

TECHNICAL DATA

Mini Fixed-Point Cells



Key features

- Mini cells are made from the same materials and with the same procedures as their full-size counterparts.
- Optional metal cased designed cells.
- Temperatures, from the triple point of water (0.01 °C) to copper (1084.62 °C).
- With mini cells, realization and maintenance are made simple using our 9210, 9230, and 9260 maintenance units.

Product overview: Mini Fixed-Point Cells

Fixed-points made simple

With mini cells, realization and maintenance are simple. Mini TPW cells can be automatically realized and maintained in our 9210 Maintenance Apparatus. Realizing the triple point of water takes only five minutes, but the plateaus last all day.

The realization and maintenance of indium, tin, zinc, and aluminum cells are likewise automated through our 9260 Mini Fixed-Point Cell Furnace. Work with them at their designated freeze point, or use them at their melting point to simplify the calibration process even further. We published a paper, "The Comparison Between the Freezing Point and Melting Point of Tin," to help you understand and benefit from the easier procedure of using the melting point of your standard.

These mini cells are made from the same materials and with the same procedures as their full-size counterparts. In

fact, they can achieve nearly the same uncertainty levels as Hart's traditional fixed-point cells. Probes as short as nine inches work with these cells. The specifications table gives you the immersion depth and uncertainty for each cell.

In addition to high-accuracy calibrations of RTDs and PRTs, these cells are perfect for validating the accuracy of SPRTs. If you're doing comparison calibrations with SPRTs, then you know the importance of occasionally checking their accuracy between their own recalibrations. Because these cells are easy to use and maintain, verification checks are simple and convenient.

Metal-cased cells

Metal-cased cells can also be used in the 9260 maintenance furnace. Because they use stainless steel cases, these cells are easier to use and transport without risk of breakage. You'll notice that we have designed the metal cased cells with more immersion depth to give even better uncertainty too!

You'll find these cells easier to use than you expect. You can have a free copy of Xumo Li's paper comparing freeze-point measurements with melting-point measurements, and if you want a high level of training in using metal freeze-point cells, you can attend one of Fluke Calibration's in-depth training classes held in our lab in Utah.

Specifications: Mini Fixed-Point Cells

| Specifications | | | | | | | | |
|----------------|---------------|-------------------|------------------|-----------------|-------------------|------------------------------|------------------------|---------------------------------|
| Model Number | Fixed-Point | Temperature (°C) | Outside Diameter | Inside Diameter | Total Cell Height | Immersion Depth ¹ | Cell Only ² | Simple Realization ² |
| 5901B-G | Water T.P. | 0.01 | 30 mm | 8 mm | 170 mm | 117 mm | 0.2 | 0.5 |
| 5914A | Indium F.P. | 156.5985 | 43 mm | 8 mm | 214 mm | 140 mm | 1.0 | 2.0 |
| 5915A | Tin F.P. | 231.928 | 43 mm | 8 mm | 214 mm | 140 mm | 1.4 | 3.0 |
| 5916A | Zinc F.P. | 419.527 | 43 mm | 8 mm | 214 mm | 140 mm | 1.6 | 4.0 |
| 5917A | Aluminum F.P. | 660.323 | 43 mm | 8 mm | 214 mm | 140 mm | 4.0 | 10.0 |
| 5918A | Silver F.P. | 961.78 | 43 mm | 8 mm | 214 mm | 140 mm | 7.0 | n/a |
| 5919A | Copper F.P. | 1084.62 | 43 mm | 8 mm | 214 mm | 140 mm | 15.0 | n/a |
| 5944 | Indium F.P. | 156.5985 | 41.3 mm | 7.8 mm | 222 mm | 156 mm | 0.7 | 1.4 |
| 5945 | Tin F.P. | 231.928 | 41.3 mm | 7.8 mm | 222 mm | 156 mm | 0.8 | 1.6 |
| 5946 | Zinc F.P. | 419.527 | 41.3 mm | 7.8 mm | 222 mm | 156 mm | 1.0 | 2.0 |
| 5947 | Aluminum F.P. | 660.323 | 41.3 mm | 7.8 mm | 222 mm | 156 mm | 2.0 | 4.0 |

Uncertainty (mK) k=2
¹Distance from the boom of the seal well to the surface of the pure metal.
²"Cell Only" refers to the expanded uncertainty of the cell when realized by traditional methods and maintained using traditional maintenance devices. "Simple Realization" refers to the expanded uncertainty of the cell when realized using practical methods (melting points instead of freezing points or slush ice instead of an ice mantle, for example) and maintained using Hart's 9210 and 9260 mini cell maintenance apparatus.

Ordering information

**5901B-G**

TPW Cell, mini, glass shell

5914A

Mini Quartz Indium Cell

5915A

Mini Quartz Tin Cell

5916A

Mini Quartz Zinc Cell

5917A

Mini Quartz Aluminum Cell

5918A

Mini Quartz Silver Cell

5919A

Mini Quartz Copper Cell

5944

Mini Metal Cased Indium Cell

5945

Mini Metal Cased Tin Cell

5946

Mini Metal Cased Zinc Cell

5947

Hart 5947 Mini Metal-Cased Aluminum Cell

2940-9260

Container, Mini-Cell Support, 9260

2942-9260

Container, SST Mini-Cell Support, 9260

1904-In

Accredited Cell Intercomparison, Indium

1904-Sn

Accredited Cell Intercomparison, Tin

1904-Zn

Accredited Cell Intercomparison, Zinc

1904-Al

Accredited Cell Intercomparison, Aluminum

1904-Ag

Accredited Cell Intercomparison, Silver



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