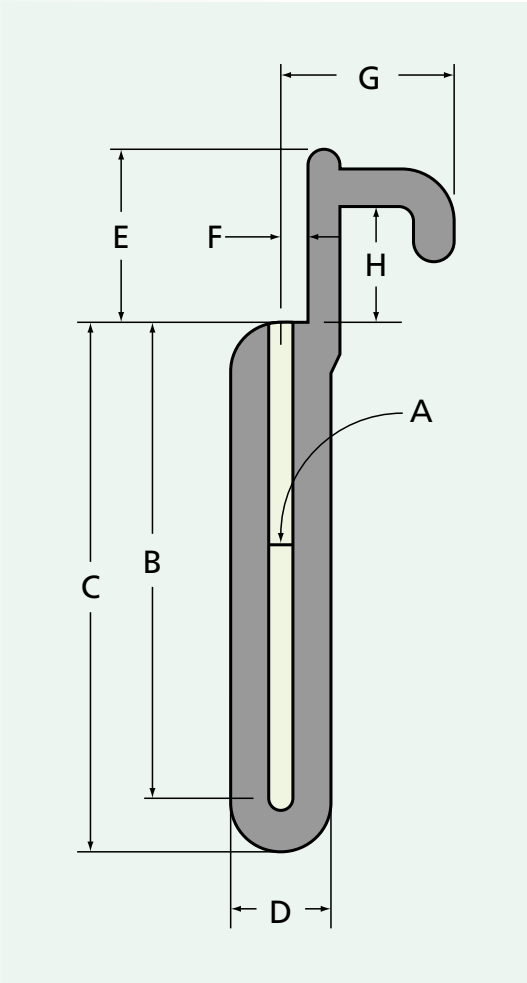


# The Jarrett-Isotech

## Triple Point of Water Cells: Physical Features

**Type A cells** (fig 1) were designed by Dr. H. F. Stimson at NBS. A tubular glass extension at the top of the cells 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 B cells** (fig 2) 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.



Standard or Special (ST/SP)

Model No.

Nominal Dimensions in Millimetres

(ST/SP)	Fig	Model No.	A*	B	C	D	E	F	G	H
ST	1	A-11	11	317	348	51	104	14	93	70
SP	1	A-13	13							
ST	2	B-11	11	317	348	64	100			
SP	2	B-13	13							
SP	2	B-16	16							
SP	2	B-19	19							
SP	2	B-22	22							

\* precision bore tubing