

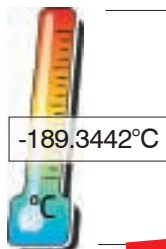
DATASHEET

Model-471

Isotech

Distributed by AKRIBIS





PROVISIONAL DATA*

471 Simple Argon Triple Point Apparatus

The Isotech Argon Triple Point Apparatus has been upgraded for greater automation, efficiency, and ease of use in realising the argon triple point.

Many laboratories use liquid nitrogen comparators, a low-cost but imperfect method. Liquid nitrogen's boiling point is not on the ITS-90 scale and is below the argon triple point. This presents challenges, as standard platinum resistance thermometers (SPRTs) often contain a mix of argon and oxygen. At -195°C , the gas inside the SPRT can be under partial vacuum, affecting self-heating and increasing calibration uncertainties.

Previously, the high cost and complexity of argon triple point systems were barriers for many laboratories. Isotech has changed that with a simpler, more affordable solution featuring automated temperature control for easier operation.

What's New?

- Automated Pressure Control - Replaces the manual weight system for precise, stable temperature regulation.
- Additional Pre-Cooling Pocket - Improves efficiency and speeds stabilisation.
- Faster Time to Fixed Point Plateau - Reduces wait time for calibration.
- Allows LN_2 Replenishment During Use - Extends the calibration period without disruption.
- Faster Filling Time - Speeds up setup and operation.

Inside the apparatus, 6N pure argon is sealed in a pressure vessel, and liquid nitrogen cools the volume to approximately -195°C . A pressure controller then regulates the nitrogen's boiling temperature to just above the argon triple point, maintaining stable conditions. The argon settles into its triple point for around four hours, providing an accurate, stable reference for SPRT calibration. The temperature is adjustable via a PC-controlled electronic pressure controller (PC not supplied), allowing precise regulation and enhanced flexibility in operation.

With automation, faster setup, and improved usability, the updated Isotech Argon Triple Point Apparatus makes SPRT calibration at the argon triple point more accessible than ever, ensuring greater efficiency and control for calibration laboratories.


<http://www.isotech.co.uk/argon>


Why Choose the 471 Argon Apparatus

- No need for high-pressure gas handling or complex vacuum setups
- Practical and cost effective compared to other systems
- Electronic pressure control eases operation
- ITS-90 defines the argon triple point — not liquid nitrogen — as the standard at $-189.3442^{\circ}\text{C}$

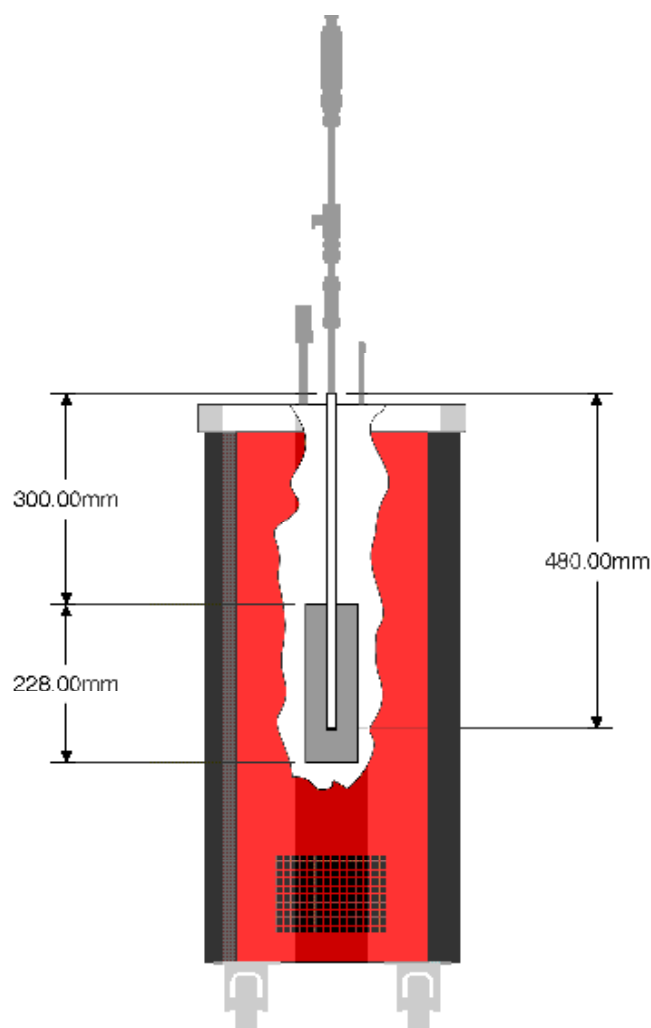
Experience repeatable, traceable argon triple point calibrations - with convenience and confidence.

This self-contained system offers true realisation of the argon triple point, with automated pressure control and reliable plateau performance — without the cost, complexity or risks associated with traditional systems.

What is the Argon Triple Point?

The argon triple point ($-189.3442^{\circ}\text{C}$) is a defining fixed point on the ITS-90 temperature scale, representing the precise temperature at which argon coexists in solid, liquid, and gas phases under equilibrium.

Used primarily in calibrating Standard Platinum Resistance Thermometers (SPRTs). It is especially valuable in national metrology institutes and accredited calibration centres where the lowest uncertainties are required.



Technical Feature	Value
Model	471
Temperature Range	$-189.3442^{\circ}\text{C}$
Plateau Duration	4 Hours
Uncertainty (Calibration Options: $k=2$)	$\pm 0.8\text{mK}$
Dimensions	Width - 380mm Depth - 615mm Height - 1500mm

For More Data and the Latest Information:
www.isotech.co.uk/argon