



- Unique Aspirated Design
- High Stability
- Ultra High Purity Quartz

Isotech has produced over 200 high temperature thermometers which have been sold world-wide for use up to the silver point. As a consequence of our pre-delivery testing alone we have probably made more silver point calibrations than anyone else in the world.

No one fully appreciates all the mechanisms at work when a coil of pure platinum wire inside a quartz envelope is taken to 1000°C and back. However, endless hours of study at National and International level, plus our own significant work at Isotech, have enabled us to design, build and test a superior Silver-Point Thermometer. This, we feel, is a significant contribution to better high temperature calibration.

First, the 96178 can breathe, a valve in the handle can be opened to allow oxygen depleted or moist air to escape from inside the sheath and replacement by fresh air containing 20% oxygen. The valve is normally opened at elevated temperatures and closed to prevent moisture ingress before water triple point measurements are performed.

Second, the 96178 is the only thermometer ever designed with platinum heat radiation shields built into the sheath, to prevent heat radiating up inside the sheath.

Third, a new ultra pure quartz, developed for the semiconductor industry at a cost of between 20 and 30 million pounds, has been adopted for use in the construction of the 96178. This new thermometer exemplifies our commitment to achieve the highest possible quality and minimum of contamination.

How the thermometer is handled is most important for its stability and a purchaser will receive a comprehensive manual and tutorial with each 96178.

Under some circumstances, provided the interior of the thermometer is undamaged we can replace the outer quartz sheath. Please consult us if a replacement is required.

To exploit fully the accuracy of the 96178, a user will need a furnace for warming and annealing the thermometer as well as one to house the silver-point/aluminum-point cells.

A Dual Calibration Furnace from Isotech combines these two features together with all the special accessories and handling know-how we have discovered.

# Silver Point SPRT Model 96178



Model No	96178
Temperature Range	0°C to 1000°C
Resistance Value	$R_0 = 0.25\Omega$ (others to special request)
Resistance Ratio	$W_{ga} > 1.11807$
Dimensions	Length 650mm Diameter 7.5mm

#### Drift during use

a. Smallest When taken to 970°C slowly over 1 to 2 hours and cooled slowly again (overnight) to 450°C, the triple point of water resistance will repeat to better than a temperature equivalent of 0.0005°C.

b. Largest When thermally shocked from 970°C to 20°C the triple point of water resistance will increase by a temperature-equivalent of up to 35mK; this is mostly recoverable upon annealing at 650°C for a few hours and then cooling slowly (overnight) to 450°C.

Long term drift Most changes occur during heating and cooling. If this process is done carefully, long term stabilities of a few mK per year can be expected, with reproducibility at the silver point of 3 to 5 mK.

#### How to order

Model 96178/0.25

State "with UKAS calibration" or "without UKAS calibration".

Refer to introduction for Calibration Uncertainties.