

Glass capsule SPRT



- Temperatures from $-260\text{ }^{\circ}\text{C}$ (13K) to $232\text{ }^{\circ}\text{C}$
- Stability typically $0.001\text{ }^{\circ}\text{C}$ over a $100\text{ }^{\circ}\text{C}$ range
- Miniature capsule package eliminates stem conduction

Sometimes you would like to make SPRT measurements but traditional SPRTs are too long or awkward for a particular application. Our miniature glass capsule SPRTs are perfect for cryogenics, calorimetry, and other metrology work requiring small SPRTs.

These are true SPRTs. The high-purity platinum wire is hand-wound on a glass cross frame in a strain-free design. The glass capsule is designed to match the thermal expansion of the platinum wire to ensure a true seal at all operating temperatures. The capsules are pressure sealed and come protected in their own maple cases. Both models comply completely with ITS-90 requirements for platinum

purity including the following resistance ratio:

$$W(302.9146\text{K}) \geq 1.11807$$

and

$$W(234.3156\text{K}) \leq 0.844235$$

The 5686 covers temperatures from $-260\text{ }^{\circ}\text{C}$ to $232\text{ }^{\circ}\text{C}$, so it's perfect for cryogenic applications. It is 5.8 mm (.23 inches) in diameter and 56 mm (2.2 inches) long.

These SPRTs are small but meet customary SPRT performance for reproducibility, reliability, and stability.

Specifications

Temperature Range	$-260\text{ }^{\circ}\text{C}$ to $232\text{ }^{\circ}\text{C}$ (13 K to 505 K)
Nominal R_{TPW}	$25.5\ \Omega$
Resistance Ratio	$W(302.9146\text{ K}) \geq 1.11807$ $W(234.3156\text{ K}) \leq 0.844235$
Drift Rate	$< 0.005\text{ }^{\circ}\text{C}$ per year over the entire range
Self-heating at TPW	$< 0.002\text{ }^{\circ}\text{C}$ under 1 mA current
Reproducibility	$\pm 0.001\text{ }^{\circ}\text{C}$ or better
R_{TPW} Drift After Thermal Cycling	$< 0.001\text{ }^{\circ}\text{C}$
Filling Gas	helium
Lead Wires	Four platinum wires, 30 mm long (1.18 in)
Size	5.8 mm dia. x 56 mm long (0.23 x 2.2 in)

Ordering Information

5686-B Glass Capsule SPRT, $-260\text{ }^{\circ}\text{C}$ to $232\text{ }^{\circ}\text{C}$ ¹

¹Maple carrying case included

See page 186 for SPRT calibration options.

