temperature

JOFRA™

CALRIGHT INSTRUMENTS
The Right Source For Your Test & Measurement Needs

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Advanced Temperature Calibrator

Model ATC-125

Patented !

The JOFRA ATC-125 ultra cooler is the first dry-block calibrator on the market offering the widest temperature range ever for cooling dry-blocks from 125°C down to -90°C!

The unique free piston stirling cooler technology sets new standards for optimum temperature calibrations in frozen and deep frozen applicatons.

The JOFRA ATC-125 ultra cooler features a unique technology for optimum performance and superior temperature homogeneity throughout the block at very low temperatures. The ATC-125 has a performance equivalent to a liquid temperature bath and features the widest temperature range for any cooling dry-block on the market today.

The ATC-125 ultra cooler calibrator may be used to perform fully automatic calibration routines without using an external computer. It is also possible to use the computer for full upload and download capabilities. The ATC-125 may also be supplied with inputs for external reference sensors and for sensors-under-test. All ATC calibrators feature RS232 serial communication and the standard delivery also includes the JOFRACAL calibration PC software.

The ATC-125 ultra cooler is part of a serie of calibrators, that includes the ATC-140 (-20 to 140°C) and the ATC-250 (28 to 250°C) available as liquid bath or large diameter dry-block calibrators, and the ATC-156, ATC-157, ATC-320 and ATC-650 dry-block calibarators covering temperature ranges between -45°C and 650°C.

Wide temperature range

ATC-125 ultra cooler:
-90°C to 125°C / -130°F to 257°F

Patented technology

Patented cutting edge technology has been implemented to perform a unique combination of calibrating vary low temperatures and at the same time perform a very large calibration span of 215ºC / 420ºF.
Patent No. DK 176506

Portable calibration at low temperature

State of the art cooling technology ensures energy efficiency, environmental friendliness and portable calibration

High accuracy

Using the internal reference or the external reference probe. 4-wire True-Ohm-Measurement technology is used

Improved temperature homogeneity

Unique dual-zone block ensures good temperature homogeneity in the critical calibration zone

Cost effective calibration system

Stand-alone operation eliminates the need for secondary equipment and PC. Universal inputs handle multiple type temperature sensors

Timesaving features

Up- and download complete calibration tasks. Auto-stepping, switch testing and many more features make the daily use smooth and fast

Documentation made easy

RS232 communication and JOFRACAL calibration software are included in the standard delivery

Complete marine program

Part of a complete program of marine approved temperature, pressure and signal calibrators; including temperature sensors

ISO 9001 Manufacturer

Specification Sheet, SS-ATC125

AMETEK®
CALIBRATION INSTRUMENTS

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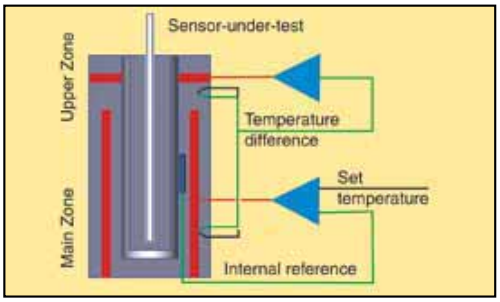
Unique temperature performance

The ATC series of calibrators provide precision tempera - ture calibration of sensors; whatever the type or format. This is accomplished through an innovative dual-zone technology.

The JOFRA ATC-125 features dual-zone technology. Each zone is controlled for precision temperature calibration. The homogeneity in the lower part is close to that of a laboratory liquid bath. The lower zone ensures optimum temperature distribution throughout the entire calibration zone. The upper zone compensates for heat loss from the sensor-under-test.



Efficient cooling techniques

The ATC-125 with both heating and cooling capabilities features the FPSC (Free piston stirling cooler) as cooling source.

The FPSC is a Stirling heat pump that uses a small amount helium gas as a heat transport medium, instead of standard refrigerants. The FPSC has an advantage, over traditional cooling systems, both in energy efficiency and environmental friendliness. These advantages are accom - plished using state of the art technology and by virtue of being Freon, CFC and HFC free.

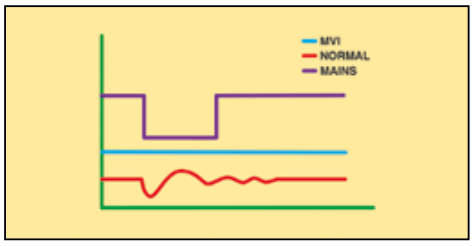
The FPSC has two major moving parts (piston and dis - placer) that oscillate in a linear motion along the same axis within a single cylinder which is installed in a stain - less steel casing. The piston repeatedly compresses and expands the helium gas to cool the tip (cold head) of the extended part of the casing. The FPSC can be used to cool an object down to a temperature between -50°C and -100°C at an ambient temperature condition of 23°C.

The FPSC has a high efficiency. It can be as much as 6 times higher than thermoelectric (Peltier) coolers.

MVI - Improved temperature stability

MVI stands for "Mains power Variance Immunity".

Unstable mains power supplies are a major contributor to on-site calibration inaccuracies. Traditional temperature calibrators often become unstable in production environ - ments where large electrical motors, heating elements, and other devices are periodically cycled on or off. The cycling of supply power can cause the temperature regu - lator to perform inconsistently leading to both inaccurate readings and unstable temperatures.



The JOFRA ATC-125 calibrator employ the MVI by running on stabilized DC voltage, thus avoiding any stability prob - lems (MVI).

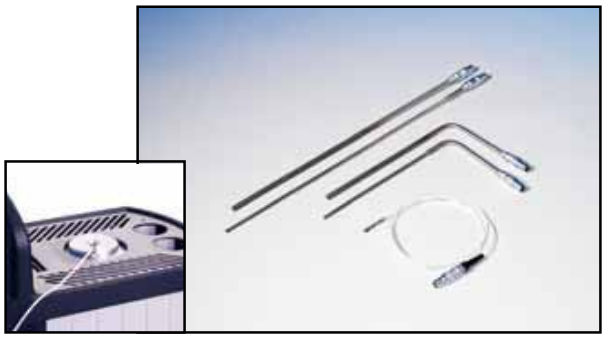
Highest accuracy (model B only)

ATC series calibrators may be supplied with a built-in ref - erence thermometer for use with an external probe. This feature allows one instrument to provide the freedom and flexibility to perform calibrations at the process site while maintaining a high accuracy.

A special 90° angled external reference sensor has been designed to accommodate sensors with a transmitter head, top connector or similar arrangement.

The user can decide whether to read the built-in reference sensor or the more accurate external reference sensor from the calibrator's large, easy-to-read LCD display. The external sensor and the internal sensor are independent of one another. Downloading of reference sensor linearization is done via a personal computer.

Please find more information about JOFRA STS reference sensors in specification sheet: SS-CP-2290 at www.jofra.com.



SET-Follows-TRUE (model B only)

Available on B models only, the "SET-Follows TRUE" makes the instrument tune in until the temperature of the external reference "TRUE" meets the desired "SET" temperature. This is used when it is critical that the tem - perature of the calibration zone matches the desired tem - perature when measured with accurate external reference sensors.

This feature is ideal when calibrating gas correctors or other custody transfer applications. It is also extremely useful to calculation procedures.

Reading of sensor-under-test (model B only)

The ATC series model B is equipped with built-in convert - ers (inputs) that enables measurement of virtually any type of temperature sensor including:

- thermostats
- resistance thermometers (RTD)
- thermocouples (TC)
- transmitters
- milliamps (mA)
- voltage (V)

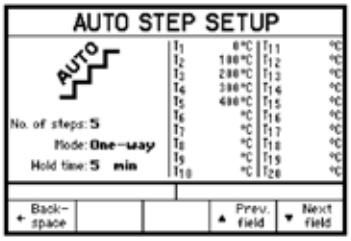
The ATC calibrators can be user-programmed for com - pletely automated temperature calibrations. Once the unit is programmed, the instrument operates itself by perform - ing the configured calibration routine. All calibration data is stored and available for uploading and generating exact calibration certificates or reports.

Switch test (model B only)

Users may perform a thermoswitch test and find "Open", "Closed" and the hysteresis (deadband) automatically. The instrument retains the last five tests.

Auto-stepping

Up to 20 different temperature steps may be programmed including the hold time for each step. Upon completion of an auto step routine, the user can easily read the results for the sensor-under-test. Up to five (5) auto step results are stored.



Easy-to-use, intuitive operation

All instrument settings can be performed from the front panel. The heat source is positioned away from the panel which helps protect the operator.

The ATC keyboard is equipped with five, positive feedback function keys. They correspond to the text in the display and change functionality based on instrument operations. There are also dedicated function keys with permanent functions.

The easy-to-read, backlit display is large with a high contrast that is readible even in high ambient light conditions. The display is easily read from all angles and from a distance without parallax problems. The display also fea - tures icons which help identifying instrument conditions and opera - tional steps, making it more intui - tive to work with.

Set temperature

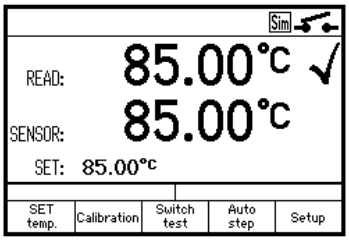
The "Set temperature" feature allows the user to set the exact desired temperature with a resolution of 0.01°.

Enhanced stability

A stability indicator shows when the ATC calibrator has reached the desired temperature and is stable. The user may change the stability criteria, external reference and the sensor-under-test quickly and simply. The stability criteria is the user's security for a correct calibration. A count-down timer is displayed next to the temperature read-out.

Instrument setups

The ATC series allows the user to store up to nine (9) complete instrument setups. You may store all sorts of information including temperature units, stability criteria, use of external reference sensor, resolution, sensor-under-test (SUT), conversion to temperature, display contrast, etc. The setup may be recalled at any time.



Maximum temperature

From the setup menu, the user can select the maximum temperature limit for the calibrator. This function prevents damage to the sensor-under-test caused by the applica - tion of excessive temperatures. The feature also aids in re - ducing drift resulting from extended periods of exposures to high temperatures. This feature can be locked with an access code.

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JOFRA™

JOFRACAL CALIBRATION SOFTWARE

JOFRACAL calibration software ensures easy calibration of RTD´s, thermocouples, transmitters, thermoswithes, pressure gauges and pressure switches. JOFRACAL can be used with JOFRA DPC-500, APC, CPC and IPI pressure calibrators, all JOFRA temperature calibrators, as well as JOFRA AMC900, ASC300 multi signal calibrator and ASM-800 signal multi scanner.

JOFRACAL calibration software may also be used for manual calibrations, as it can be set up to accept manual entry of calibration data together with other liquid baths, ice points or dry-block heat sources.

The calibration data collected may be stored on a PC for later recall or analysis. The ATC calibrator stores the calibration procedure and may be taken out to the process site without using a personal computer.

This allows the ATC calibrator to:

- Operate as a stand-alone instrument, using advanced calibration routines without the assistance of a personal computer on site;
- Prevent unauthorized changes to a calibration routine. Personnel who are not authorized to alter a calibration routine cannot do so.

Once all calibrations are completed, the data may be uploaded to the JOFRACAL calibration software for post-processing and printing of certificates. The calibration data collected may be stored on the personal computer for later recall or analysis.

The JOFRACAL temperature calibration software may be donwloaded free of charge from our web-page www.jofra.com.

Please also see more about JOFRACAL calibration software in specification sheet SS-CP-2510, which can be found at www.jofra.com

As found/as left (model B only)

The JOFRA ATC series calibrator automatically handles "As Found/As Left" calibrations. The calibrator stores both results. The first performed calibration is the "As found" and the last performed calibration is the "As left", regardless of the number of calibrations/adjustments that may have been made in between.

SYNC output

An output is located directly on the front of the ATC calibrator. This output signals when the instrument is stable and may be used with ancillary devices such as video recorders, digital cameras or as an input to a data logging device. The SYNC output may be useful for automating and documenting your calibrations when calibrating external reading devices.

Calibration (model B only)

Users may perform or read the results of the calibration tasks directly on the instrument. When calibrating an indicating device, users may key in the results during or after the test. Using the "Calibration info" function, the user may view the complete calibration task, including the "Scenario" before the calibration takes place.

Calibration of up to 24 sensors with JOFRA ASM

Using the JOFRA ATC series together with the ASM Advanced Signal Multi-scanner offers a great time-saving automatic solution to calibrate multiple temperature sensors at the same time. The ASM series is an eight channel scanner controlled by the JOFRACAL software on a PC. Up to 3 ASM units can be stacked to calibrate up to 24 sensors at the same time. It can handle signals from 2-, 3- and 4 wire RTD's, TC's, transmitters, thermisters, temperature switches and voltage.

Please also see more in specification sheet SS-CP-2360, which can be found at www.jofra.com

JOFRACAL software

Minimum hardware requirements for JOFRACAL calibration software.

- INTEL ™ 486 processor
- (PENTIUM ™ 800 MHz recommended)
- 32 MB RAM (64 MB recommended)
- 80 MB free disk space on hard disk prior to installation
- Standard VGA (800 x 600, 16 colors) compatible screen
- (1024 x 786, 256 colors recommended)
- CD-ROM drive for installation of the program
- 1 free RS232 serial port

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FUNCTIONAL COMPARISON

ATC series		ATC-125 A	ATC-125 B	ATC-140 A	ATC-140 B	ATC-156 A	ATC-156 B	ATC-157 A	ATC-157 B	ATC-250 A	ATC-250 B	ATC-320 A	ATC-320 B	ATC-650 A	ATC-650 B
Temperature range @ ambient 23°C / 73°F															
-90 to 125°C	-130 to 257°F	X	X												
-20 to 140°C	-4 to 284°F			X	X										
-24 to 155°C	-11 to 311°F					X	X								
-45 to 155°C	-49 to 311°F							X	X						
28 to 250°C	82 to 482°F									X	X				
33 to 320°C	91 to 608°F											X	X		
33 to 650°C	91 to 1202°F													X	X
Temperature stability															
±0.01°C	±0.018°F					S	S	S	S			S	S		
±0.02°C	±0.036°F			X	X					X	X			S	S
±0.03°C	±0.054°F	X	X												
Accuracy incl. external STS reference sensor															
±0.04°C	±0.07°F				X [1]		X [1]		X [1]						
±0.06°C	±0.11°F	X	X												
±0.07°C	±0.13°F										X [1]		X [1]		
±0.11°C	±0.2°F														X [1]
Accuracy with internal reference sensor															
±0.10°C	±0.18°F					S	S								
±0.13°C	±0.23°F							S	S						
±0.18°C	±0.32°F			S	S										
±0.20°C	±0.36°F											S	S		
±0.28°C	±0.50°F									S	S				
±0.30°C	±0.54°F	X	X												
±0.35°C	±0.63°F													S	S
Immersion depth															
185 mm	7.3 in	X	X												
180 mm	7.1 in			X [2]	X [2]										
160 mm	6.3 in					X	X	X	X						
150 mm	5.9 in			X [3]	X [3]					X [4]	X	X	X	X	X
Insertion tube diameter															
63.5 mm	2.5 in			X	X					X	X				
30 mm	1.2 in	X	X			X	X					X	X	X	X
20 mm	0.8 in							X	X						

	Model A	Model B
Dual-zone heating/cooling block	•	•
MVI - Mains Variance Immunity (or similar)	•	•
Stability indicator	•	•
Automatic step function	•	•
JOFRACAL Calibration software included as standard	•	•
SYNC output (for external recording device)	•	•
Display resolution 0.01°	•	•
Programmable max. temperature	•	•
Input for RTD, TC, V, mA		•
4-20 mA transmitter input incl. 24 VDC supply		•
All inputs scalable to temperature		•
Automatic switch test (open, close and hysteresis)		•
External precision reference probe input		•
Download of calibration work orders from PC		•
Upload of calibration results (as found & as left)		•
"SET" follows "TRUE"		•

JOFRA ATC-156/157/320/650

For a wider product description of the ATC-156/157/320/650 please see spec. sheet SS-CP-2285, at www.jofra.com

JOFRA ATC-140/250

For a wider product description of the ATC-140 and ATC-250 please see spec. sheet SS-CP-2284 at www.jofra.com

X = Delivered as standard

S = Improved specifications (from October 01, 2006)

1 Using an external STS reference sensor connected to the reference probe input
2 Immersion depth for ATC-140 as dry-block
3 Immersion depth for ATC-140 as liquid bath
4 Immersion depth for ATC-250 as dry-block and as liquid bath

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FUNCTIONAL SPECIFICATIONS

Mains specifications

ATC-125 ..... 115V(90-127) / 230V(180-254)
Frequency, non US deliveries ..... 50 Hz ±5, 60 Hz ±5
Frequency, US deliveries ..... 60 Hz ±5
Power consumption (max.) ATC-125 ..... 300 VA

Temperature range

ATC-125 Maximum ..... 125°C / 257°F
Minimum @ ambient temp. 0°C / 32°F ..... -90°C / -130°F
Minimum @ ambient temp. 23°C / 73°F ..... -90°C / -130°F
Minimum @ ambient temp. 40°C / 104°F ..... -73°C / -99°F

Stability

ATC-125 ..... ±0.03°C / ±0.054°F
Measured after the stability indicator has been on for 10 minutes.
Measuring time is 30 minutes.
Set-temperature = ambient temperature ±5°C/9°F: ±0.04°C/0.07F

Time to stability (approximate)

ATC-125 ..... 10 minutes

Accuracy (model B) with external STS reference sensor

ATC-125 B ..... ±0.06°C / ±0.11°F
12 month period. Relative to reference standard. Specifications by use of the external JOFRA STS-100 reference sensor (see specification sheet SS-CP-2290, which can be found at www.jofra.com)

Accuracy (model A+B) with internal reference sensor

ATC-125 A+B ..... ±0.3°C / ±0.54°F

Resolution (user-selectable)

All temperatures ..... 1° or 0.1° or 0.01°

Radial homogeneity (difference between holes)

ATC-125 ..... 0.01°C / 0.02°F

Immersion depth including insulation plug

ATC-125 ..... 185 mm / 7.3 in

Well diameter

ATC-125 ..... 30 mm / 1.18 in

Heating time

-90 to 125°C / -130 to 257°F ..... 30 minutes
23 to 125°C / 73 to 257°F ..... 15 minutes

Cooling time

125 to 100°C / 257 to 212°F ..... 12 minutes
100 to 23°C / 212 to 73°F ..... 28 minutes
23 to -80°C / 73 to -112°F ..... 75 minutes
-80 to -90°C / -112 to -130°F ..... 30 minutes

SYNC output (dry contact)

Switching voltage ..... Maximum 30 VDC
Switching current ..... Maximum 100 mA

INPUT SPEC'S (B MODELS ONLY)

All input specifications apply to the calibrator's dry-block running at the respective temperature (stable plus an additional 20 minutes period). Where the input measuring range is out of the calibrator's range, the SET temperature is either MIN. or MAX.

Transmitter supply

Output voltage ..... 24VDC +10%
Output current ..... Maximum 25 mA

Transmitter input mA

Range ..... 0 to 24 mA
Accuracy (12 months) ..... ±(0.01% Rdg. ±0.015% F.S.)

Voltage input VDC

Range: ..... 0 to 12 VDC
Accuracy (12 months) ..... ±(0.005% Rdg. ±0.015% F.S.)

Switch input

Switch dry contacts
Test voltage ..... Maximum 5 VDC
Test current ..... Maximum 2.5 mA

RTD reference input (B models only)

Type ..... 4-wire RTD with true ohm measurements [1)]
F.S. (Full Scale) ..... 350 ohm
Accuracy (12 months) ..... ±(0.001% rdg. + 0.002% F.S.)

RTD Type	Temperature		12 months	
	°C	°F	°C	°F
Pt100 reference	-90	-130	±0.019	±0.034
	-50	-58	±0.020	±0.036
	0	32	±0.021	±0.038
	155	311	±0.023	±0.041
	225	437	±0.024	±0.043
	320	608	±0.026	±0.047
	425	797	±0.028	±0.050
	650	1202	±0.032	±0.058
	700	1292	±0.034	±0.061

Note 1: True ohm measurements are an effective method to eliminate errors from induced thermoelectrical voltages

RTD input

Type of RTD 2-wire
F.S. (range) ..... 350 ohm or 2900 ohm
Accuracy (12 months) .....
..... ±(0.005% rdg. + 0.005% F.S. + 50 mΩ)
Type of RTD ..... 3- or 4-wire
F.S. (range) ..... 350 ohm or 2900 ohm
Accuracy (12 months) ..... ±(0.005% rdg. + 0.005% F.S.)

RTD Type	Temperature		12 months	
	°C	°F	°C	°F
Pt1000	-90	-130	±0.043	±0.077
	-50	-58	±0.046	±0.083
	0	32	±0.050	±0.090
	155	311	±0.061	±0.110
	320	608	±0.071	±0.127
	500	932	±0.087	±0.157
Pt500	-90	-130	±0.079	±0.142
	-50	-58	±0.083	±0.149
	0	32	±0.087	±0.157
	155	311	±0.100	±0.180
	320	608	±0.111	±0.200
	500	932	±0.130	±0.235
Pt100	-90	-130	±0.051	±0.092
	-50	-58	±0.054	±0.097
	0	32	±0.058	±0.104
	155	311	±0.069	±0.124
	320	608	±0.079	±0.142
	650	1202	±0.106	±0.191
	700	1292	±0.112	±0.202
Pt50 (only in Russian versions)	-90	-130	±0.095	±0.171
	-50	-58	±0.098	±0.176
	0	32	±0.103	±0.185
	155	311	±0.116	±0.209
	320	608	±0.128	±0.230
	650	1202	±0.161	±0.290
	700	1292	±0.169	±0.303
Pt10	-50	-58	±0.453	±0.815
	0	32	±0.462	±0.831
	155	311	±0.495	±0.891
	320	608	±0.524	±0.943
	650	1202	±0.610	±1.098
	700	1292	±0.620	±1.116
Cu100	-90	-130	±0.047	±0.085
	-50	-58	±0.050	±0.090
	0	32	±0.052	±0.094
	150	302	±0.060	±0.108
Cu50	-90	-130	±0.087	±0.157
	-50	-58	±0.090	±0.162
	0	32	±0.093	±0.167
	150	302	±0.100	±0.180

If automatic cold junction compensation is used, the specification for CJ is ±0.40°C (±0.72°F).

Thermocouple input

Range ..... 78 mV
F.S. (Full Scale) ..... 78 mV
Accuracy (12 months) ..... ±(0.01% rdg. + 0.005% F.S.)

TC Type	Temperature		12 months	
	°C	°F	°C	°F
E	-90	-130	±0.10	±0.18
	-50	-58	±0.08	±0.14
	0	32	±0.07	±0.13
	155	311	±0.07	±0.13
	320	608	±0.08	±0.14
	650	1202	±0.11	±0.20
	1000	1832	±0.15	±0.28
J	-90	-130	±0.10	±0.18
	-50	-58	±0.10	±0.18
	0	32	±0.08	±0.14
	155	311	±0.08	±0.14
	320	608	±0.10	±0.18
	650	1202	±0.12	±0.22
	1200	2192	±0.19	±0.34
K	-90	-130	±0.13	±0.24
	-50	-58	±0.11	±0.20
	0	32	±0.10	±0.17
	155	311	±0.11	±0.20
	320	608	±0.12	±0.22
	650	1202	±0.16	±0.28
	1372	2502	±0.28	±0.50
L	-50	-58	±0.08	±0.14
	0	32	±0.08	±0.14
	155	311	±0.08	±0.14
	320	608	±0.10	±0.18
	600	1112	±0.13	±0.23
	900	1652	±0.14	±0.25
T	-90	-130	±0.14	±0.25
	-50	-58	±0.12	±0.22
	0	32	±0.10	±0.18
	155	311	±0.09	±0.16
	320	608	±0.09	±0.16
	400	752	±0.10	±0.18
R	-50	-58	±1.31	±2.35
	0	32	±0.78	±1.40
	155	311	±0.50	±0.90
	320	608	±0.42	±0.75
	650	1202	±0.41	±0.74
	1760	3200	±0.50	±0.90
S	-50	-58	±0.98	±1.77
	0	32	±0.78	±1.40
	155	311	±0.50	±0.90
	320	608	±0.46	±0.83
	650	1202	±0.45	±0.81
	1768	3214	±0.52	±0.94
B	250	482	±1.57	±2.83
	320	608	±0.99	±1.78
	650	1202	±0.69	±1.23
	1820	3308	±0.48	±0.86
N	-90	-130	±0.20	±0.35
	-50	-58	±0.16	±0.29
	0	32	±0.15	±0.27
	155	311	±0.14	±0.25
	320	608	±0.14	±0.25
	650	1202	±0.16	±0.28
	800	1472	±0.17	±0.31
XK (only in Russian versions)	-90	-130	±0.09	±0.16
	-50	-58	±0.07	±0.13
	0	32	±0.06	±0.11
	155	311	±0.06	±0.11
	320	608	±0.07	±0.13
	650	1202	±0.11	±0.19
	800	1472	±0.12	±0.22
U	-90	-130	±0.16	±0.29
	-50	-58	±0.12	±0.21
	0	32	±0.10	±0.18
	155	311	±0.09	±0.16
	320	608	±0.09	±0.18
	600	1112	±0.10	±0.18

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PHYSICAL SPECIFICATIONS

Instrument dimensions (L x W x H)

ATC-125 ..... 506 x 156 x 449 mm / 19.92 x 6.14 x 17.68 in

Instrument weight

ATC-125 ..... 18,8 kg / 41.45 lb

Insert dimensions

ATC-125 outer diameter ..... 29,7 mm/1.17 in
ATC-125 inner diameter (multi hole) ..... 25,9 mm/1.02 in
ATC-125 inner diameter (single hole) ..... 22,0 mm/0.87 in
ATC-125 length ..... 150 mm/5.91 in

Weight of non-drilled insert (approximate)

ATC-125 ..... 290 g / 10.2 oz

Shipping (including carrying case)

ATC-125 ..... 36.9 kg / 81.2 lb
Size: L x W x H 690 x 640 x 420 mm / 27.2 x 25.2 x 16.2 in

Miscellaneous

Serial data interface ..... RS232 (9-pin male)
Operating temperature ..... 0 to 40°C / 32 to 104°F
Storage temperature ..... -20 to 50°C / -4 to 122°F
Humidity ..... 0 to 90% RH
Protection class IP-10
DNV Marine Approval, Certificate no A-10384

STANDARD DELIVERY

Carrying case included!

- ATC dry-block calibrator (user specified)
- Carrying case
- Mains power cable (user specified)
- Traceable certificate - temperature performance
- Insert (user specified)
- Set of matching insulation plugs
- Set of rubber cones for insulation plug
- Tool for insertion tubes
- RS232 cable
- JOFRACAL calibration software
- AMETRIM-ATC software to adjust the ATC series
- User manual
- Reference manual (English)

Model B instruments contain the following extra items:

- Test cables (2 x red, 2 x black)
- Traceable certificate - input performance

Carrying case

The protective carrying case ensures safe trans - portation and storage of the instrument and all associated equipment. The carrying case has built-in wheels and a handle, which ensures an easy and comfort - able transportation of the instrument.

ACCESSORIES

105496	Thermal Protection Shield
125068	Support rod set for sensors, 2 gribs, 2 fixtures
125066	Extra fixture for sensor grib
125067	Extra sensor grib
122771	Mini-Jack Connector for stable relay Output
120516	Thermocouple Male Plug - Type J - Black
120517	Thermocouple Male Plug - Type K - Yellow
120514	Thermocouple Male Plug - Type N - Orange
120515	Thermocouple Male Plug - Type T - Blue
120518	Thermocouple Male Plug - Type R / S - Green
120519	Thermocouple Male Plug - Type Cu-Cu - White
122801	Cable 0.5 m with LEMO/LEMO connectors
122823	2 m Cable Female Banana to LEMO connection
125002	Edge port Converter with 4 pcs of RS232 ports
126234	Set of 3 pcs insulation plugs / 4mm ref. Hole * Hole size 6, 10 and 15 mm
126240	Set of 3 pcs insulation plugs / 1/4 in ref. Hole * Hole size 6, 10 and 15 mm

Support rod set (Optional) - 125068

Support rod for sensors to be mounted on all JOFRA dry-block calibrators. Holds the sensor under test in their position, while calibrating. Includes 2 sensors grips and 2 fixtures for sensor gribs.

Set of rubber cones

When the ATC-125 is set to a sub-zero temperature it is necessary to use an insulation plug on top of the well. If some of the holes in the insulation plug are not used, we recom - mend use of the rubber cones, which will minimize the amount of water con - densation in the well.

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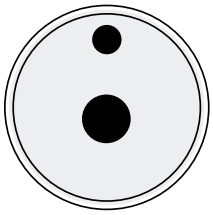
PREDRILLED INSERTS FOR ATC-125 - 4 MM REFERENCE HOLE

JOFRA dry-block insert compatibility and materials:
ATC-125 = ATC-155 = ATC-156 (made of aluminum)
All specifications on hole sizes are referring to the outer diameter (OD) of the sensor-under-test.
The correct clearance size is applied in all predrilled inserts.

Spare part no. for predrilled inserts with 4 mm reference hole		
Probe diameter	Insert code [1]	Insert
3 mm	003	105623
4 mm	004	105625
5 mm	005	105627
6 mm	006	105629
7 mm	007	105631
8 mm	008	105633
9 mm	009	105635
10 mm	010	105637
11 mm	011	105639
12 mm	012	105641
13 mm	013	105643
14 mm	014	105645
15 mm	015	105647
Package of the above inserts		124697
Set of insulation plugs for 4 mm reference hole		126234

4 mm
Reference sensor



(ATC-125)

Spare part no. for predrilled inserts with 4 mm reference hole		
Probe diameter	Insert code [1]	Inserts
1/8 in	125	105677
3/16 in	187	105679
1/4 in	250	105681
5/16 in	312	105683
3/8 in	375	105685
7/16 in	437	105687
1/2 in	500	105689
9/16 in	562	105691
Package of the above inserts		124698
Set of insulation plugs for 4 mm reference hole		126234

Note: All inserts (metric and inches) are supplied with a hole for the 4 mm OD reference probe.

Note: Remember to use matching insulation plugs.

Note 1: Use the insert code, when ordered as the standard insert together with a new calibrator.

ATC-125 B and ATC-320 B

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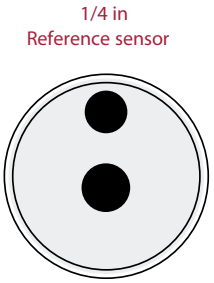
PREDRILLED INSERTS FOR ATC-125 - 1/4 IN REFERENCE HOLE

Spare part no. for predrilled inserts with 1/4 in (6.35 mm) reference hole		
Probe diameter	Insert code [1]	Insert
3 mm	803	125260
4 mm	804	125262
5 mm	805	125264
6 mm	806	125266
7 mm	807	125268
8 mm	808	125270
9 mm	809	125272
10 mm	810	125274
11 mm	811	125278
12 mm	812	125280
13 mm	813	125282
14 mm	814	125284
15 mm	815	125286
Package of the above inserts		125389
Set of insulation plugs for 1/4 in (6.35 mm) reference hole		126240



(ATC-125 A/B)

Spare part no. for predrilled inserts with 1/4 in (6.35 mm) reference hole		
Probe diameter	Insert code [1]	Insert
1/8 in	901	125297
3/16 in	902	125299
1/4 in	903	125301
5/16 in	904	125304
3/8 in	905	125306
7/16 in	906	125308
1/2 in	907	125310
9/16 in	908	125312
Package of the above inserts		125392
Set of insulation plugs for 1/4 in (6.35 mm) reference hole		126240

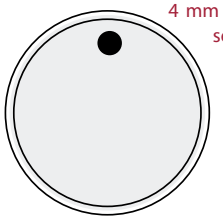
Note: All inserts (metric and inches) are supplied with a hole for the 1/4 in OD reference probe.

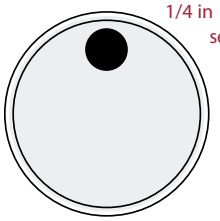
Note: Remember to use matching insulation plugs.

Note 1: Use the insert code, when ordered as the standard insert together with a new calibrator.

UNDRILLED INSERTS FOR ATC SERIES

	Insert
5-pack, undrilled inserts	122720
5-pack, undrilled inserts with a 4 mm hole for the reference probe	122722
5-pack, undrilled inserts with a 1/4 in hole for the reference probe	125288
Undrilled insulation plugs	126040





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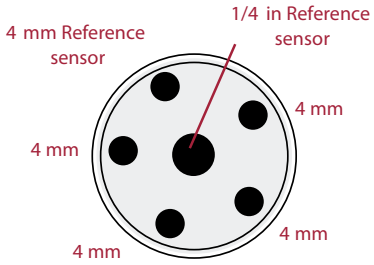
MULTI-HOLE INSERTS FOR ATC-125 - METRIC (MM)

Spare part no. for multi-hole inserts - metric (mm)	
Insert code [1]	Insert
M01	126272
M02	126273
M03	126274
M04	126275

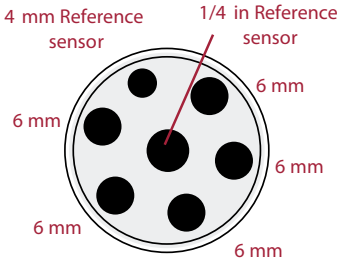
Note: All multi-hole inserts (metric and inches) for ATC-125 are supplied with a matching insulation plug.

Note: Remember to use matching insulation plugs.

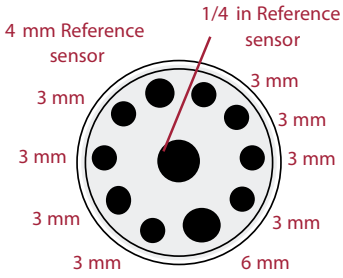
Note 1: Use the insert code, when ordered as the standard insert together with a new calibrator.



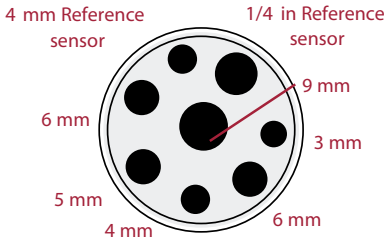
Multi-hole M01
(ATC-125 A/B)



Multi-hole M02
(ATC-125 A/B)



Multi-hole M03
(ATC-125 A/B)



Multi-hole M04
(ATC-125 A/B)

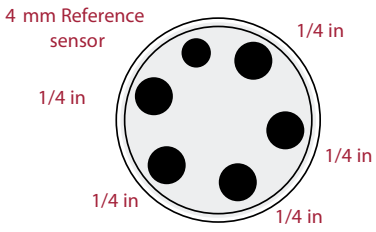
MULTI-HOLE INSERTS FOR ATC-125 - IMPERIAL (INCH)

Spare part no. for multi-hole inserts - imperial (inch)	
Insert code [1]	Insert
M05	126276
M06	126277

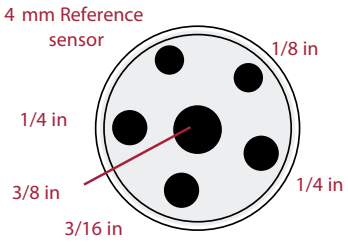
Note: All multi-hole inserts (metric and inches) for ATC-125 are supplied with a matching insulation plug.

Note: Remember to use matching insulation plugs.

Note 1: Use the insert code, when ordered as the standard insert together with a new calibrator.



Multi-hole M05
(ATC-125 A/B)



Multi-hole M06
(ATC-125 A/B)

CALRIGHT INSTRUMENTS
The Right Source For Your Test & Measurement Needs

2222 Verus Street Suite C San Diego CA 92154 USA
Toll Free: 866.363.6634 Tel: 619.429.4545 Fax: 619.374.7012
Email: sales@calright.com http://www.calright.com

ORDERING INFORMATION

Order number							Description
							Base model number
ATC125							ATC-125 series, -90 to 125°C (-130 to 257°F) including carrying case
							Model version
	A						Basic model (no sensor-under-test or reference probe input)
	B						Including sensor-under-test and reference probe input
							Power supply (US deliveries 60 Hz only)
		115					115VAC
		230					230VAC
							Mains power cable type
			A				European, 230V,
			B				USA/CANADA, 115V
			C				UK, 240V
			D				South Africa, 220V
			E				Italy, 220V
			F				Australia, 240V
			G				Denmark, 230V
			H				Switzerland, 220V
			I				Israel, 230V
							Insert type and size
				XXX			1 x Insert is included in the standard delivery (please see the previous insert pages for the right insert codes)
							Calibration certificate
					F		NPL Traceable temperature certificate (standard for Europe, Asia, Australia and Africa)
					G		NIST traceable temperature certificate (standard for Americas)
					H		Accredited certificate (optional)
							Options
						R	4 mm 90° angled STS-100 reference probe with accredited certificate in temperature range: -90°C to 125°C / -130°F to 257°F
						X	No option used
ATC125B230AM01FX							Sample order number JOFRA ATC-125 B including carrying case, standard accessories, 230VAC, European power cord, multihole insert type M01, and NPL traceable temperature certificate

Carrying case included in standard delivery

AMETEK Calibration Instruments
is one of the world's leading manufacturers and developers of calibration instruments for temperature, pressure and process signals as well as for temperature sensors both from a commercial and a technological point of view.

JOFRA Temperature Instruments
Portable precision thermometers. Dry-block and liquid bath calibrators: 5 series, with more than 25 models and temperature ranges from -90° to 1205°C / -130° to 2200°F. All featuring speed, portability, accuracy and advanced documenting functions with JOFRACAL calibration software.

JOFRA Pressure Instruments
Convenient electronic systems ranging from -25 mbar to 1000 bar (0.4 to 15,000 psi) - multiple choices of pressure ranges, pumps and accuracies, fully temperature-compensated for problem-free and accurate field use.

JOFRA Signal Instruments
Process signal measurement and simulation for easy control loop calibration and measurement tasks - from handheld field instruments to laboratory reference level bench top instruments.

JOFRA / JF Marine Instruments
A complete range of calibration equipment for temperature, pressure and signal, approved for marine use.

FP Temperature Sensors
A complete range of temperature sensors for industrial and marine use.

M&G Pressure Testers
Pneumatic floating-ball or hydraulic piston dead weight testers with accuracies to 0.015% of reading.

M&G Pumps
Pressure generators from small pneumatic "bicycle" style pumps to hydraulic pumps generating up to 1,000 bar (15,000 psi).

...because calibration is a matter of confidence