

OMEGACALSM

One of the most trusted names in calibration and testing



- ✓ Fast Turnaround with Quality You Can Count On
- ✓ Our Calibration Services Encompass:
 - Temperature, Infrared, and Humidity
 - Pressure, Strain, and Force
 - Flow
 - And More
- ✓ Highly Trained Technical Staff Driven to Exceed Your Expectations
- ✓ Full Documentation
- ✓ Adherence to NIST Calibration Standards
- ✓ 5 Calibration Levels
- ✓ ISO9001 Corporate Quality
- ✓ ISO10012-1, ANSI/NCSL Z540-1-1994 Structured System
- ✓ Loaner Units Available (Consult Customer Service)
- ✓ OMEGACARESM Extended Warranty Available (Consult Sales)

WHEN YOU NEED IT DONE FAST AND DONE RIGHT



The Industry's Best-Equipped Labs

OMEGA's 5 H x 8 m L (15 x 25') recirculating temperature-controlled wind tunnel, used in conjunction with NIST-traceable air velocity standards for accurate flow calibrations.

ONLY OMEGA OFFERS "5 POINTS" STANDARD—FIVE LEVELS OF CALIBRATION WITH COMPLETE DOCUMENTATION

Probe Calibrations a Specialty

OMEGA's in-house calibration standards include an extensive line of blackbody calibrators for infrared pyrometer calibrations. Visit omega.com/omegacal for more information.



OMEGA constantly strives for new ways to improve customer service. We're expanding our calibration offerings and have a growing selection of primary and secondary NIST-traceable standards for calibrating temperature, humidity, pressure, flow, and force instrumentation.

By maintaining these standards in-house, we can ensure fast turnaround. Our calibrations are always done by experienced technicians. Call OMEGA's Customer Service department today to discuss your calibration needs:

1-800-622-2378[®]
1-800-622-BEST



Our top priorities: accuracy and customer service. Visit omega.com/omegacal for details on how OMEGA's calibration professionals can help make you more competitive.

Five Levels of Calibration Available*

**CAL-1
FREE**

CAL-1 documents that the products you buy comply with the specifications printed in OMEGA's handbooks. This calibration is normally **FREE** and gives you additional assurance that what you are buying is exactly what has been specified in the OMEGA® handbook.

**CAL-2
FREE**

CAL-2 documents not only that the equipment you buy meets the published specification, but also that calibration and testing were performed using NIST-traceable equipment.

**CAL-3
Additional Charge**

Probe No.	Nominal Temperature	Actual Test Temperature	Indicated Temperature
1	212°F	214.10°F	211.83°F
2	302°F	305.31°F	301.68°F
3	752°F	752.0°F	749.7°F

CAL-3 provides the same documentation as CAL-1/CAL-2 along with discrete test points of data and NIST-traceable test numbers. This calibration is performed in accordance with ISO10012-1 and ANSI/NCSL Z540-1-1994 requirements.

**CAL-4
Additional Charge**

Probe No.	Nominal Temperature	Actual Test Temperature	Indicated Temperature
1	-20°C	-20.04°C	-20.10°C
2	-20°C	-20.04°C	-20.03°C

CAL-4 is similar to CAL-3 except that specific test points are chosen by the customer. This calibration is also performed in accordance with ISO10012-1 and ANSI/NCSL Z540-1-1994 requirements.

**CAL-5
Additional Charge**

Nominal Temperature		Departure	
°F	°C	°F	°C
32	0		
212	100		
449	232		
787	419		

This certificate is available on thermocouple probes made from OMEGACLAD® mineral-insulated thermocouple wire. **CAL-5** documents that a thermocouple probe was made from a spool of OMEGACLAD® wire checked at various temperatures. This certificate is not NIST traceable. The process is known as a "batch calibration" because all the probes cut from the same spool are tested at the same data points.

Fast Turnaround Time!

Calibration Services

OMEGA can provide NIST-traceable calibration of the following measurement and control devices:

- Digital Panel Meters
- Benchtop Meters
- Handheld Meters
- Temperature Controllers
- Data Loggers
- Portable Simulators
- Analog Pyrometers
- Chart Recorders
- Thermocouple Probes
- Relative Humidity Instruments

Field Accuracy Specifications

CHARACTERISTIC	ACCURACY
Temperature	±0.11°C
Resistance	±0.01%
DC Voltage	±0.01%
DC Current	±0.02%
Pressure	±0.05%
Relative Humidity	±1.0% RH

***Note:** CAL documents shown above are representative of information provided. Actual documents may vary in appearance.

Call OMEGA's Customer Service at

1-800-622-2378®
1-800-622-BEST

www.omega.com e-mail: info@omega.com

Temperature Calibration Services



- ✓ NIST Traceable
- ✓ Always Meet or Exceed ISO10012-1, ANSI/NCSL Z540-1-1994 Standards
- ✓ Fast Yet Precise
- ✓ 5 Levels of Superior-Quality Calibration
- ✓ OMEGA Will Calibrate an Instrument or an Entire System (Probe Connected to Instrument)



For each of the calibration certificates OMEGA issues, we use different standards over varied temperature ranges to attain the highest quality and reliability. The standards we use for temperature calibrations are listed in the table below; the standards that we select for a customer depend on the probe being calibrated. OMEGA meticulously maintains its in-house standards so that our customers get the quickest, most convenient, and highest-quality calibrations available. For those customers wishing to do their own calibrations, some of our standards are available for purchase. Visit omega.com/omegacal to learn more.



OMEGA's benchtop hot point® dry block probe calibrator model CL900A (\$3295) can be used to calibrate a handheld general purpose thermocouple probe and meter.

Probe furnaces in OMEGA's calibration laboratory are used along with NIST-traceable precision instrumentation to perform temperature calibrations renowned for their accuracy.



Visit omega.com/temp-cal for details on our complete line of calibration instruments.

For Calibration Services Call:

1-800-622-2378®
1-800-622-BEST

Calibration Standards Used	Block Calibrator	Liquid Bath		Furnace
		Low Range	High Range	
Temperature Range*	100 to 500°C 212 to 930°F	-30 to 200°C -22 to 176°F	200 to 500°C 176 to 930°F	500 to 1300°C 930 to 2372°F
Min Probe Length	178 mm (7")	76 mm (3")	305 mm (12")	457 mm (18")
Max Probe Diameter	6.35 mm (0.25")	6.35 mm (0.25")	6.35 mm (0.25")	6.35 mm (0.25")
Accuracy	±0.4°C (0.72°F)	±0.2°C (0.36°F)	±0.2°C (0.36°F)	±0.12% rdg

* Note: Range may be limited based on probe type or diameter.

OMEGA can calibrate a probe by itself, an instrument by itself, or a probe connected to an instrument (system calibration). The pricing and temperature ranges listed below apply to most types of equipment; however, our product offering is so broad that you need to check with us for current pricing on a particular calibration. Be aware that there may be inherent limitations in a particular instrument that can restrict the temperature range over which it can be calibrated.



Visit omega.com/thermocouple for the complete selection of thermocouple probes available.

Probe Type	System CAL Probe + Meter	Probe Only	Probe Length Min	Standard Calibration Points for CAL-3															
				Probe Diameter, mm (in)															
				0.81 (0.032)		1.02 (0.040)		1.57 (0.062)		3.18 (0.125)		4.76 (0.188)		6.35 (0.250)					
				°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F	°C	°F
K	Yes	Yes	178 mm (7")	100 200 400	212 392 752	100 200 400	212 392 752	100 200 400	212 392 752	100 200 400	212 392 752	100 200 400	212 392 752	100 200 400	212 392 752	100 200 400	212 392 752	100 200 400	212 392 752
J	Yes	Yes	178 mm (7")	100 150 200	212 302 392	100 150 200	212 302 392	100 200 300	212 392 572	100 200 400	212 392 752	100 200 400	212 392 752	100 200 400	212 392 752	100 200 400	212 392 752	100 200 400	212 392 752
T	Yes	Yes	178 mm (7")	100 150 200	212 302 392	100 150 200	212 302 392	100 150 200	212 302 392	100 200 300	212 392 572	100 200 300	212 392 572	100 200 300	212 392 572	100 200 300	212 392 572	100 200 300	212 392 572
E	Yes	Yes	178 mm (7")	100 150 200	212 302 392	100 150 200	212 302 392	100 200 400	212 392 752	100 200 400	212 392 752	100 200 400	212 392 752	100 200 400	212 392 752	100 200 400	212 392 752	100 200 400	212 392 752
N	Yes	Yes	178 mm (7")	100 200 400	212 392 752	100 200 400	212 392 752	100 200 400	212 392 752	100 200 400	212 392 752	100 200 400	212 392 752	100 200 400	212 392 752	100 200 400	212 392 752	100 200 400	212 392 752
RTD	Yes	Yes	178 mm (7")	—	—	—	—	100 200 400	212 392 752	100 200 400	212 392 752	100 200 400	212 392 752	100 200 400	212 392 752	100 200 400	212 392 752	100 200 400	212 392 752
Thermistor with Meter	Yes	No	76.2 mm (3")	—	—	—	—	0 50 90	32 122 194	0 50 90	32 122 194	0 50 90	32 122 194	0 50 90	32 122 194	0 50 90	32 122 194	0 50 90	32 122 194

Note: CAL-3 and CAL-4 also available on thermocouple wire.
Upper temperature value may be limited by wire insulation.
Note: CAL-3 calibration data is given in °C and °F.

CAL-5 Standard Calibration Points

Thermocouple Calibration	Liquid Nitrogen -198°C (-320°F)	Ice Point 0°C (32°F)	Boiling Point 100°C (212°F)	Tin Melting 232°C (449°F)	Zinc Melting 420°C (787°F)
T	-198°C (-320°F)	0°C (32°F)	100°C (212°F)	232°C (449°F)	—
J K E N	—	0°C (32°F)	100°C (212°F)	232°C (449°F)	420°C (787°F)

Max Calibration Temperature Limits for CAL-4

Probe Type	1/8" Dia. Probe 18 AWG Wire	3/16" Dia. Probe 20 AWG Wire	1/4" Dia. Probe 24 AWG Wire	5/16" Dia. Probe 30 AWG Wire
J	482°C (900°F)	482°C (900°F)	371°C (700°F)	315°C (600°F)
K	982°C (1800°F)	982°C (1800°F)	871°C (1600°F)	760°C (1400°F)
T	287°C (550°F)	260°C (500°F)	204°C (400°F)	148°C (300°F)
E	537°C (1000°F)	537°C (1000°F)	426°C (800°F)	371°C (700°F)

To Order (Specify Calibration Level)

Model No.	CAL-1	CAL-2	CAL-3	CAL-4	CAL-5
Probe Calibrations†					
T/C Probes	\$0	N/A	\$95	\$75 setup + \$25 per point	\$15
RTD Probes	0	N/A	95	\$75 setup + \$35 per point	N/A
System Calibration (probe and meter)*					
T/C and Instrument	N/A	N/A	\$125	\$150 setup + \$25 per point	N/A
RTD or TH and Instrument	N/A	N/A	125	\$150 setup + \$35 per point	N/A

† Probe must meet requirements of calibration standards shown in table on previous page.

* Prices are for new instruments and subject to change without notice. For recalibration, call Customer Service for price. Charges vary depending on the instrument being calibrated.

Note: Because of the large selection of temperature probes, thermocouple wire and instrumentation that OMEGA® offers, the pricing and calibration data points shown above are examples only and do not apply to every probe or system calibration. Contact OMEGA Customer Service for advice before returning any instrument for calibration service.

Ordering Example: CAL-3 (designate this calibration level when NIST traceability is required on the thermocouple probe or probe/instrument system you are purchasing new or when you are returning previously purchased equipment for calibration), \$95 (probe only); \$125 (probe with instrument).

Infrared Temperature Calibration Services

- ✓ All Calibration Standards Used by OMEGA are NIST Traceable
- ✓ Choose System or Sensor-Only Calibrations—No Job is Too Small
- ✓ 4 Calibration Levels
- ✓ Wide Temperature Ranges Covered—to 1648°C (3000°F) and Higher—When Required
- ✓ The Industry's Fastest, Most Reliable Blackbody Calibrations

BB-4A benchtop blackbody calibration source, \$3595, below, shown calibrating as a system the OS1551-A infrared 4-wire transmitter, \$690, and the DP41-B meter, \$595.



OMEGASCOPE® OS523, \$1195, with sighting scope, shown being calibrated using the OMEGA® BB705 high-temperature blackbody calibration source, \$9995. Visit omega.com/blackbody-cal to see our complete line of blackbody calibrators.



OMEGA offers a complete range of infrared calibration services, performed by professionals with years of experience. As a company, our testing and calibration experience spans decades. OMEGA is an industry leader in temperature measurement and laser sighting technologies, with numerous patents and a global presence. Let our knowledge and technology work for you. We maintain an extensive line of high-temperature and low-temperature blackbody calibration standards—all NIST traceable. Call our Customer Service department to arrange your next infrared calibration.



To Order (Specify Calibration Level)

Cal Level	Price	Description
CAL-1	\$0	Statement of conformance (must be requested at time of purchase)
CAL-2*	0	Statement of traceability, no data points (must be requested at time of purchase)
CAL-3-IR	125	Calibration traceable to NIST with 3 data points
CAL-4-IR	125 + 25/PT	Same as CAL-3-IR plus customer-selected data points from -18 to 1199°C (0 to 2190°F)
CAL-3-BB	225	Blackbody calibration traceable to NIST (3 data points)
CAL-4-BB	225 + 25/PT	Same as CAL-3-BB plus customer-selected data points across the calibrator's range

* Not all products are available with NIST traceability.

Note: Because of the large selection of infrared pyrometers and blackbody calibration services that OMEGA offers, the pricing and calibration data points shown above are examples only and do not apply to every pyrometer or blackbody calibration. Contact OMEGA Customer Service before returning any instrument for calibration service.

Ordering Example: CAL-3-IR (designate this calibration level when NIST traceability is required on the infrared pyrometer you are purchasing new or when you are returning previously purchased equipment for calibration), \$125.

For Calibration Services Call:
1-800-622-2378®
1-800-622-BEST

Relative Humidity Calibration Services

- ✓ Accurate, Stable, Temperature-Compensated Standards
- ✓ Traceable to NIST

✓ Expert Technical Staff
 ✓ Fast, Economical Service
- NIST-traceable temperature/humidity chamber calibrates thermo-hygrometers and temperature and humidity products.



OMEGA's highly accurate, temperature-compensated relative humidity calibration standards result in fast, stable, NIST-traceable calibrations. All work is performed by highly trained in-house technicians dedicated to superior-quality, economically priced service. We calibrate most of the relative humidity sensors, meters, controllers, recorders, data loggers, and data acquisition systems that we sell. Contact our Customer Service department to arrange calibration of your equipment.



CTXL-TRH, microprocessor-based, portable, temperature and relative humidity circular chart recorder, \$795. See page S-38 for complete details.

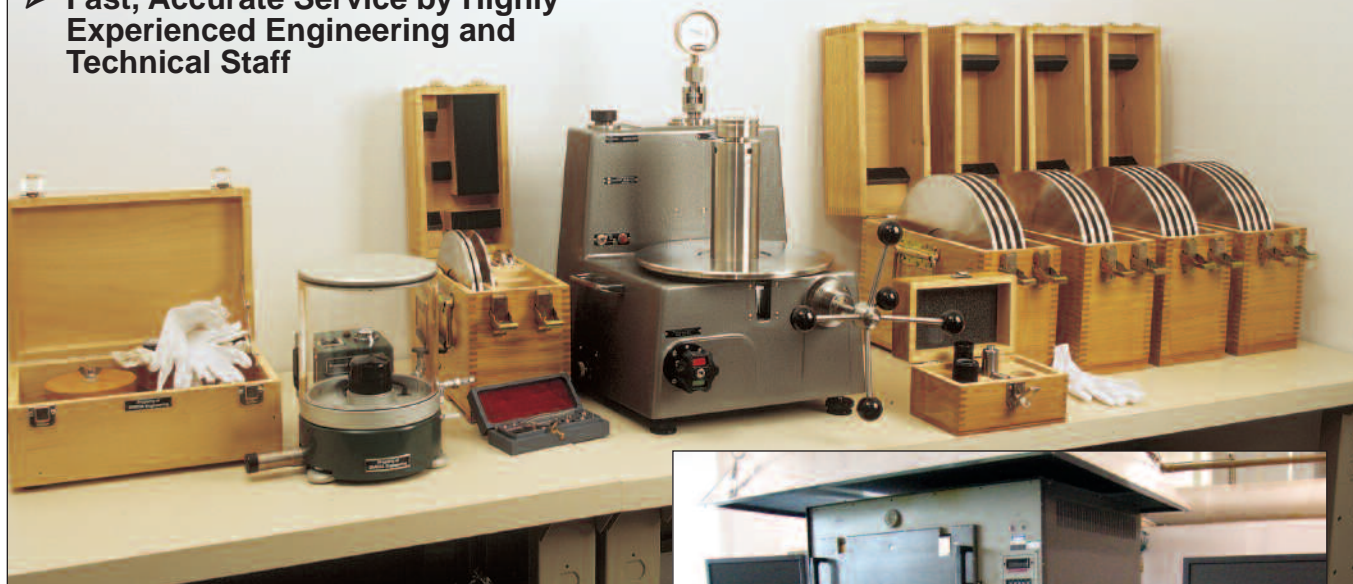
To Order (Specify Calibration Level)		
Cal Level	Price	Description
CAL-1	\$0	Statement of conformance (must be requested at time of purchase)
CAL-2*	0	Statement of traceability, no data points (must be requested at time of purchase)
CAL-3-HU	125	Calibration traceable to NIST with 4 data points across the instrument's range
CAL-4-HU	125 +25/PT	Same as CAL-3-HU plus customer-selected data points from 10 to 90% RH

* Not all products are available with NIST traceability.
Note: Because of the large selection of relative humidity instrumentation OMEGA offers, the pricing and calibration data points shown above are examples only and do not apply to every relative humidity calibration. Contact OMEGA Customer Service before returning any instrument for calibration service.
Ordering Example: CAL-3-HU (designate this calibration level when NIST traceability is required on the relative humidity instrument you are purchasing new or when you are returning previously purchased equipment for calibration), \$125.

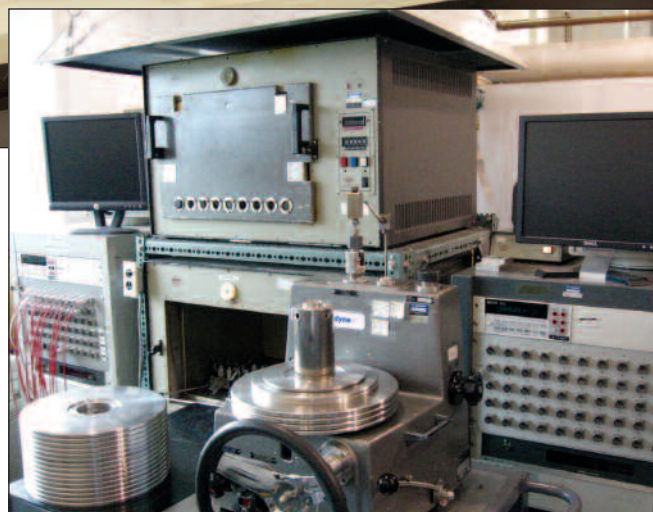
Pressure Calibration Services



- ✓ **NIST-Traceable Standards**
- ✓ **Sensor Calibration, Meter Calibration, and System Calibrations Available**
- ✓ **Fast, Accurate Service by Highly Experienced Engineering and Technical Staff**



OMEGA/OMEGADYNE maintains highly accurate primary deadweight standards that are NIST traceable. These standards are used directly or through secondary transfer standards for pressure calibrations from vacuum to 75,000 psi. OMEGA/OMEGADYNE also offers a wide selection of pressure sensors. Please consult your sales representative.



NIST-traceable low-pressure and high-pressure deadweight testers.

Pressure transducers such as OMEGA® model PX01 (\$700 for model shown) are available with NIST-traceable calibration.



To Order (Specify Calibration Level)

Cal Level	Price	Description
CAL-1	\$0	Statement of conformance (must be requested at time of purchase)
CAL-2*	0	Statement of traceability, no data points (must be requested at time of purchase)
EI-CAL-3-PRESSURE	150	Calibration traceable to NIST with 5 data points (0%, 50%, 100% increasing, 50%, 0% decreasing); specify engineering units and resolution
EI-CAL-4-PRESSURE	150 +25/PT	Customer-selected data points; specify engineering units and resolution
SYSTEM CALIBRATION	225	Calibrate meter and sensor together

* Not all products are available with NIST traceability.

Note: Because of the large selection of load cells and pressure instrumentation OMEGA/OMEGADYNE offers, the pricing and calibration data points shown above are only an example and do not apply to every pressure calibration. Contact OMEGADYNE (1-800-USA-DYNE) or OMEGA Customer Service (1-800-622-BEST) before returning any instrument for calibration service.

Ordering Example: EI-CAL-3-PRESSURE (designate this calibration level when NIST traceability is required on the pressure transducer or when you are returning previously purchased equipment for calibration), \$150.

For Calibration Services Call:
1-800-872-3963®
1-800-USA-DYNE
or
1-800-622-2378®
1-800-622-BEST

Force/Load Calibration Services Provided by OMEGADYNE



- ✓ NIST-Traceable Calibrations:
5, 11, and 21-Point Available
- ✓ Reliable, Accurate Certificates
- ✓ Sensor, Meter, and System
Calibration Available: Tension,
Compression, or Both
- ✓ High-Capacity Deadweight and
Hydraulic Testers to 300,000 lb



"S" type load cell shown with
DP41-S pressure indicator, \$545.

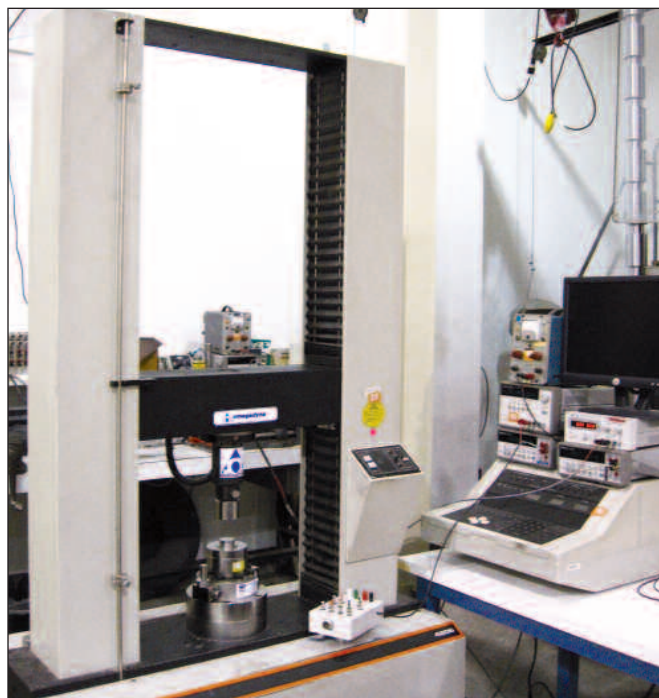


For Calibration Services Call:

1-800-872-3963®
1-800-USA-DYNE

or

1-800-622-2378®
1-800-622-BEST



OMEGADYNE, located in Columbus, Ohio, maintains in-house state-of-the-art NIST-traceable calibration standards for all your load cell calibration needs. Pictured above is a high-capacity deadweight tester (left) and hydraulic tester (right).

To Order (Specify Calibration Level)

Cal Level	Price	Description
CAL-1	\$0	Statement of conformance (must be requested at time of purchase)
CAL-2*	0	Statement of traceability, no data points (must be requested at time of purchase)
EI-CAL-3-FORCE	150	Calibration traceable to NIST with 5 data points (0%, 50%, 100% increasing, 50%, 0% decreasing); specify engineering units and resolution
EI-CAL-4-FORCE	150 +25/PT	Customer-selected data points; specify engineering units and resolution
SYSTEM CALIBRATION	225	Calibrate sensor and meter together
11-POINT	250	11-point (20% increments) NIST traceable calibration
21-POINT	350	21-point (10% increments) NIST traceable calibration

* Not all products are available with NIST traceability

Note: Because of the large selection of load cells and pressure instrumentation OMEGADYNE and OMEGA offer, the pricing and calibration data points shown above are only an example and do not apply to every calibration. Contact OMEGADYNE (1-800-USA-DYNE) or OMEGA Customer Service (1-800-622-BEST) before returning any instrument for calibration service.

Ordering Example: EI-CAL-3-FORCE (designate this calibration level when NIST traceability is required on the load cell or when you are returning previously purchased equipment for calibration), \$150.

Flow Calibration Services



- ✓ Air Velocity Calibrations
- ✓ Vane-Type Anemometers
- ✓ Hot-Wire Anemometers
- ✓ Highly Accurate NIST Comparison Standards
- ✓ In-House 5 x 8 m (15 x 25') Recirculating Wind Tunnel
- ✓ Fast Turnaround Times



OMEGA's laboratory-grade large temperature-controlled recirculating wind tunnel.



WTM-1000, OMEGA's benchtop mini wind tunnel, \$2995, shown with HHF11A, \$315, sold separately. Please visit omega.com/hhf11

For Calibration Services Call:

1-800-622-2378®
1-800-622-BEST

Rugged metal probe with 25 mm (1") dia. vane (included).



HHF141A microprocessor-based handheld air velocity meter, comes complete with 25 mm (1") dia. vane probe, flexible, straight and handle extension rods, 1.5 m (5') cable, 3 "AA" alkaline batteries, hard carrying case and operator's manual, \$795. Visit omega.com/hhf141 for details.

OMEGA maintains a full line of standards for calibrating hot-wire anemometers and large vane-style handheld units. Pictured at the top right is our large wind tunnel, which is fully equipped with chillers, pumps, and condensers to keep the

recirculating air at a constant temperature and flow rate while achieving flow rates from 25 to 9000 AFPM. This large wind tunnel is used for anemometer and vane-type sensor calibration.

To Order (Specify Calibration Level)

Cal Level	Price	Description
CAL-1	\$0	Statement of conformance (must be requested at time of purchase)
CAL-2*	0	Statement of traceability, no data points (must be requested at time of purchase)
CAL-3-FLOW	225	Calibration traceable to NIST with data points
CAL-4-FLOW	225 +25/PT	Same as CAL-3 plus customer-selected data points

* Not all products are available with NIST traceability.

Note: Because of the large selection of flow sensors, meters and instrumentation OMEGA offers, the pricing and calibration data points shown above are only an example and do not apply to every flow calibration. Contact OMEGA Customer Service before returning any instrument for calibration service.

Ordering Example: CAL-3-FLOW (designate this calibration level when NIST traceability is required on the flow sensor or instrumentation when you are returning previously purchased equipment for recalibration), **\$225. Note:** To request NIST-traceable calibration on new flow products, add suffix "-NIST" to the model number at time of purchase.