

JOFRA™

NEW
Text output file for eg. Excel

JOFRACAL

Temperature and Pressure Calibration Software

Multiple possibilities

Can be used with all JOFRA temperature, pressure and signal calibrators equipped with an RS232 interface

Easy to use

Various screens provide easy-to-read information and instructions

Multiple sensor input

Combined with JOFRA ASM signal multi-scanners, JOFRACAL enables calibration of up to 24 sensors at the same time

Clear view of calibration

Graphical presentation allows quick overview of calibration results. Both online and on certificates

User-friendly database

Calibration procedures and results are stored in a user-friendly database structured like Explorer including searching and sorting facilities

Flexible temperature calibration

Choose between different temperature sources, such as dry-block calibrators, liquid baths, and ovens

Reduce calibration time

Control two dry-blocks simultaneously and reduce the overall calibration time significantly

Scheduler feature

Plan future calibrations with the scheduler function; list the tag, location, and calibration due date for the instrument

PRODUCT DESCRIPTION

JOFRACAL calibration software ensures easy calibration of RTD's, thermocouples, transmitters, thermoswitches, pressure gauges and pressure switches.

JOFRACAL software may be used with the well-known JOFRA temperature calibrators as well as with JOFRA pressure and signal calibrators. Furthermore JOFRACAL functions as a stand-alone product.



Features

JOFRACAL software provides an entirely automatic calibration of sensors and a semi-automatic calibration of the complete process loop by means of a PC. The software handles the comparison between the process readout value and the reference value; a measurement typically required within ISO9000, GMP, or HACCP systems. Additionally, this evaluation may be performed on-site without electrical interruption of the loop.

A variety of screens presents the user with information in an easy-to-read format. This provides the technician with an optimal overview to allow for setting up calibration procedures and performing calibrations. Furthermore, JOFRACAL also includes facilities for generating and printing of detailed certificates.

This feature even comprises tools, which allow the user to customize the certificate content and format to comply with accepted norms and standards including: company-specific information, numbering, and terminology. We have also designed functions to incorporate specific requirements from the ISO program to make documentation a direct part of existing quality systems.

JOFRA INSTRUMENT COMBINATIONS

JOFRACAL calibration software supports all JOFRA temperature, pressure and signal calibrators equipped with an RS232 interface, including JOFRA DTI reference thermometers.

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.



STANDARD DELIVERY

JOFRACAL calibration software is supplied as standard with the following calibrators:

Temperature:

- JOFRA ATC series (Advanced Temperature Calibrator) specification sheet no. SS-CP-2285
- JOFRA ITC series (Industrial Temperature Calibrator) specification sheet no. SS-CP-2286
- JOFRA CTC series (Compact Temperature Calibrator) specification sheet no. SS-CP-2281
- JOFRA MTC series (Marine Temperature Calibrator) specification sheet no. SS-CP-2400
- JOFRA ETC series (Easy Temperature Calibrator) specification sheet no. SS-CP-2280
- JOFRA DTI-1000 (Digital Temperature Indicator) specification sheet no. SS-CP-2290
- JOFRA DTI050 (Digital Temperature Indicator) specification sheet no. SS-CP-2295

Pressure:

- JOFRA DPC-500 series (Documenting Pressure Calibrator) specification sheet no. SS-CP-2182
- JOFRA APC series (Advanced Pressure Calibrator) specification sheet no. SS-CP-2181
- JOFRA CPC series (Compact Pressure Calibrator) specification sheet no. SS-CP-2180

Signal

- JOFRA ASM series (Advanced Signal Multi-scanner) specification sheet no. SS-CP-2360

JOFRACAL calibration software is optional for the following calibrators:

- JOFRA IPI (Industrial Pressure Indicator) specification sheet no. SS-CP-2179
- JOFRA AMC910 (Advanced Multi-purpose Calibrator) specification sheet no. SS-CP-2385
- JOFRA ASC300 (Advanced Signal Calibrator) specification sheet no. SS-CP-2350
- JOFRA calibrators without RS232

JOFRACAL calibration software may be downloaded at www.jofra.com

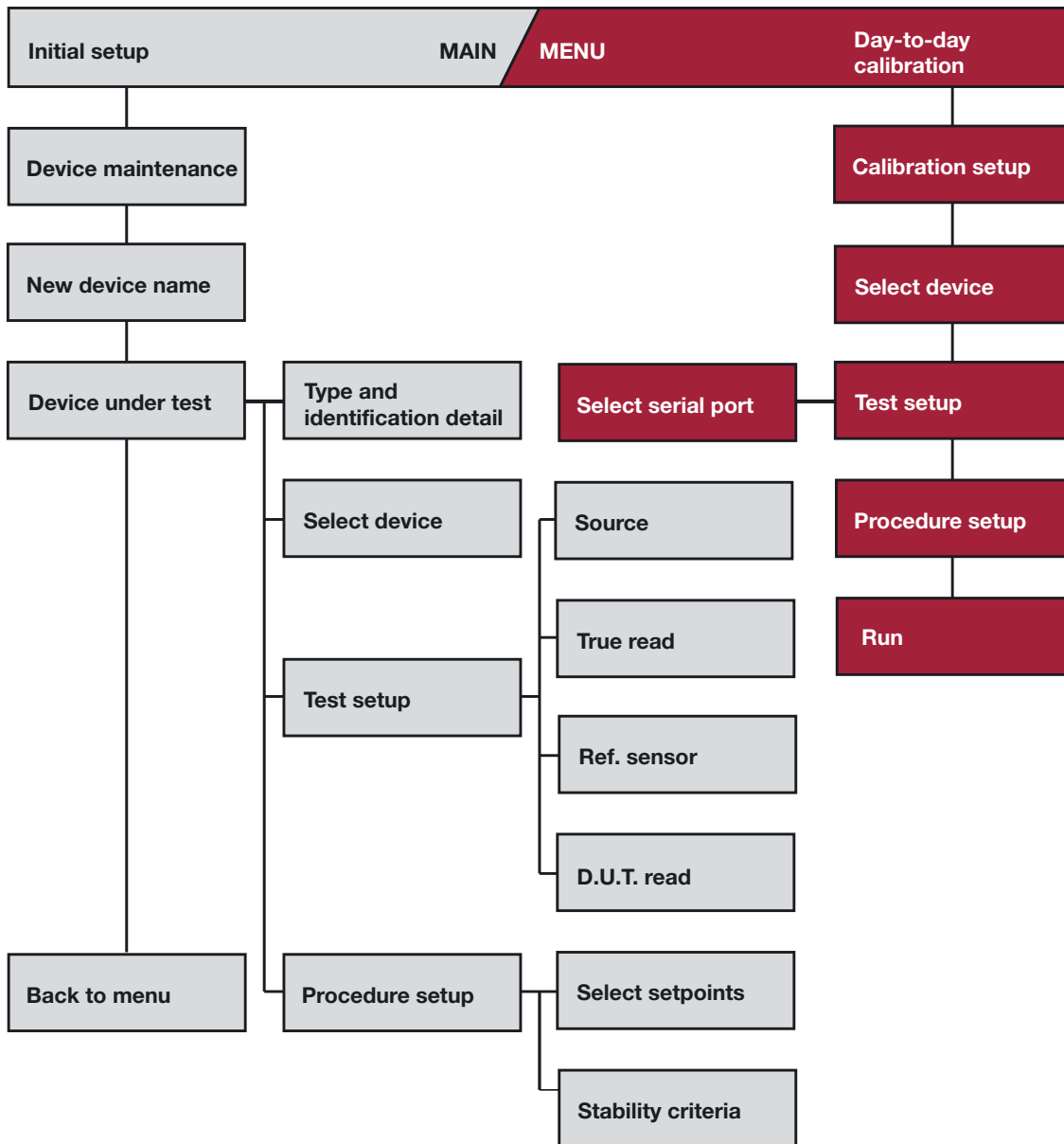
Please also find the above mentioned specifications sheets at www.jofra.com



Set-up with JOFRA ATC-140 B, DTI-1000 and ASM-803 connected to a PC with JOFRACAL



Set-up with JOFRA ITC-650 A, DTI-1000 and ASC300 connected to a PC with JOFRACAL



Easy calibration set-up

The key to an easy set-up of a calibration task is the unique "Icon bar". The "Icon bar" tells the current status of the calibration process, starting with selection of the sensor to be calibrated and ending with the performance of the calibration. The diagram shows the basic steps needed to set up a calibration.

Initial set-up

Calibrating the sensors for the first time, the initial set-up in the grey boxes has to be followed. Firstly, enter the specifics for the sensor(s) to be calibrated. Secondly, carry out the set-up and calibration procedures.

When the set-up is finished, the calibration is ready to run (red boxes).

Day-to-day calibration

In the future, it is not necessary to setup the sensor data again as set-ups and calibration procedures are memorized from earlier calibrations. Just follow the red boxes, selecting the sensor(s) to be calibrated.

This is easy and ensures that calibrations are done in exactly the same way every time.

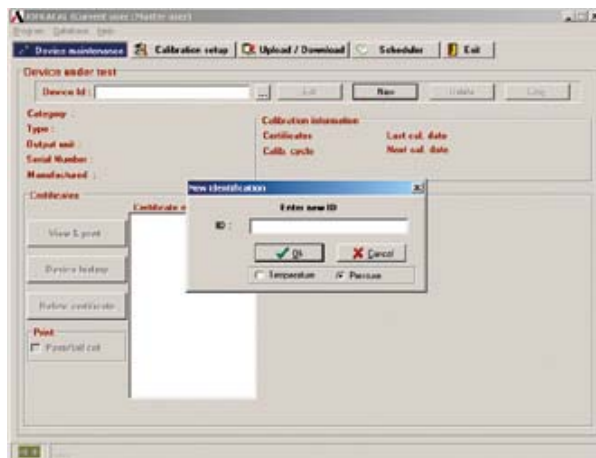
CALIBRATION

During calibration, various screens provide the user with information about the calibration in an easy-to-read format. It also procures an overview of the calibration history and makes it possible to plan and document the calibration.

Device maintenance

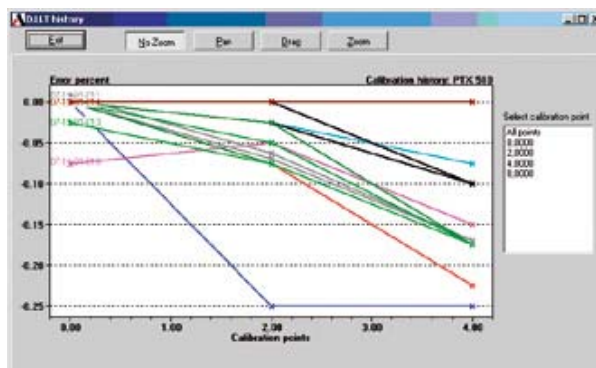
To ensure the best possible work flow and calibration, JOFRACAL will split calibration devices into temperature and pressure devices.

This is done to reflect the differences between temperature and pressure calibrations. All these efforts are made to keep the leading position of JOFRACAL as a true temperature calibration software, and at the same time implement the relevant functionality to pressure calibration, to make JOFRACAL a true pressure calibration software as well!



Device history

In the device history function it is possible to see the calibration history of the device-under-test. Calibration points are selected and the graph clearly shows deviations at each temperature step.



Set-up with JOFRA APC system B connected to a PC with JOFRACAL

Scheduler

An important feature of the JOFRACAL is the scheduler function. This feature not only lists the last calibration time, but it also has the capability to plan and schedule future calibrations. The device list, which is printable, simply shows when the device is due for calibration and where in the process the device is located, making it easy to plan efficiently.

Device ID	Type	Last calibrated	Calibrator due	Location	Schedule flag
PI-1 10020	RTD	05-13-2007	05-13-2008	11	<input checked="" type="checkbox"/>
PI-1 10020	RTD	04-13-2007	04-13-2008	11	<input checked="" type="checkbox"/>
PI-1 10010	RTD	04-13-2007	04-13-2008	11	<input checked="" type="checkbox"/>
PI-1 10010	RTD	05-13-2007	05-13-2008	11	<input checked="" type="checkbox"/>
PI-1 10020	RTD	05-13-2007	05-13-2008	11	<input checked="" type="checkbox"/>
Temp warning ind.	RTD	N/A	N/A	11	<input type="checkbox"/>

Easy documentation

After saving the certificate, it is possible to print directly and/or save it as a PDF document. It is therefore very easy to provide verification and documentation of completed calibrations. All measurements and procedures are stored in a built-in database under a user-defined name.

Common procedures are easily found and results are presented in a true certificate format complying with quality standards such as ISO 9000, BMP, HACCP, etc. When a certificate is required, it may be printed in the chosen language. Just click on the calibration name and start the printout.

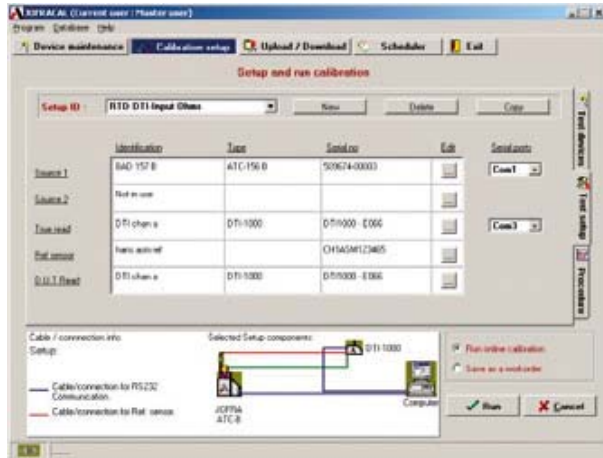
Set	Temp	Temp	Bar	Bar	Bar	Bar
1	0.00	0.00	1013.25	1013.25	1013.25	1013.25
2	0.00	0.00	1013.25	1013.25	1013.25	1013.25
3	0.00	0.00	1013.25	1013.25	1013.25	1013.25
4	0.00	0.00	1013.25	1013.25	1013.25	1013.25

Output formats; Printer or PDF or Text file.



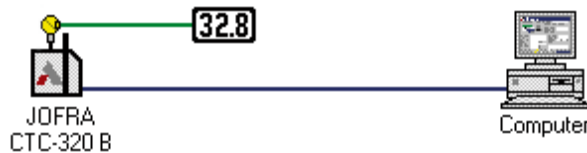
TEMPERATURE CALIBRATION

In the "Calibration set-up" function, instruments can be combined in almost any required configurations. Simply select the desired method of performing the calibration and the software will show the scenario and take care of the rest. Calibration procedures and results are stored in a built-in identification / tag no. database.



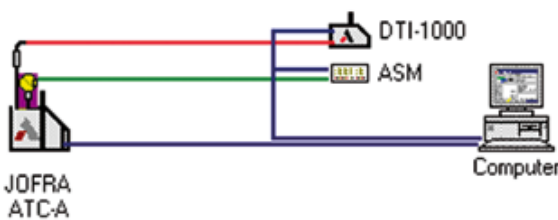
Manual temperature calibration

Calibrations are not only limited to equipment with an RS232 communication port. The JOFRACAL software can be set up to accept manual entry of calibration data. It is also possible to perform on-site calibrations with the instruments and key in the data when returning to the workshop. Just select "manual reading" in the scenario. This feature provides the same look and data storage for all temperature calibrations. It is also possible to run the dry-block calibrator online and key in the sensor-under-test data manually as shown below.

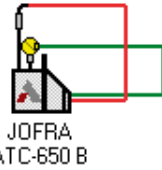


Fully automatic temperature calibration

To illustrate the flexibility of JOFRACAL, this scenario uses a JOFRA DTI-1000 as reference instrument, a JOFRA ATC as heat source, and a JOFRA ASM for the sensor-under-test reading. A set-up like this enables calibration of up to 24 sensors simultaneously.



Fully automatic stand-alone temperature calibration



When using a JOFRA ATC as the heating/cooling source, a complete calibration procedure can be downloaded to the dry-block. The measurement data can be uploaded to a PC after the test is performed for review, storage, and/or printing of certificates.

Calibrations are collected and stored as "Work orders" in a file and downloaded to the calibrator from a personal computer using a standard RS232 interface cable. The ATC calibrator stores the calibration procedure and may be carried out to the process site without bringing a PC. This allows the ATC calibrator to:

- Operate as a stand-alone instrument, using advanced calibration routines without the assistance of a PC on-site.
- Prevent unauthorized changes to a calibration routine. Personnel who are not authorized to alter a calibration routine can be systematically prevented from doing so.

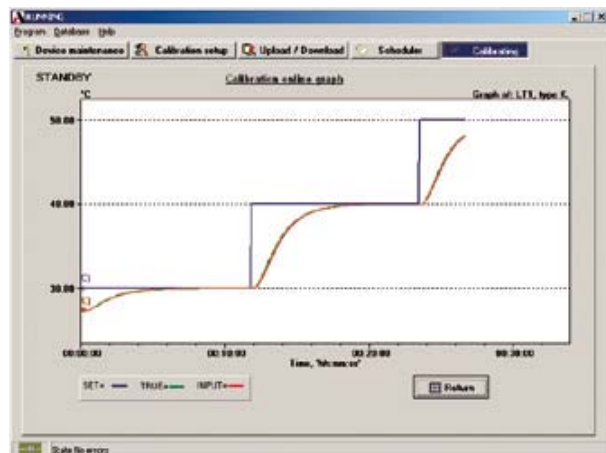
Once all calibrations are completed, the data may be uploaded to the JOFRACAL software and saved as certificates. Calibration data collected on the PC may be viewed or analyzed later.



Graphic presentation

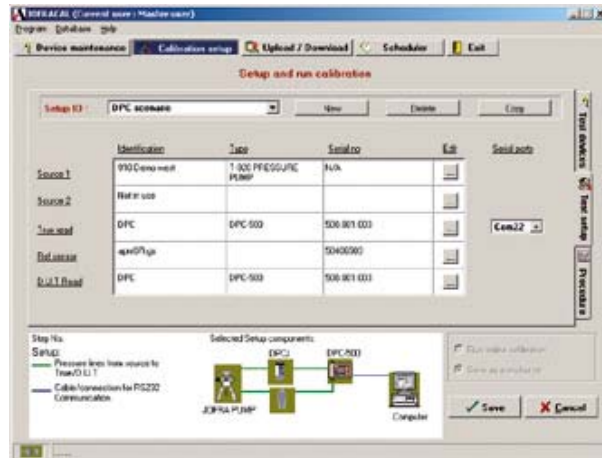
JOFRACAL features a useful and valuable graphic presentation mode. During calibration, it is possible to press the [Graf] button to see the calibration being performed.

With one quick look at the screen, the user can check if the calibration is running as expected. If anything should be wrong, the calibration may be stopped. Corrections and adjustments can be made and the calibration may be restarted. This feature prevents waste of time and money on flawed tests.



PRESSURE CALIBRATION

In the "Calibration set-up" function, instruments can be combined in almost any required configurations. Simply select the desired method of performing the calibration and the software will show the scenario and take care of the rest. Calibration procedures and results are stored in a built-in identification / tag no. database.

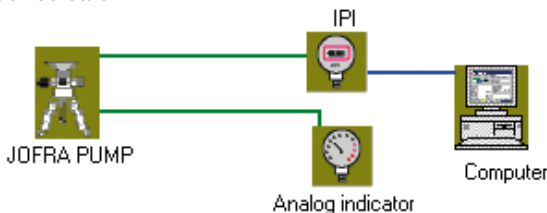


Manual pressure calibration

Calibrations are not only limited to equipment with an RS232 communication port. The JOFRACAL software can be set up to accept manual entry of calibration and reference data. This feature provides the same look and data storage for all pressure calibrations.

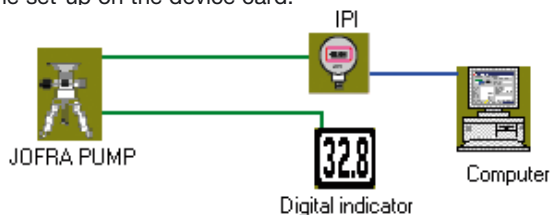
Analogue pressure gauges

Calibration of analogue pressure gauges is made easy in JOFRACAL; simply just pressurize the system to the "scale points" decided in the procedure in JOFRACAL. The reference pressure is recorded automatically and error percentage and pass / fail are calculated as setup on the device card.



Digital pressure gauges

Apply pressure, aim for the set point, type in the actual reading of the device to be calibrated, go on to next calibration point. Reference pressure is recorded automatically, and error calculations are done in accordance with the set-up on the device card.



Pressure transmitters & transducers

Apply pressure, aim for the set point, approve by pressing the space bar, and go to next calibration point. Output from the device to be calibrated and the reference pressure are recorded automatically, and error calculations are done in accordance with the set-up on the device card.

Pressure switches

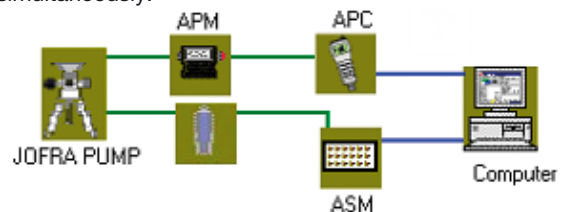
Apply pressure, slowly and smoothly pressure raises, until the switch state switches. Then the system slows down. The switch state of the device to be calibrated and the according pressure reference pressure are recorded automatically, and open / close & hysteresis are stored for certificate printing and history.

JOFRA DPC-500

Calibrations are collected and stored as "Work orders" in a file and downloaded to the calibrator from a PC using the equipped RS232 interface cable. The DPC-500 calibrator stores the calibration procedure and may be brought to the process site without bringing a PC. This allows the DPC-500 calibrator to operate as a stand-alone instrument, using advanced calibration routines without the assistance of a personal computer on-site. Once the calibrations are completed, the data may be uploaded to the JOFRACAL software and saved as certificates. The calibration data collected on the PC may be viewed, printed or analyzed later.

Semiautomatic pressure calibration

To illustrate the flexibility of JOFRACAL, this scenario uses a JOFRA APC with an APM pressure module as reference instrument, a JOFRA system B pump as pressure source, and a JOFRA ASM for the sensor-under-test reading. A set-up like this enables calibrations of up to 24 sensors simultaneously.



Set-up with JOFRA DPC-500 system D and DPC-J reference sensor connected to a PC with JOFRACAL

ORDERING INFORMATION

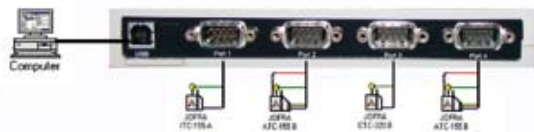
Part no. Description

124915 CD-rom with JOFRACAL calibration software

ACCESSORIES

Part no. Description

125002 Edgeport converter with 4 RS232 ports. Connected and powered by the USB connection to the PC. Tested with JOFRA calibrators



A raising number of PC's are delivered without RS232 ports, especially Laptops are hard to find with built-in RS232 ports. The solution is to use a USB to RS232 converter. These converters are supplied from a number of suppliers all over the world. Some are good and some are not! As a part of the "ready-to-use" concept, AMETEK offers a USB to RS232 ports converter, tested with ALL JOFRA units!

The converter has 4 RS232 ports, to enable the unique JOFRACAL feature of combining more JOFRA calibrators into a complete calibration system.

REQUIREMENTS JOFRACAL

Minimum hardware requirements:

- Intel® Pentium® II 1.4 GHz processor.
- 64MB RAM (128MB recommended)
- 80MB free disk space on hard disk (120MB recommended) prior to installation
- Standard VGA (800x600, 256 colours). 1024x768 recommended.
- CD-ROM drive for installation of program
- 1 or 2 free RS-232 serial ports, depending on configuration

Minimum software requirements:

- Microsoft Windows® 98, Microsoft Windows® NT 4.0, Microsoft Windows® 2000, Microsoft Windows® ME, Microsoft Windows® XP, Vista.
- System fonts: MS SansSerif and Arial



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: 4 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 -1 to 1000 bar (25 inHg to 14,500 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*

AMETEK
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