

GLASS CAPSULE SPRTs

Models 5686 and 5695

Primary Standards



| Glass Capsule SPRTs | Models 5686 and 5695 |
|--|----------------------|
| Temperatures from -260°C (13K) to 500°C | |
| Stability typically 0.001°C over 100°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. Now Hart makes two versions of our miniature glass capsule SPRTs, which are perfect for cryogenics, calorimetry, and other metrology work requiring small SPRTs.

Both models 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 case. Both models comply completely with ITS-90 and have the following resistance ratios:

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

and

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

The Model 5686 covers temperatures from -260°C to 232°C , so it's perfect for cryogenic applications. It is 5.8 mm in diameter and 56 mm long.

The Model 5695 is designed for high-temperature applications requiring a small SPRT. Its range is -200°C to 500°C and its size is 5.2 mm by 68 mm.

Fixed-point calibrations in Hart's laboratory are available for both models. The Model 5686 may be calibrated from -200°C to 232°C , and the Model 5695 may be calibrated from -200°C to 420°C .

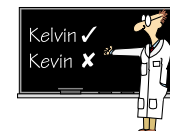
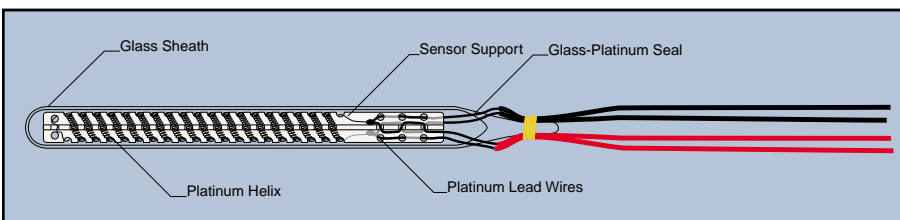
These SPRTs are small but meet customary SPRT performance for reproducibility, reliability, and stability. They solve many of the problems associated with taking precision measurements in situations unsuitable for traditional-length SPRTs. These are excellent calibration instruments.

| Specifications | |
|-------------------|--|
| Temperature Range | 5686: -260°C to 232°C (13K to 505K) 5695: -200°C to 500°C (73K to 773K) |
| Nominal R_{TPW} | 25.5 Ω |
| Resistance Ratio | $W(302.9146\text{K}) \geq 1.11807$ $W(234.3156\text{K}) \leq 0.844235$ |
| Drift Rate | $< 0.01^{\circ}\text{C}$ per year over the entire range; typically 0.001°C per year over a range of 100°C |
| Filling Gas | 5686: helium 5695: argon and oxygen |
| Lead Wires | Four platinum wires, 3 cm long |
| Size | 5686: 5.8 mm dia. x 56 mm long (0.23" x 2.2") 5695: 5.2 (+0.4) mm dia x 68 mm long (0.2" [+0.016"] x 2.7") |

Ordering Information

- 5686 Glass Capsule SPRT, -260°C to 232°C
- 5695 Glass Capsule SPRT, -200°C to 500°C

See page 15 for calibration prices.



Read about our calibration training courses on page 152.