DATASHEET

Model-526

Isotech

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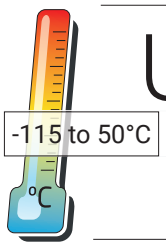

Ultra-Low Dry Block Calibrator
Model 526

- −115°C to 50°C ultra-low calibration using Free Piston Stirling Cooler technology
- ±0.03°C stability - meets EURAMET cg-13 requirements
- Integrates with Isotech reference thermometers and I-Cal Easy for automated calibration

−115°C to 50°C
The Isotech Model 526 offers both portable use in the field and laboratory-grade performance in ultra-low temperature calibration. Designed for professionals who demand controlled, stable temperature generation with credible performance, the Model 526 delivers ultra-low temperature capability.
Building on Isotech's decades of expertise in temperature metrology, including the pioneering legacy of the Model 525 (the world's first -100°C Dry Block), this calibrator has been engineered for professional calibration systems, whether laboratory-based or field-deployed.

Why Choose the Isotech Model 526?

Credible Ultra-Low Temperature Performance
Ultra-low temperature calibration places exceptional demands on stability, control, and thermal uniformity. The Model 526 provides a repeatable calibration environment across its full operating range, suitable for sensor validation and verification rather than indicative testing.

Performance characteristics:

- Market-leading −115°C capability using advanced Free Piston Stirling Cooler (FPSC) technology
- Stability of ±0.03°C across the full range, supporting confident measurement
- Controlled axial and radial temperature distribution within the insert
- 0.01°C resolution for precise adjustment and monitoring

The model meets the requirements of EURAMET cg-13, the international guideline for the calibration of temperature block calibrators.

Model	**526**
Temperature Range	-115°C to 50°C (23°C ambient)
Stability	±0.03°C (over 30 minutes)
Display Accuracy	±0.5°C (full range)
Accuracy with External References	Up to ±0.05°C (reference-dependent)
Resolution	0.01°C
Immersion Depth	130mm + 50mm Insulator (effective depth 180mm)
Stabilisation Time	≈15 minutes (typical)
Cooling Time	23°C to -115°C: ≈85 minutes
Heating Time	-115°C to 50°C: ≈85 minutes
Weight	12kg (Without Case)
Power Supply	100-115V or 200-230V, 50/60Hz
Power Consumption	≈575W
Interface	RS-232
Recommended Range	21°C to 25°C
Operating Environment	15°C to 60°C, ≤80% RH non-condensing
Radial Uniformity	<0.03°C
Axial Uniformity	0.15°C (Measured at -100°C)
Axial Uniformity *[1]*	0.45°C (Measured at 40°C)

[1] Represents worst-case vertical gradient over 25mm

Model 526
-115°C Dry Block Calibrator

Applications
Model 526 is suitable for a wide range of ultra-low temperature calibration tasks where controlled, stable temperature generation with clearly defined performance characteristics is required:

- Pharmaceutical: Validation of COVID-19 vaccine cold chains and ultra-low temperature (ULT) freezers
- Medical & Bio-Banking: Calibration of blood bank storage and cryogenic tissue preservation units
- Aerospace: Testing of sensors and components under extreme environmental conditions
- Food & Process: Verification of industrial flash-freezing equipment
- Industrial and laboratory calibration below −80°C

Support and Long-Term Reliability
Model 526 is supported by Isotech with an emphasis on technical competence, continuity, and long-term serviceability. As specialists in temperature calibration, Isotech provides:

- Technical support from temperature metrology specialists
- Advice on system configuration and measurement best practice
- Ongoing service and support throughout the instrument's working life

Complete Calibration Systems
The Model 526 can operate as a standalone instrument. However, where greater capability or assurance is required, Isotech can provide all supporting equipment needed to build a complete, fully traceable calibration system

Designed for Real-World Calibration
Field calibration demands both integrity and practical convenience. The Model 526 delivers without compromise.

- Rapid deployment: Reaches −115°C from ambient in approximately 90 minutes
- True portability: 12kg weight makes it practical for cleanroom and remote site validation
- Minimal stabilisation time: Typically, 15 minutes for thermal equilibrium
- Environmental protection features prevent moisture ingress and ice build-up at cryogenic temperatures

Model 526
Accessories & Options

Isotech-Engineered Inserts for Maximum Performance

The Model 526 uses inserts designed by Isotech to support stable and uniform temperature distribution across the working volume, particularly at deep sub-zero temperatures. The design promotes effective thermal contact and consistent immersion conditions, helping to reduce measurement uncertainty in practical calibration use.

Validation Insert (Optional)
Configuration: 12 × 3.5mm and 1 × 6.5mm diameter holes.

Enables simultaneous calibration of multiple thermocouples within a single run, reducing setup time and improving throughput. Suited to pharmaceutical, medical, and process environments where batch calibration of small-diameter sensors is required.

Applications include thermal validation, cold chain verification, environmental monitoring, and process sensor qualification.

Inserts
All holes are 130mm deep unless otherwise specified.

Insert Type A (Standard)
Included with the instrument: 6 pockets, 2 × 4.5mm, 2 × 6.4mm, 1 × 8.0mm and 1 × 9.5mm diameter.

Optional Inserts
- **Insert Type B:** 1 × 13mm, 1 × 10mm, 1 × 8mm, 1 × 5mm and 1 × 3.5mm diameter holes
- **Insert Type C:** 1 × 8mm and 6 × 6.5mm diameter holes
- **Blank Insert:** supplied without pockets for local machining
- **Custom Inserts:** available to suit specific probe diameters

Insulating Caps
An insulating sealing cap fits above the insert to reduce heat loss and limit moisture ingress during operation. This helps maintain temperature stability and minimises ice formation at ultra-low temperatures.

Carry Case (Included)
A robust transport case is included to protect the unit during storage and transit. The case features an extendable pull-out handle and integrated wheels for ease of movement.

Internally, it provides dedicated space for the calibrator and up to three inserts, with protective foam lining to prevent movement during transit.

Accessories
Touchscreen Stylus (Included)
Supplied for precise touchscreen input, particularly when operating in low-temperature environments or when wearing gloves.

Insert Removal Tool (Included)
Supplied for safe extraction of inserts from the calibrator well.

RS-232 Cable (Optional)
Communication cable for connection to external systems and software.
Part number: 935-16-157

Ordering Information

Each Model 526 is supplied with the carry case, traceable calibration certificate, stylus, Insert Type A, and insert removal tool. When ordering, please specify any additional insert types, validation insert, and accessories. Custom inserts can be provided to suit specific probe requirements. For advice or application-specific requirements, please contact Isotech or your local distributor.