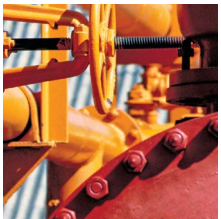


# Temperature · Pressure · Process



**METEK®**  
**SENSORS, TEST & CALIBRATION**

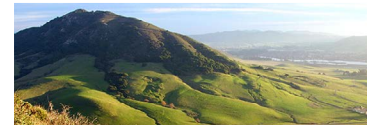


A world leader in  
the development  
and manufacture  
of calibration  
instruments for  
pressure,  
temperature,  
and process.

# A Truly Global Business

**A**metek STC designs and manufactures some of the world's best solutions for a wide variety of markets and applications. Whether you are looking for temperature, pressure, or process equipment, we provide the highest-quality products from our world-class calibration labs in California, Florida, and Denmark.

Combined with our software engineering and research office in India, our various sales and service centers, and over 150 distributors around the globe, our worldwide presence allows us to provide outstanding service no matter where you are!



## San Luis Obispo, CA USA Crystal Engineering

Crystal produces the industry's most accurate, field-capable, easy-to-use, reliable pressure calibration and measurement equipment from our ISO 17025 accredited lab.

**Crystal**  
pressure



## Largo, FL USA Mansfield and Green

M&G designs and manufactures a variety of deadweight testers, hand-pumps, and comparators, for field and lab use from our ISO 9001 certified facility.

**M & G**  
calibration





- Sales, Service, Manufacturing, and Engineering
- Sales and Service



A diverse product line, unique features, and world class support for a wide range of calibration solutions.

# Setting New Standards

## Effective Solutions

One Crystal pressure product often does the work of three to five devices from other manufacturers — replacing your data logger, your chart recorder, multiple test gauges, and even a deadweight tester with a single device.



Shown from left to right:  
The nVision, XP3i, XP2i, HPC40 Series, and HPC50 Series.

Our JOFRA dry-block temperature calibrators are the fastest solution for accurately calibrating temperature. One high-speed calibrator reduces test time while offering automated, hands-off operation, allowing a technician to complete multiple tasks simultaneously. Our combination calibrator offers wet bath and dryblock calibration in the same unit. We even have a model that only requires calibration once every three years!



The CTC-1205 and RTC-700.



# Reduce Measurement Error

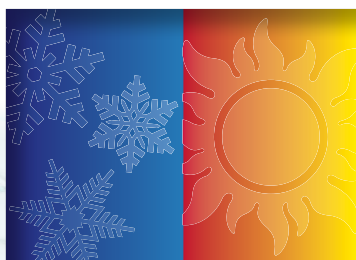
**W**e use active temperature compensation to ensure you have lab accuracy in nearly any outdoor climate. We define our accuracy clearly, so you know where you stand without working complex calculations. And, our advanced simplicity interfaces allow you to quickly learn the product, helping to reduce user error.

# Increased Safety

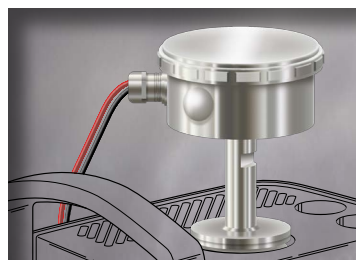
**F**rom the safest hoses and fittings available, to high over-pressure protection, our technology sets a new standard for safety. Why take a chance?



A family of intrinsically safe calibrators, gauges, and dataloggers capable of accurate measurement up to 1000 bar/15 000 psi.



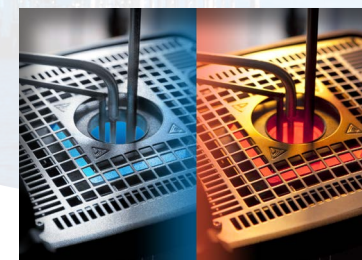
With Active Temperature Compensation, you can count on the same accuracy at any temperature between -20 and 50° C.



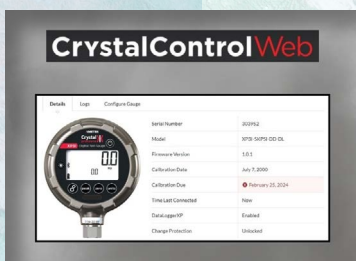
Fast and safe calibration of sanitary flange sensors using our unique reference sensor STS-102A and dedicated, built-in calibrator controller.



For extended recording, nVision replaces chart recorders with higher accuracy in a smaller, lighter, more rugged package.



Our patented cooling/heating technology makes it possible to calibrate from -100 to 155° C with one calibrator.



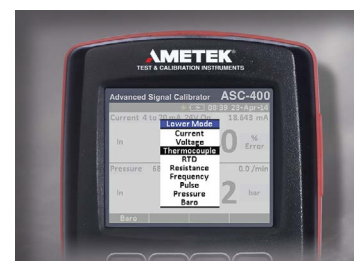
Use our cloud software to manage, customize, save, and download stored data logging runs from the XP3i.



Every Crystal pressure gauge includes a **free** NIST-traceable, A2LA accredited calibration report from our world-class ISO 17025, accredited labs.



Pneumatic and hydraulic deadweight testers offer a physical primary reference and industry-standard performance.



"Advanced Simplicity" single layer user interface. No deep menu structure!

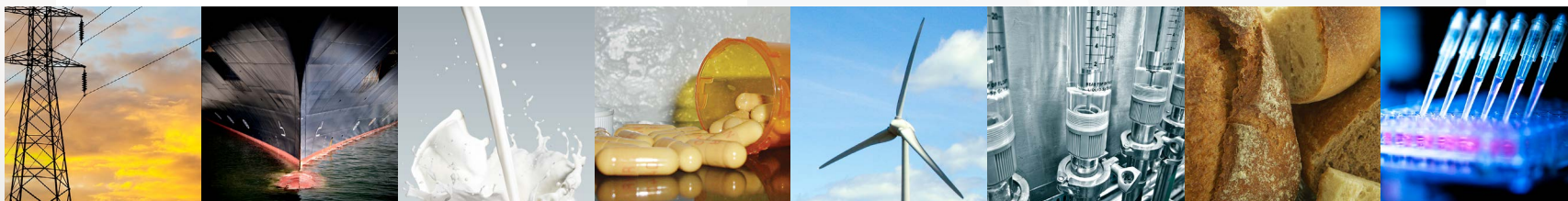



An array of temperature sensors to meet your specific needs, including special cable types for use under a sanitary flange.



Dry-block  
and liquid-bath  
temperature  
calibrators  
featuring  
portability,  
accuracy, and  
speed.

# Temperature



 Our dry-block and liquid bath temperature calibrators include five models, from rugged field to laboratory grade, and temperature ranges from -100 to 1205° C. Packed with advanced features, high accuracy and

speed, and advanced documentation functions when combined with JOFRACAL software, we have the temperature calibrator to fit your needs.



Shown from left to right: The ETC, CTC, PTC, and RTC.



# Innovative Temperature Measurement



**F**rom our active dual-zone calibration principle to our patented Dynamic Load Compensation sensor, we are constantly striving to provide the most accurate and reliable temperature products available.

## High Quality Sensors

**S**ince we produce reference temperature sensors for nearly any application, we probably have the right one for yours. For added safety, our *intelligent* design ensures correct identification and calibration data are loaded into our calibrators and indicators.

## Cold Temperature Calibrators

|               | Specifications     |                    |           |            |      |                  |                      | Functions        |           |                   |             |           |             | Product |
|---------------|--------------------|--------------------|-----------|------------|------|------------------|----------------------|------------------|-----------|-------------------|-------------|-----------|-------------|---------|
|               | Internal Acc. (°C) | External Acc. (°C) | Stability | Resolution | Type | Insert Dia. (mm) | Immersion Depth (mm) | Ext. Ref. Sensor | SUT Input | Dynamic Load Comp | Set Follows | Auto Step | Switch Test |         |
| -100 to 155°C | 0.30               | 0.06               | 0.030     | 0.001      | Dry  | 29.7             | 190                  | ✓                | ✓         | ✓                 | ✓           | ✓         | ✓           | RTC-159 |
| -90 to 125°C  | 0.30               | 0.07               | 0.030     | 0.01       | Dry  | 29.7             | 190                  | ✓                | ✓         |                   | ✓           | ✓         | ✓           | PTC-125 |
| -45 to 180°C  | 0.12               | 0.04               | 0.005     | 0.001      | Dry  | 29.7             | 160                  | ✓                | ✓         | ✓                 | ✓           | ✓         | ✓           | RTC-187 |
| -45 to 155°C  | 0.10               | 0.04               | 0.005     | 0.001      | Dry  | 29.7             | 160                  | ✓                | ✓         | ✓                 | ✓           | ✓         | ✓           | RTC-157 |
| -30 to 155°C  | 0.10               | 0.04               | 0.005     | 0.001      | Dry  | 25.8             | 160                  | ✓                | ✓         | ✓                 | ✓           | ✓         | ✓           | RTC-156 |
| -30 to 165°C  | 0.18               | 0.045              | 0.010     | 0.001      | D/W  | 63.5             | 180                  | ✓                | ✓         | ✓                 | ✓           | ✓         | ✓           | RTC-168 |
| -25 to 155°C  | 0.18               | 0.06               | 0.010     | 0.01       | Dry  | 25.8             | 160                  | ✓                | ✓         |                   | ✓           | ✓         | ✓           | PTC-155 |
| -25 to 155°C  | 0.30               | 0.20               | 0.040     | 0.01       | Dry  | 25.8             | 120                  | ✓                |           |                   | ✓           | ✓         | ✓           | CTC-155 |
| -22 to 155°C  | 0.18               | 0.04               | 0.010     | 0.001      | D/W  | 63.5             | 180                  | ✓                | ✓         | ✓                 | ✓           | ✓         | ✓           | RTC-158 |
| -10 to 125°C  | 0.50               | -                  | 0.050     | 0.1        | Dry  | 12.5             | 110                  |                  |           |                   |             | ✓         |             | ETC-125 |

## Hot Temperature Calibrators

|               | Specifications     |                    |           |            |      |                  |                      | Functions        |           |                   |             |           |             | Product  |
|---------------|--------------------|--------------------|-----------|------------|------|------------------|----------------------|------------------|-----------|-------------------|-------------|-----------|-------------|----------|
|               | Internal Acc. (°C) | External Acc. (°C) | Stability | Resolution | Type | Insert Dia. (mm) | Immersion Depth (mm) | Ext. Ref. Sensor | SUT Input | Dynamic Load Comp | Set Follows | Auto Step | Switch Test |          |
| 28 to 250°C   | 0.28               | 0.07               | 0.020     | 0.001      | D/W  | 63.5             | 180                  | ✓                | ✓         | ✓                 | ✓           | ✓         | ✓           | RTC-250  |
| 28 to 350°C   | 0.45               | 0.25               | 0.050     | 0.01       | Dry  | 25.7             | 115                  | ✓                |           |                   | ✓           | ✓         | ✓           | CTC-350  |
| 33 to 350°C   | 0.20               | 0.08               | 0.020     | 0.01       | Dry  | 25.8             | 140                  |                  | ✓         |                   | ✓           | ✓         | ✓           | PTC-350  |
| 28 to 400°C   | 0.50               | -                  | 0.150     | 0.1        | Dry  | Fixed            | 105                  |                  |           |                   |             | ✓         |             | ETC-400  |
| 28 to 400°C   | 0.50               | -                  | 0.300     | 0.1        | Dry  | 36.0             | -                    |                  |           |                   |             | ✓         |             | ETC-400R |
| 33 to 425°C   | 0.20               | 0.13               | 0.020     | 0.01       | Dry  | 25.8             | 150                  | ✓                | ✓         |                   | ✓           | ✓         | ✓           | PTC-425  |
| 28 to 650°C   | 0.90               | -                  | 0.100     | 0.1        | Dry  | 25.7             | 115                  |                  |           |                   |             | ✓         | ✓           | MTC-650  |
| 28 to 650°C   | 0.65               | 0.45               | 0.050     | 0.01       | Dry  | 25.7             | 190                  | ✓                |           |                   | ✓           | ✓         | ✓           | CTC-652  |
| 28 to 660°C   | 0.85               | 0.45               | 0.080     | 0.01       | Dry  | 25.7             | 115                  | ✓                |           |                   | ✓           | ✓         | ✓           | CTC-660  |
| 33 to 660°C   | 0.30               | 0.15               | 0.040     | 0.01       | Dry  | 24.8             | 150                  | ✓                | ✓         |                   | ✓           | ✓         | ✓           | PTC-660  |
| 33 to 700°C   | 0.29               | 0.11               | 0.020     | 0.001      | Dry  | 29.8             | 200                  | ✓                | ✓         | ✓                 | ✓           | ✓         | ✓           | RTC-700  |
| 100 to 1205°C | 2.00               | 2.00               | 0.100     | 0.01       | Dry  | 25.0             | 137                  | ✓                |           |                   | ✓           | ✓         | ✓           | CTC-1205 |

Calibration  
solutions featuring  
digital gauges  
& calibrators,  
plus pneumatic &  
hydraulic dead-  
weight testers.

# Pressure



Shown from left to right:  
The nVision, XP3i, XP2i, HPC40  
Series, HPC50 Series



Shown from top to bottom:  
The Type T Series, PKII Series,  
and GaugeCalHP.



**AMETEK**<sup>®</sup>  
SENSORS, TEST & CALIBRATION



Our pressure equipment includes some of the world's most popular digital gauges and calibrators for a variety of applications and markets. Included are intrinsically safe "% of reading" gauges and calibrators, differential pressure gauges, reference data recorders, and unique pneumatic and hydraulic deadweight testers. One handheld calibrator can often replace multiple instruments, reducing ongoing recalibration and maintenance costs. Our recorders collect readings as quickly as ten times per second and store up to one million data points. Our cloud management system allows for each sharing with your colleagues.



## Pressure Gauges and Calibrators

|                    | Specifications          |             |                         | Functions      |                |                   |            |             |              |                  |                    |           | Product      |
|--------------------|-------------------------|-------------|-------------------------|----------------|----------------|-------------------|------------|-------------|--------------|------------------|--------------------|-----------|--------------|
|                    | Pressure Accuracy       | IP Rating   | Compensated Temp. Range | Logging Option | Diff. Pressure | Absolute Pressure | Read Temp. | Read Elect. | 24VDC Supply | External Modules | Intrinsically Safe | Bluetooth |              |
| Vacuum to 1000 bar | ± 0.035% Rdg*           | IP65        | -20 to 50°C             |                | ✓              | ✓                 | ✓          | ✓           | ✓            | ✓                |                    |           | HPC40 Series |
| Vacuum to 1000 bar | ± 0.1% Rdg              | IP67        | -10 to 50°C             | ✓              |                | ✓                 |            |             |              |                  | ✓                  |           | XP2i         |
| Vacuum to 1000 bar | ± 0.025% Rdg            | IP67        | -20 to 50°C             | ✓              | ✓              | ✓                 | ✓          | ✓           |              |                  | ✓                  |           | nVision***   |
| Vacuum to 700 bar  | ± 0.035% Rdg*           | IP65        | -20 to 50°C             |                | ✓              | ✓                 | ✓          | ✓           |              | ✓                | ✓                  |           | HPC50 Series |
| Vacuum to 1000 bar | ± 0.05% Rdg             | IP66 & IP67 | -20 to 50°C             | ✓              |                | ✓                 |            |             |              |                  | ✓                  | ✓         | XP3i         |
| Vacuum to 700 bar  | ± 0.2% Rdg              | IP65        | -10 to 50°C             |                |                |                   |            |             |              |                  |                    |           | m1           |
| Vacuum to 300 bar  | ± 0.05% Rdg + 0.005% FS | -           | 0 to 50°C               |                |                |                   |            | ✓           |              |                  | ✓                  |           | 30 Series    |
| Vacuum to 200 bar  | ± 0.25% Rdg             | IP65        | -10 to 50°C             |                |                |                   |            |             |              |                  |                    |           | m1M          |
| Vacuum to 7 bar    | ± 0.1% Rdg              | IP67        | -10 to 50°C             | ✓              | ✓              |                   |            |             |              |                  | ✓                  |           | XP2i-DP      |

\*From 18 to 28°C. \*\*Not included with dual column or 0.015% accuracy. \*\*\*Field interchangeable measurement modules.

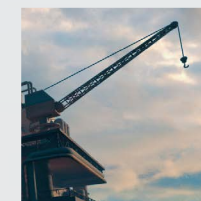
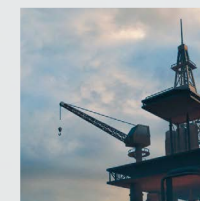
## Deadweight Testers

|                                | Specifications    |                         |                     | Functions          |                |                   |           |           |                |                     |                        | Product       |
|--------------------------------|-------------------|-------------------------|---------------------|--------------------|----------------|-------------------|-----------|-----------|----------------|---------------------|------------------------|---------------|
|                                | Pressure Accuracy | Optional Accuracy (Rdg) | Pressure Connection | Dual Piston/Column | Tripod Compat. | Sm. Incr. Weights | Hydraulic | Pneumatic | Self Contained | Self Reg. Ball Type | Included Carrying Case |               |
| 1 to 1000 bar                  | ± 0.015% Rdg      | ± 0.025%, 0.1%          | 1/4 & 1/2" NPT F    | ✓                  |                | ✓                 | ✓         |           | ✓              |                     | ✓**                    | Type T Series |
| 10 cmH <sub>2</sub> O to 2 bar | ± 0.05% Rdg       | ± 0.025%, 0.015%        | 1/4" NPT F*         |                    | ✓              | ✓                 |           | ✓         |                | ✓                   | ✓                      | PKII Series   |

\*With installed adapter to 1/4 tube fitting. \*\*Not included with dual column or 0.015% accuracy. These units are supplied with bench top column mounting plate and tubing.

\* CPF connections are available for all deadweight tester models.

We provide the world's only ball-type deadweight testers, where the ball and weights float on a thin film of air, which is virtually frictionless. This design eliminates the need to rotate the weights during testing, allowing the user to concentrate on the instrument. We engineered our testers to offer user-friendly, safe operation in the field or a lab. Both pneumatic and hydraulic testers are available.



From  
laboratory  
multi-channel  
scanners to  
handheld field  
instruments, we  
have the tools for  
your process  
measurement  
needs.

# Process



The ASM Series and mAcal.

**T**he ASC-400 is our latest multifunction process calibrator, which includes an easy-to-use, advanced simplicity user interface. Read and source RTD, thermocouple, current, voltage, frequency, and resistance to calibrate or verify your process sensors. Or combine them with the APM CPF pressure modules to calibrate pressure or a dry block to calibrate temperature.

If you're looking for efficient calibration without the need for advanced features, our single-task instruments are the perfect solution. The mAcal and ASM Series make calibrating instruments like pressure transmitters and temperature sensors a quick and easy process.



## Process Calibrators

|            | RTD | Thermo-<br>couple | Current | Voltage<br>& mA | Frequency | Resistance | Pulse | Ref.<br>Therm. | With<br>APM | 24VDC<br>Power Supply |
|------------|-----|-------------------|---------|-----------------|-----------|------------|-------|----------------|-------------|-----------------------|
| ASC-400    | R/S | R/S               | R/S     | R/S             | R/S       | R/S        | S     | ✓              | ✓           | ✓                     |
| ASM Series | R   | R                 | R       | R               | -         | R          | -     |                |             | ✓                     |
| mAcal      | -   | -                 | R/S     | R               | -         | -          | -     |                |             | ✓                     |

R = Read S = Source R/S = Both

The ASC-400 and APM CPF Series pressure module.

**AMETEK**  
SENSORS, TEST & CALIBRATION



Our pressure generation products include everything from small pneumatic hand pumps to a precision hydraulic pressure comparator capable of generating up to 15 000 psi/ 1000 bar/ 100 MPa.

# Pumps & Fittings



CPF Fittings

**C**rystal Pressure Fittings (CPF) are a new line of quick-test pressure fittings for calibration and test applications, designed with an emphasis on safety. They feature leak-free performance up to 1000 bar / 15 000 psi, and include a safety weep hole to alert you before you accidentally disconnect from a pressurized system. The weep hole can also be used as a bleed point. CPF fittings seal two ways: use fingers for an o-ring seal or use a wrench for a metal to metal cone seal (good to -40°C).

**O**ur pressure hand pumps, comparators, and fittings & hoses perfectly complement to our popular pressure gauges and calibrators. Each is available as a stand-alone pump or part of a complete system with the indicator included. From pneumatic and hydraulic hand pumps, to pressure comparators capable of controlling pressure up to 1000 bar / 15 000 psi, to the safest, most reliable pressure fitting and hose system available; we have the pressure generation equipment to make your job easier.



The GaugeCalHP Pressure Comparator.



T-900 Series

## Pumps

|                    | Pneumatic/<br>Hydraulic | Hand Pump/<br>Bench Top | CPF Hose<br>& Fittings | Product    |
|--------------------|-------------------------|-------------------------|------------------------|------------|
| -26 inHg to 0 bar  | P                       | H                       |                        | T-810      |
| 0 to 13 bar        | P                       | H                       |                        | T-811      |
| 0 to 2 bar         | P                       | H                       | ✓                      | T-960-CPF  |
| -25 inHg to 2 bar  | P                       | H                       | ✓                      | T-965-CPF  |
| 0 to 40 bar        | P                       | H                       | ✓                      | T-970-CPF  |
| -27 inHg to 40 bar | P                       | H                       | ✓                      | T-975-CPF  |
| 0 to 200 bar       | H                       | H                       | ✓                      | T-620-CPF  |
| 0 to 300 bar       | H                       | H                       | ✓                      | T-620H-CPF |
| 0 to 300 bar       | H                       | B                       | ✓                      | P-018-CPF  |
| 0 to 700 bar       | H                       | B                       |                        | P014       |
| 0 to 1000 bar      | H                       | B                       | ✓                      | T-1-CPF    |
| 0 to 1000 bar      | H                       | B                       | ✓                      | GaugeCalHP |

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\* ISO 17025 accredited calibration lab, (A2LA #2601.01).

\*\* DIN EN ISO / IEC 17025 accredited calibration lab.

\*\*\* DANAK EN ISO/IEC 17025 accredited calibration lab.

