Calibration WORLD

Spring/Summer 2011

Paperless Calibration

Calibrating Temperature Instruments

Customer Success Stories

AstraZeneca, Sweden

GlaxoSmithKline, Ireland

beamex

Beamex corporate magazine • www.beamex.com

CEO's letter

A large production plant can have thousands of instruments that require calibration. If they need to be calibrated once a year, thousands of calibration reports are needed. In addition, all of those calibrations must be planned around normal workflow, and information about all instruments must be documented.

The traditional method of calibration management – using pen and paper – is still the most common. Once the report is written, it is put into an archive. This method is time-consuming, fraught with errors, and makes later analysis of the information nearly impossible. Another common method is self-made, computer-based systems, such as an Excel file. Information is stored in an electronic format, but the process of documenting calibration information is still slow and prone to human error.

Beamex has an excellent solution to avoid all the problems and errors mentioned above – go paperless. Since the 1980s, we have been developing integrated calibration solutions around smart communicating and documenting calibrators and calibration management software, together with our most advanced customers. Today, they form the key elements of the most efficient paperless solution available on the market.

Beamex's tail-wind in the business has continued very strongly. In addition, we are very satisfied with the results of our several development projects, one of the most significant being our 'temperature project' with which we are conquering a new application area. As a result of the project, we now have an accredited temperature calibration laboratory which, in terms of uncertainty, meets even the tightest requirements of our customers. We also have a family of accurate, high-quality temperature dry blocks, which complete the Beamex® Integrated Calibration Solution in a very unique way.

Both paperless calibration and temperature calibration are topics covered in more detail in this issue. Other very interesting articles in this issue are the case stories. We are very pleased and proud that several leading global corporations are willing to share their experiences with our readers. Enjoy your reading and remember that we appreciate your feedback immensely – not only concerning this magazine!

Raimo Ahola
CEO, Beamex Group

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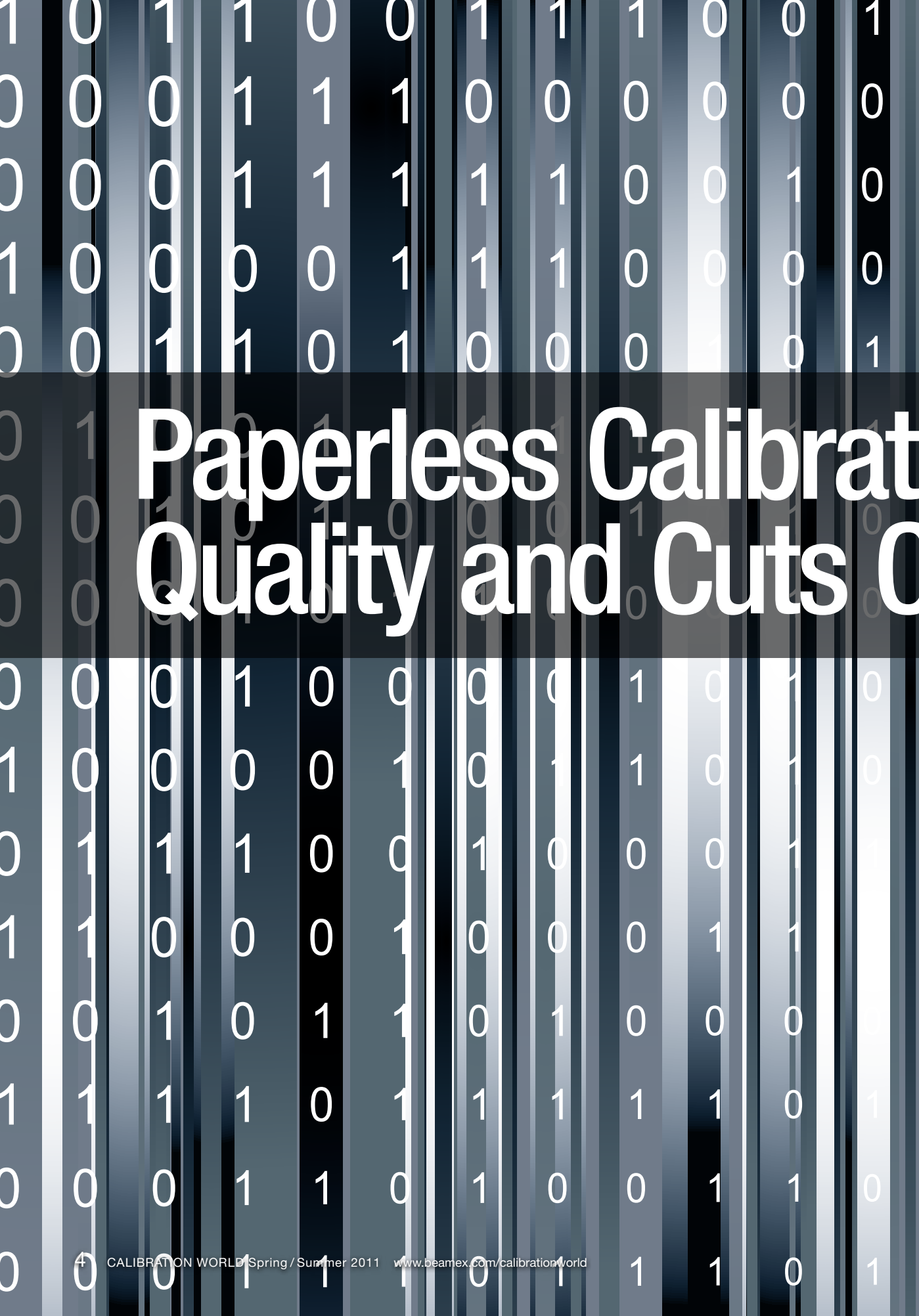

Paperless Calibrat
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Paperless Calibration Improves Q

Paper is part of our everyday lives – whether in the workplace or at home. Take a minute to look around the room you are in and you'll notice how many objects are made from paper: books, magazines, printer paper, perhaps even a poster on the wall.

Global consumption of paper has grown 400% in the last 40 years. Today, almost 4 billion trees or 35% of the total trees cut down across the world are used in paper industries on every continent (source: www.ecology.com).

So let's not add to this already heavy burden on our forests and the environment. As manufacturing companies, our consumption of paper is far higher than it needs to be, especially given that there are technologies, software and electronic devices readily available today which render the use of paper in the workplace unnecessary.

Other than helping to save our planet and reducing the number of trees cut down each year, as businesses, there are other, significant benefits in minimising the use of paper.

Other than helping to save our planet and reducing the number of trees cut down each year, as businesses, there are other, significant benefits in minimising the use of paper.

Take the calibration of plant instrumentation devices such as temperature sensors, weighing instruments and pressure transducers. Globally, amongst the process manufacturing industries, calibrating instruments is an enormous task that consumes vast amounts of paperwork. Far too many of these companies still use paper-based calibration systems, which means they are missing out on the benefits of moving towards a paperless calibration system.

Traditional Paper-Based Calibration Systems

Typically, a paper-based calibration system involves the use of hand-written documents. Whilst out in the field, a maintenance or service engineer will typically use a pen and paper to record instrument calibration results. On returning to the office, these notes are then tidied up and/or transferred to another paper document, after which they are archived as paper documents.

While using a manual, paper-based system requires little or no investment in new technology or IT systems, it is extremely labour-intensive and means that historical trend analysis of calibration results becomes very difficult. In addition, accessing calibration data quickly is not easy. Paper systems are time consuming, they soak up lots of company resources and manual (typing) errors are commonplace. Dual effort and the re-keying of calibration data into multiple databases become significant costs to the business.

These same companies that use paper-based calibration systems are together generating hundreds of thousands (millions?) of paper calibration certificates each year. However, by utilising the latest software-based calibration management systems from companies like Beamex, these organisations can significantly reduce their paper consumption, whilst also improving quality, workflow and making other significant cost savings for the business.

Practical Benefits of Using Less Paper

Aside from the financial benefits of moving towards a paperless calibration system, there are practical reasons why firms should go paperless. Often, in industrial environments, it is not practicable to store or carry lots of paperwork. After all, every square foot of the business has an associated cost.

Furthermore, important paper records could potentially be lost or damaged in an accident or fire. So why would these companies generate and store separate paper copies of important records such as works orders, standard operating procedures (SOPs), blank calibration certificates, etc. when these records can all be combined into a single electronic record?

Improved Workflow

With paper-based systems, paper records that need approval have to be routed to several individuals, which is time-consuming. With paperless systems, workflow improves dramatically. There will be less waiting time, as those individuals who need to sign off records or calibration documents can share or access electronic records simultaneously from a central database. The cost and time associated with printing copies of paper documents is also eliminated, as well as the cost of filing and storing those paper records.

Just as important, electronic records enable easier analysis of data, particularly calibration results. Historical trending becomes easier, faster and more reliable, which again has cost reduction benefits to the business. Calibration intervals can be optimised. For example, those instruments that are performing better than expected may well justify a reduction in their calibration frequency.

When a plant is being audited, calibration software facilitates both the preparation and the audit itself. Locating records and verifying that the system works becomes effortless when compared to traditional paper-based

uality and Cuts Costs

record keeping. Paperless calibration systems improve plant efficiencies because the entire calibration process is now streamlined and automated. Costly production downtime due to unforeseen instrument failures will also be reduced.

Paper records may not always reflect the truth.

Data Integrity

The integrity of paper-based calibration systems cannot be relied upon. Paper records may not always reflect the truth. For example, manual errors such as misreadings can occur, particularly when using weighscales or other instruments that are open to an individual's own interpretation of the data. Sometimes users may inappropriately modify the results data due to work pressures or lack of time/ resources.

Illegible handwritten notes are also a problem, especially if these paper records need to be typed or transcribed to a computer system or database. Transcription errors such as these can lead to all sorts of problems for a business and can take months to rectify or to identify the rogue data.

Business Benefits

For those more enlightened companies that use software-based calibration systems, the business benefits are significant. The whole calibration process – from initial recording of calibration data through to historical trend analysis – will take less time, whilst mistakes and manual errors will be virtually eliminated. In turn, this means that operators, engineers and management will have more confidence in the data, particularly when it comes to plant audits. In addition, this greater confidence

The whole calibration process – from initial recording of calibration data through to historical trend analysis – will take less time, whilst mistakes and manual errors will be virtually eliminated.

in calibration data leads to a better understanding and analysis of business performance and KPIs (particularly if the calibration software is integrated with other business IT systems such as a CMMS) leading to improved processes, increased efficiencies and reduced plant downtime.

Commissioning

At plant commissioning times, electronic records simplify the handover of plant and equipment. Although handover by commissioning teams that use paper records is straightforward and of universal format, electronic records are easy to manipulate and can be re-

used in different IT systems. Electronic data also provides an excellent foundation for ongoing plant operation and maintenance, without needing to collect all the plant data again.

How paperless should you go?

Of course, in reality, many companies are neither completely paperless nor rely solely on paper-based systems – the process is sometimes a hybrid of the two. A key part of paperless calibration records is the capture of data at point of work, often in difficult industrial environments that would make the use of portable office computers impractical, and the manual entry of calibration results into un-intelligent calibration forms on portable industrial computers prone to eye-to-hand data mis-reads and repetitive strain induced error. One way to overcome these error prone data capture methods is to use portable documenting calibrators to measure what can be measured and provide intelligent, technician friendly interfaces on industrialised PDA or tablet based hardware when manual data entry cannot be avoided. The un-editable electronic data stored on high performance multifunction calibrators can be uploaded to calibration management software for safe storage and asset management. Companies can go even further than this and use electronic records for works orders, business management systems, data historians, and for control systems. In other words, the calibration data is shared with other business IT systems electronically, resulting in completely paperless, end-to-end workflows.

Suitable Hardware

Rather than rely on engineers in the field accurately keying in calibration results into suitably robust laptops or PDAs, it is better to source the data electronically using documenting calibrators that are specifically designed for this task.

Validation, Training & Education

Paperless systems also need validating in the user's own environment. Here, Beamex provides comprehensive validation, education and training services for customers.

Education and training for users is critical, as this will help companies to overcome the natural resistance to change amongst the workforce, which may be used to dealing with traditional, paper-based systems.

CASE STUDY

■ Beamex is helping many organisations to implement paperless calibration management systems, including Pharmaceuticals, Chemicals, Power & Energy, Oil Gas & Petrochemicals companies. Amongst these customers is UK firm **Croda Chemicals Europe.**

Based in East Yorkshire near Goole, the Croda plant uses pressurised vessels to purify lanolin for healthcare and beauty products. Each vessel needs to be certified at least once every two years in order to demonstrate that the vessel is safe and structurally sound. This includes a functionality check on all of the pressure instrumentation, as well as the sensors that monitor the incoming chemical additives and the outgoing effluent.

Senior Instrument Technician David Wright recalls what it was like to perform all of those calibration operations with paper and pencil during the company's regularly scheduled maintenance shutdowns: "It took us one week to perform the calibrations and a month to put together the necessary paperwork."

Today, Croda uses the CMX calibration management software system from Beamex, which coordinates data collection tasks and archives the results. "It's faster, easier and more accurate than our old paper-based procedures," says Wright. "It's saving us around 80 man-hours per maintenance period and should pay for itself in less than three years."

CALIBRATING TEMPERATURE INSTRUMENTS

All meters, including sensors, show incorrectly – calibration will prove by how much.


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METROLOGY TEMPERATURE BLOCK
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Calibrating Temperature Instrume

The most commonly and most frequently measurable variable in industry is temperature. Temperature greatly influences many physical features of matter, and its influence on e.g. quality, energy consumption and environmental emission is significant. Temperature, being a state of equilibrium, makes it different from other quantities.

A temperature measurement consists of several time constants and it is crucial to wait until thermal equilibrium is reached before measuring. Metrology contains mathematic formulas for calculating uncertainty. The polynoms are specified in ITS 90 table (International Temperature Scale of 1990). For each measurement, a model that includes all influencing factors must be created. Every temperature measurement is different, which makes the temperature calibration process slow and expensive.

While standards determine accuracy to which manufacturers must comply, they nevertheless do not determine the permanency of accuracy. Therefore, the user must be sure to verify the permanency of accuracy.

It is important to keep in mind an old saying: all meters, including sensors, show incorrectly, calibration will prove by how much.

If temperature is a significant measurable variable from the point of view of the process, it is necessary to calibrate the instrument and the temperature sensor. It is important to keep in mind an old saying: all meters, including sensors, show incorrectly, calibration will prove by how much.

Temperature sensors

The most commonly used sensors in the industry used for measuring temperature are temperature sensors. They either convert temperature into resistance (Resistance Temperature Detectors, RTD) or convert temperature into low voltage (Thermocouples, T/C). RTD's are based on the fact that the resistance changes with temperature. Pt100 is a common RTD type made of platinum and its resistance in 0 °C (32 °F) is 100Ω. Thermocouple consists of two different metal wires connected together. If the connections (hot junction and cold junction) are at different temperatures, a small temperature dependent voltage difference/current can be detected. This means that the thermocouple is not measuring the temperature, but the difference in temperature. The most common T/C type is the K-type (NiCr/NiAl). Despite their lower sensitivity (low Seebeck coefficient), the noble thermo-elements S-, R- or B-type (PtRh/Pt, PtRh/Pt/Rh) are used especially in high temperatures for better accuracy and stability.

Temperature transmitters

The signal from the temperature sensor cannot be transmitted a longer distance than the plant. Therefore, temperature transmitters were developed to convert the sensor signal into a format that can be transmitted easier. Most commonly, the transmitter converts the signal from the temperature sensor into a standard ranging between 4 and 20 mA. Nowadays, transmitters with a digital output signal, such as Fieldbus transmitters, are also being adopted, while the transmitter converts the sensor signal, it also has an impact on the total accuracy, and therefore the transmitter must be calibrated on regular basis. A temperature transmitter can be calibrated using a temperature calibrator.

Calibrating temperature instruments

To calibrate a temperature sensor, it must be inserted into a known temperature. Sensors are calibrated either by using temperature dry blocks for industrial field or liquid baths (laboratory). To make comparisons, we compare the sensor to be calibrated and the reference sensor. The most important criterion in the calibration of temperature sensors is how accurate the sensors are at the same temperature.

The uncertainty of calibration is not the same as the accuracy of the device. Many factors influence the total uncertainty, and performing calibration is not the least influencing factor.

The heat source may also have an internal temperature measurement that can be used as reference, but to achieve better accuracy and reliability, an external reference temperature sensor is recommended.

The uncertainty of calibration is not the same as the accuracy of the device. Many factors influence the total uncertainty, and performing calibration is not the least influencing factor. All heat sources show measurement errors due to their mechanical design and

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thermodynamic properties. These effects can be quantified to determine the heat source's contribution to the measurement uncertainty. The major sources of measurement uncertainty are axial homogeneity, radial homogeneity, loading effect, stability and immersion depth. Guidelines for minimizing measurement uncertainty should be applied according to Euramet/cg-13/v.01 (former EA-10/13).

Measurement uncertainty

Axial homogeneity
Axial homogeneity is the temperature distribution in the measurement zone along the boring (axial temperature distribution).

Radial homogeneity
Radial homogeneity can be explained as the difference in temperature occurring between the borings.

Loading effect
When several sensors are placed in the borings of the heat source, they will affect accuracy. This phenomenon is called loading effect.

Stability
Stability means variation of the temperature in the measurement zone over time when the system has reached equilibrium. Thirty minutes is commonly used.

Immersion depth
To achieve a more stable calibration, the immersion depth for a probe should be sufficient for the sensor being calibrated. Stem conduction, heat flux along the length of the thermometer stem, affects both the reference sensor and the unit being tested.

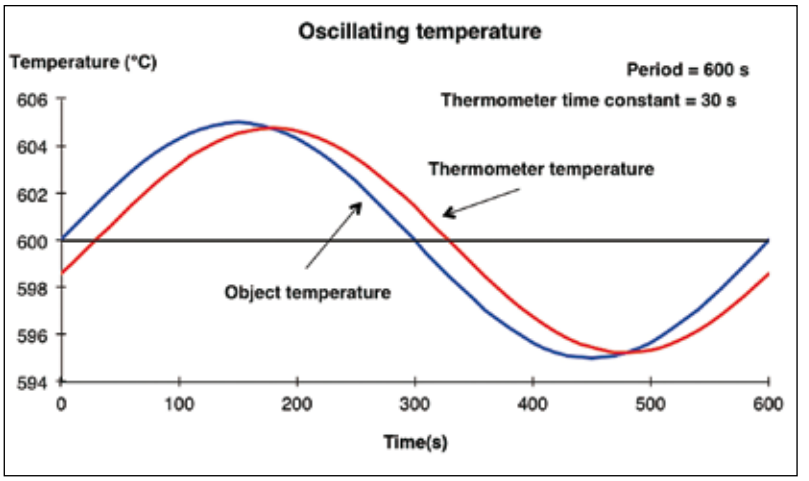
The calibration of instruments and sensors must be performed periodically. The ISO Quality Control System presupposes the quality control of calibration, the calibration of instruments effecting production, regular calibration of sensors and traceable calibration as well as calibration documentation. The level of performance a calibration device needs to have depends on the accuracy requirements determined by each company. However, the calibration device must always be more accurate than the instrument or sensor being calibrated. Calibration of instruments and sensors can be carried out either on site or in a laboratory.

Integrated Calibration Solution (ICS) – a smarter way to calibrate temperature

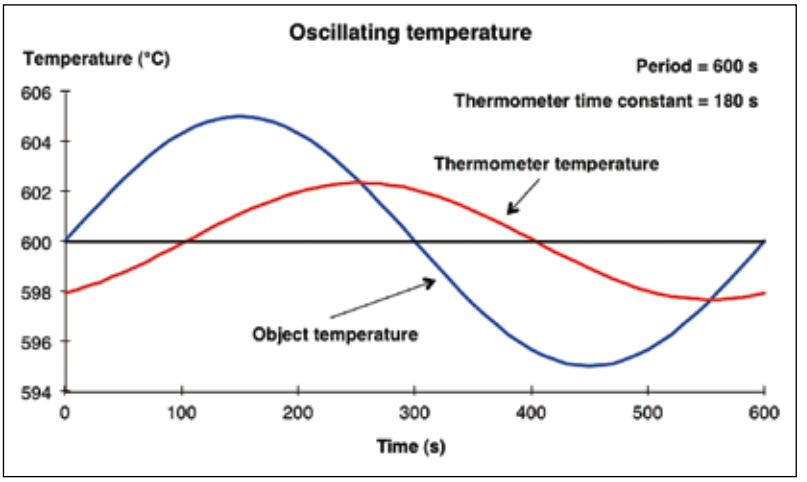
Beamex has introduced a smarter, more efficient and accurate solution for calibrating temperature. It is a complete solution for temperature calibration with various products and services, such as a series of high-quality dry blocks for field and laboratory use, smart reference probes and temperature calibration laboratory services.

The Beamex® Integrated Calibration Solution (ICS) concept is the combination of calibrator, calibration software and PC for online calibration.

"The temperature products and services we are now introducing form an integral part of the Beamex® Integrated Calibration Solution, a complete calibration solution that enables faster, more accurate and efficient management of all calibration assets and procedures", says Raimo Ahola, CEO of Beamex Group.



Picture 1



Picture 2

The Beamex® Integrated Calibration Solution (ICS) concept is the combination of calibrator, calibration software and PC for online calibration. The instrument to be calibrated is connected to the calibrator controlled by a computer, where the computer controls the calibration event. The Beamex® FB and MB dry blocks are part of the Beamex® ICS. The dry blocks communicate with the Beamex® MC5 Multifunction Calibrators enabling fully automated temperature calibration and documentation. The calibration results can then be uploaded from the MC5 to the Beamex® CMX Calibration Software. The instrument's calibration information is saved in the MC5 and History Trend reports, both in numeric and in graphic form.

"This helps the client to follow the condition of the instrument, which is useful in making decisions about purchasing new instruments, determining service in advance and recalibration. With the CMX Software, you can print out a calibration report as well as a traceable, accredited calibration certificate. Our ICS concept saves valuable time, eliminates any errors related to manual entry and assures repeatable calibration procedures", Mr Ahola adds.

ADVICES FOR TEMPERATURE CALIBRATION

■ Georg Bergström, physicist with specialisation in uncertainty calculations, has been a key figure during the development of the Beamex temperature laboratory. He emphasizes the following when measuring/calibrating temperature:

1. Make sure the sensor is at the correct place so it measures what it is supposed to measure.
2. The sensor should be disturbed as little as possible; it measures what it is supposed to measure.
3. Wait until the thermal equilibrium is reached before you measure.
4. Make sure no outer (solar) radiation affects the measurement.

In a calibration bath (or dry block calibrator), you have to wait until the correct temperature to be measured is reached. Sensors usually have different time constants, so you should monitor the sensor readings. Usually, you still have to wait until the sensors are in thermal equilibrium with the bath or dry block temperature. It should be understood that correct temperature calibrations or measurements are time consuming. This phenomenon is illustrated in picture 1 and 2.

AstraZeneca, Sweden

– earning money every day thanks to the Beamex® Integrated Calibration

The purchase of the Beamex® ICS (Integrated Calibration Solution), a total investment of $600,000, has proven successful. The pay-off time was 1 year. With the help of the Beamex® CMX Professional and Beamex® MC5 the number of databases has been reduced from 12 to 1 and all paperwork has been replaced by an electronic calibration process, the calibration intervals are less frequent, less labor intense and the overall quality of the calibration process has improved.

The pharmaceutical industry is strictly controlled by institutions and regulations, such as the Food and Drug Administration's (FDA) Good Manufacturing Practice requirements (GMP). Calibration is one of the fields fenced by very strict regulations. The GMP requirement 21 CFR Part 11, which regulates how the calibration certificate is documented and signed electronically, is essential to the working process.

All equipment and instruments in the production process must be calibrated regularly to ensure they function as they should and, for example, give the correct dosing of all the various substances. This involves testing if a sensor gives the correct measurement result in various conditions, such as temperature, atmospheric pressure, air humidity, and so on. It's vital that the instrument stays within the acceptable tolerances and that their readouts give correct measurement values, otherwise the final products may be faulty. Calibrating the instruments and devices is of great importance to avoid this type of risk altogether.

Anders Rackow, Global Project Manager and Tomas Wahlgren, System Owner, at Global Operation Information (GOI) were responsible for managing, co-ordinating and implementing the new calibration management system at AstraZeneca Sweden Operations. They also introduced the computerised system Beamex® CMX to support it.

About AstraZeneca

■ AstraZeneca is one of the world's leading biopharmaceutical companies with 30 manufacturing sites in 20 countries. The company has over 62,000 employees worldwide and sales in 2009 totalled $32.8 billion. Their products are available in more than 100 countries. In 2004, Beamex made a corporate agreement with AstraZeneca Sweden Operations. They decided to implement a completely new calibration system including Beamex's CMX Calibration Management Software licenses, training and software support. The goal was to integrate every production site in Sweden in this project. In March 2005, the validation process began and by October 2005 the first calibrations were made. Recently, AstraZeneca Sweden Operations also made a contract with Beamex regarding the procurement of equipment and calibration service. Sweden Operations is AstraZeneca's largest production and product support unit, and the majority of production facilities are located in Södertälje. The largest tablet factory in the world is located here.

"We perform about 22,000 calibrations annually, which previously engaged 50 employees. Today, the same work can be accomplished with only 15 people."

"Previously, the calibration was primarily done with manual- and paper-based processes. The certificate was on paper, which was signed and stored in binders. After implementing the new calibration management process, the entire process takes place digitally, from measurement to signing and archiving. We perform about 22,000 calibrations annually, which previously engaged 50 employees. Today, the same work can be accomplished with only 15 people", Tomas Wahlgren says. "The number of calibrations is continuously diminishing as calibration history-trend analysis allows us to identify instruments and sensors that remain stable over a long time, which means that the calibration interval for them can be extended without having an impact on production or quality", Anders Rackow points out.

Challenges in introducing a new calibration management system

There were a lot of challenges when introducing both the new calibration management process as well as the system to support it. The process and system needed to be able to reduce time and costs for the calibration itself, as well as for the line down period in production. With 22,000 calibration certificates to be made, the reduction of time and being able to identify adverse trends justifying a reduction in the calibration frequency were crucial. The system should also provide

Solution

quick and easy access to data available through any desktop computer within AstraZeneca. With Sweden Operations having 12 different databases and several different workflows, unifying the entire organisation around a new uniform calibration process was a huge challenge.

AstraZeneca Sweden Operations ended up procuring Beamex's CMX Calibration Management Software (CMX for server) with the Pocket PC option and documenting Beamex® MC5 Multifunction Calibrators. The use of CMX with the Pocket PC option allowed AstraZeneca Sweden Operations to extensively utilize PDAs (Personal Digital Assistant) for manual data entry on site. The server version of CMX made it possible for several plants within the corporation to use and share the same database. Being compliant to regulatory requirements, CMX was also very essential to AstraZeneca. With CMX, AstraZeneca Sweden Operations has a validated calibration system with full Audit Trail compliant with 21 CFR Part 11. "According to suppliers of maintenance systems, we have introduced the most effective, automated and validated calibration process known in the pharmaceutical industry. Furthermore, purchasing the Beamex® calibration management system has added functionality to our business as we are now able to calibrate weighing instruments as well", Anders Rackow states.

"According to suppliers of maintenance systems, we have introduced the most effective, automated and validated calibration process known in the pharmaceutical industry."

Business intelligence and benefits

The total investment for the new uniform calibration process and all the mobility supporting it amounted to $600,000. The calibration process proved to be very cost-effective. The pay-off time was one year. "The greatest profit was made during 2005 and 2007 when the work process was made more efficient through automation and increased mobility with calibrator MC5 and the CMX support system. The calibration management process became simple and completely electronic, which resulted in a decreased number of performers. The implementation of this uniform system has created a "best practice" for the entire AstraZeneca", Anders and Tomas say.

The calibration process proved to be very cost-effective. The pay-off time was one year.

"When the toughest work with unifying the entire Sweden Operations around one uniform calibration management system was done, we settled down and started gathering and analysing data. Thanks to this data cleaning process, we have become more and more aware of how to optimize the amount of data, which data to keep and which to dispose of", Anders and Tomas add. This process was stabilized in 2010 and then AstraZeneca, based on the gathered data, started reducing the calibration frequency on certain devices and instruments.

This customer specific calibration management software solution was named Beamex® CMX193. AstraZeneca's upcoming project is to integrate Sweden Operations CMX193 in the upcoming European SAP installation (Sweden, UK, Germany and France). This will provide the possibility for other sites to take advantage of this new, easier way of working as well.

GlaxoSmithKline, Cork, Irelan

Significant benefits from Beamex® Integrated Calibration Solution deliverin

GlaxoSmithKline is one of the world's leading research-based pharmaceutical and healthcare companies with a share of approximately 5% of the world's pharmaceutical market. Headquartered in the UK, GSK is a global organization with offices in over 100 countries and major research centers in the UK, USA, Belgium and China. GSK employs 96,500 people and has approximately 13,000 people working on its research teams for discovering new medicines.

Beamex® CMX Professional Calibration Management Software was implemented at GSK in Cork, Ireland in November 2010, and it is used for all calibrations on site. GSK have deployed a powerful Beamex® CMX calibration management system, which includes support for intrinsically safe Windows mobile PDAs and Beamex® MC5-IS documenting calibrators to provide the FDA 21CFR part 11 compliant solution.

The CMX Calibration Management Software was fully integrated into the site's Emerson AMS smart instrument asset management software ensuring that instrument range changes are reflected automatically in CMX and that any calibration results created in CMX are recorded in the AMS audit trail for the relevant asset. This project was implemented by GSK Cork Engineering and GMS Engineering Shared Service. New routines for standard work were also implemented for the new system.

Business benefits

After implementing the Beamex® CMX calibration management system, GSK will be able to eliminate 21,000 sheets of printed paper on a yearly basis, as the entire flow of data occurs electronically, from measurement to signing and archiving. They were also able to eliminate all calculation errors and the need to recalibrate, because pass/fail records are now provided in real time. The process and system had reduced time and costs of the calibration itself

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g paperless calibration at GlaxoSmithKline

and the shut-down time in production.

Another important factor was being able to obtain history reports and identify adverse trends in order to reduce the calibration frequency without having an impact on production or quality. Thanks to CMX, an extension of the calibration interval, recommended via e-mail alerts, was possible. With e-mail alerts upon calibration failure, only calibration failures now need to be reviewed and approved.

In line with the interval extensions defined by the calibration blueprint, CMX has identified over 100 hours of savings in the first 3 months of operation. There was also an 8% reduction in scheduled calibrations implemented during data transfer from the history system. One third of lower criticality instruments (not related directly to quality, EHS or regulatory) were removed from scheduled calibration to calibration on demand, based on an instrument's self-diagnostics, triggering calibration word orders. This has saved approximately 300 hours annually.

During the project, GSK performed an audit of Beamex Quality and Product Development Systems with a positive outcome. Future development, including deployment of this solution to other sites, will be supported by a CMX Professional Software Service Agreement with continuous software updates and helpdesk if needed.

Beamex's new temperature calibration laboratory

Beamex introduces a new temperature calibration laboratory – one of the most accurate in Europe

■ A traceable, accredited calibration certificate is needed if a plant operates according to a quality system, such as the ISO 9000 quality system and/or if the company must provide proof of measurements and traceability to their customers. Regular recalibrations of the calibration equipment also ensure that high quality of specifications is maintained. Beamex's own accredited, ISO 9001 and ISO 17025, state-of-the-art calibration laboratory provides recalibration services for a wide range of calibration products and different measurement signals. The calibration laboratory provides recalibration services for temperature, pressure and electrical signals.

Accredited calibration laboratory

Beamex has had a calibration laboratory since the 1970s. The laboratory was granted its first accreditation in 1993. This spring, Beamex has introduced its own accredited temperature laboratory, one of the most accurate in Europe. Beamex's Accredited Calibration Laboratory (K026) has been accredited and approved by FINAS (Finnish Accreditation Service). FINAS is a member of all Multilateral Recognition Agreements / Mutual Recognition Arrangements (MLA/MRA) signed by European and other international organizations, i.e. European Co-operation for Accreditation (EA), international Laboratory Accreditation Cooperation (ILAC) and International Accreditation Forum Inc. (IAF). Each new Beamex® MB Series or FB Series product, as well as the Beamex® Smart Reference Probes, is delivered with a traceable, accredited calibration certificate.

→ TEMPERATURE CALIBRATION LABORATORY

Beamex's accredited temperature calibration laboratory provides

- Temperature and resistance calibrations
- Recalibration services for the temperature range -80 °C … +660 °C
- Uncertainty starting from a few mK in fixed cell and in comparison calibrations. (Please visit www.beamex.com for the detailed Scope of Accreditation).
- Services include recalibration, adjustment and repair task

Calibration services for various measurement devices

- Temperature dry blocks and baths
- PRT probes (such as Pt25, Pt100, etc).
- Temperature indicators combined with sensor
- Thermocouples (certain types)
- Loop calibration of calibrator + temperature sensor
- Temperature transmitters combined with sensor
- Calculation of sensor correction coefficients (ITS-90, CVD, IEC 60751)
- Adjustment and repair of equipment

Main benefits

- High-quality and accredited, ISO 9001 and ISO 17025 certified, state-of-the-art equipment – fixed point cells, comparison baths, reference SPRT's, thermometers, etc.
- Regular recalibrations maintain the high quality of specifications
- Extensive calibration know-how and experience
- Wide range of calibration services available (pressure, temperature, electrical signals)

Beamex expands in India

Beamex Oy Ab India Liaison Office expands its operations in India and appoints new partner

From the left Mr. Juha Salimäki, Ms. Bharati Parmar and Mr. Rajesh Panchal

■ Beamex continues its strong growth in the Indian subcontinent and has fortified its operations in India by expanding its Beamex Oy Ab India Liaison Office and appointing a new local distributor, Masibus Automation and Instrumentation Private Limited with headquarters in Gandhinagar, Gujarat.

As an important part of our growth strategy, we have appointed Mr. Rajesh Panchal as General Manager for Sales & Marketing and Ms. Bharati Parmar as Sales Executive to the Beamex Oy Ab India Liaison Office. Additionally, we have moved to completely new office premises in Mumbai for easier access and enhanced local visibility, Mr. Juha Salimäki, Director of Beamex Oy Ab India Liaison Office states, "Mr. Panchal will be in a key position to further develop Beamex brand awareness as well as implement our strategy in India. He has great experience within the instrumentation sector, working previously with Waaree Instruments Limited for 6 years selling calibration instruments. Ms. Bharati Parmar has also worked at Waaree Instruments Limited as a Product Executive for 4 years. We warmly welcome both of them to the Beamex family.

We are excited to announce the cooperation with Masibus Automation and Instrumentation Private Limited, a well-known private company in the instrumentation and automation field. Together with Masibus, we can provide strong and technologically superior solutions for calibration and instrumentation to all customer segments, from portable calibrators and simulators to calibration test benches and systems all integrated with cutting-edge calibration software. Masibus has a nationwide marketing and sales network in India, and it will be providing recalibration and after sales services for Beamex customers in India at their premises located in Gandhinagar, Gujarat.

Collaboration with Waaree Instruments Limited has ended due to the change of company ownership.

"With these recent additions and changes, our ability to cater to the vast potential in India through our Liaison Office and to further enhance the level of our high end support to our valued customer base as well as towards our new local partner, Masibus Automation and Instrumentation Private Limited, will be more solid than ever. I am confident that our existing and new Beamex customers will benefit from these recent changes," Mr. Salimäki explains.

Masibus Automation and Instrumentation Private Limited

■ Masibus was founded in 1975 by two technocrats by the nicknames of Subi & Sam. Today, Masibus is an acknowledged leader in the field of automation and instrumentation. The company manufactures, distributes and integrates automation, instrumentation, power, condition monitoring and calibration products and solutions. It also specializes in manufacturing and integrating calibration test benches and systems. Masibus employs 200 persons and has 10 national sales offices throughout India.

Masibus was instrumental in developing the first digital calibrator in the country. Since then, the name Masibus has been synonymous with calibration products and solutions. In 2010, Masibus was awarded for setting up a calibration and test laboratory for the country's first Ultra Mega Power Project (UMPP), which strengthens its expertise in the field of power and energy.

Masibus runs an ISO 9001:2008 certified calibration laboratory and also conducts training workshops in calibration. The company provides re-calibration and repair for all calibration products sold in the country. Today, more than 1,000 customers are using calibration products and solutions sold by Masibus.

Beamex introduces a smarter way to calibrate temperature

■ Beamex® has recently launched an entire range of temperature calibration products and services. It is a complete solution for temperature calibration with various products and services. There are two different dry block series: the Beamex® FB Series Field Temperature Blocks and the Beamex® MB Series Metrology Temperature Blocks.

The dry blocks in the FB Series are lightweight, high-accuracy temperature dry blocks for industrial use. The Beamex® Temperature Blocks are suitable for calibration of temperature sensors as well as temperature instruments with a sensor. With a conventional dry block, you typically needed an external reference sensor if you wanted better accuracy.

The Beamex® MB has accurate internal temperature measurement and display accuracy up to ±0.1°C, so you can achieve a high level of accuracy even without an external reference sensor. With the unique temperature control technology, the Beamex® MB has excellent stability up to ±0.005 °C. This kind of stability has usually been found only in baths, not in dry blocks.

The Beamex® Smart Reference Probes are high-quality and extremely stable reference PRT probes with an integrated memory, which stores individual probe coefficients. The sensor coefficients can be manually entered via the MB user interface. The sensor is available as a 300 mm straight version or a 90° bent version, making it an ideal reference sensor for the Beamex® Temperature Block.

The FB/MB dry blocks and the Smart Reference Probes are part of the Beamex® Integrated Calibration Solution. The Beamex® dry blocks communicate with the Beamex® MC5 Multifunction Calibrators enabling fully automated temperature calibration and documentation. The calibration results can then be uploaded from the MC5 to the Beamex® CMX Calibration Software. Each new Beamex® MB Series or FB Series product, as well as the Beamex® Smart Reference Probes, is delivered with a traceable, accredited calibration certificate.

What's new in Calibration Software CMX 2.6 Professional and Enterprise?

- Support for Microsoft Windows 7 ("Compatible with Windows 7" logo certified). For more information, see the installation guide.
- Support for Microsoft Windows Server 2008 and Microsoft SQL Server 2008. For more information, see the installation guide.
- Improvements in speed over WAN (Wide Area Networks). In general, the performance has been doubled. Tips for increasing the response time can be found in CMX Help, topic General Settings Fields.
- CMX start-up from Windows® command prompt.
- Version 2.6 supports the new Beamex® POC6 Pressure Controller.
- User Defined Transfer Function. This replaces the previous tool: User Defined Calibration Points.
- The following customizable features have been added to CMX:
  - > User Defined Pressure Units. More of this in section Adding Instruments to the Database in chapter User Defined Pressure Units.
  - > User Defined PRT Sensors. More of this in section Adding Instruments to the Database in chapter User Defined PRT Sensors.
- Defining CMX Users and User Groups now have an additional feature for including Site Groups and Site Managers. This feature known as, Site User Maintenance, is especially useful for large companies. Site User Maintenance may be activated from the Security Options.

More than forty minor enhancements and additions have also been made. For detailed information concerning updates, including update history, see Release Note included in the installation CD-ROM.

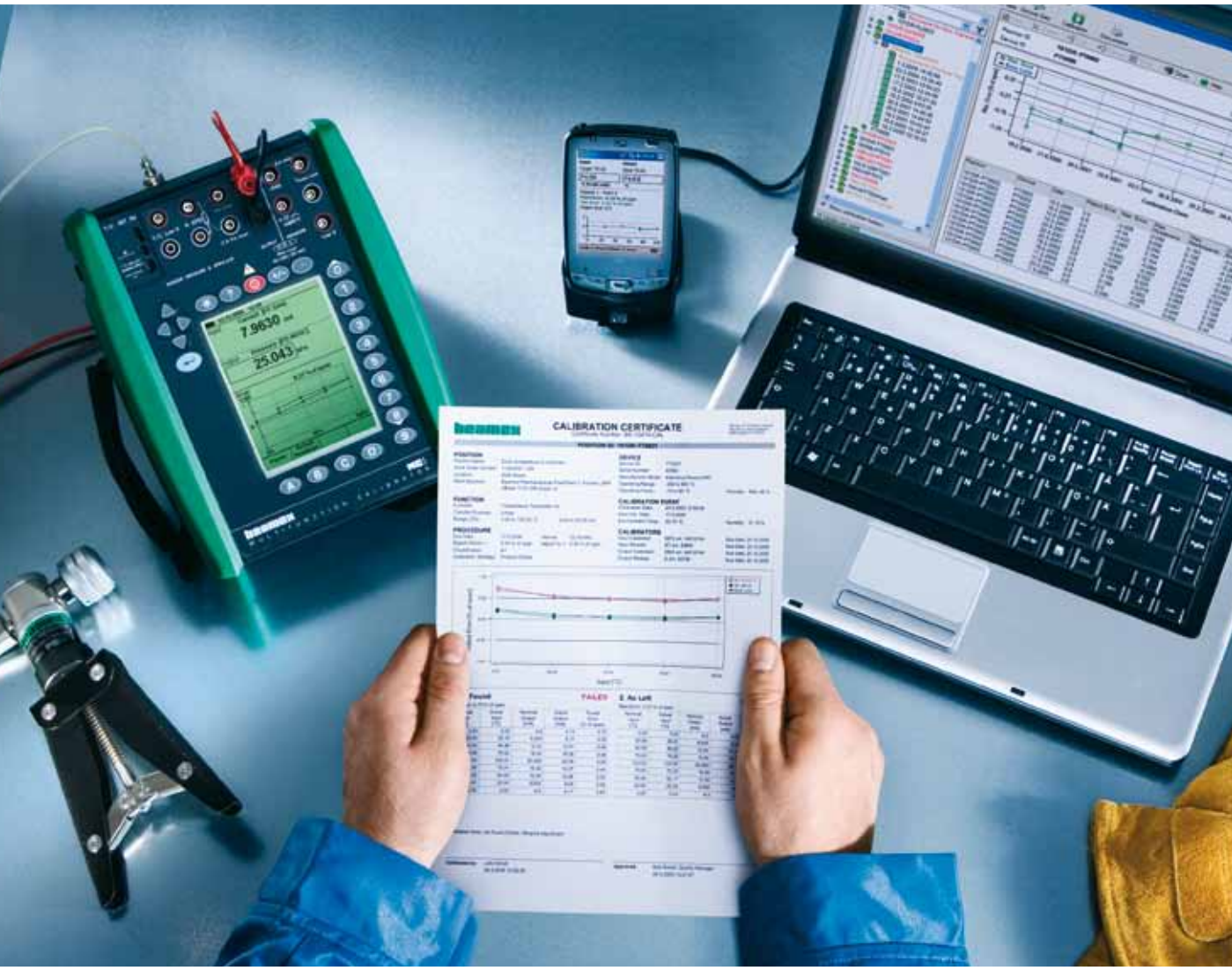
Tech Instrumentering – new distributor in Denmark!

From the left: Pamela Skytte (Beamex), Peter Sundqvist (Beamex), Kim Andersen (Tech Instrumentering), Jan-Henrik Svensson (Beamex), Christian Schrøder (Tech Instrumentering) and Raimo Ahola (CEO Beamex).

■ Tech Instrumentering Aps was established by Kim Andersen, Simon Tøfting and Christian Schrøder in 2005. Managing Director Kim Andersen is educated in marine engineering. Marketing and Financial Manager Simon Tøfting is educated in economics, and Process Consultant Christian Schrøder in electronics with experience in instrumentation and calibration in the pharmaceutical industry. The entire sales and service team at Tech Instrumentering Aps is very experienced in the field of instrumentation and calibration.

Tech is looking forward to working with Beamex, as they see Beamex as a competitive, high-end calibration brand that is highly suitable for the Danish industrial market."There is a lot of potential in developing our business with the Beamex product range completing our existing product and services portfolio. Our aim is to continue to satisfy the needs and requirements of existing Beamex users and also to introduce Beamex to new customers and industries. The shipping industry is one of our main target groups as we have a strong foothold in that industry. It's crucial to get the market to recognize us as the new Beamex distributor and to introduce the Beamex® Integrated Calibration Solution concept. The Beamex® Integrated Calibration Solution enables faster, more accurate and efficient management of all calibration assets and procedures and includes calibrators, software, support services", Christian explains.

In addition to calibration, Tech Instrumentering Aps offers instrumentation related products and services to various industries, such as marine, shipping, power and energy, refineries as well as other process industries. The company also has instrumentation expertise in level, flow, pH, conductivity, dry matter, etc.



Beamex® MC5 Multifunction Calibrator
Beamex® CMX Calibration Software

Paperless Calibration Improves Quality and Cuts costs

The business benefits are significant for companies that use software-based calibration systems. The whole calibration process – from initial recording of calibration data through to historical trend analysis – will take less time, whilst mistakes and manual errors will be virtually eliminated.

Portable calibrators
Workstations
Calibration software
Professional services
Industry solutions

beamex
WORLD-CLASS CALIBRATION SOLUTIONS®

www.beamex.com
info@beamex.com

What the customers say

- **97%** will probably recommend Beamex to a colleague.
- **96%** of calibration software customers say that using Beamex products has improved efficiency.
- **9** out of **10** say that using Beamex products has resulted in cost-savings.
- **96%** say that using Beamex products has improved the quality of their calibration system.

Beamex Customer Survey 2010

Beamex in brief

Beamex is a leading worldwide provider of calibration solutions that meet even the most demanding requirements of process instrumentation. Beamex offers a comprehensive range of products and services — from portable calibrators to workstations, calibration accessories, calibration software, industry-specific solutions and professional services. Through Beamex's partner network, their products and services are available in more than 60 countries.

Learn more about Beamex products and services:
www.beamex.com

Brochures, product demonstrations and quotations
info@beamex.com
www.beamex.com/request (online request form)

Software support
support@beamex.com

Re-calibration and service
service@beamex.com

Find your local Beamex sales office at:
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Interested in submitting an article to CALIBRATION WORLD?
Contact: pamela.skytte@beamex.com

If you would like to remove your name from our mailing list:
please visit www.beamex.com or send an e-mail to info@beamex.com

Beamex products and services

Portable calibrators
Beamex's range of portable MC calibrators for field calibration is known for their accuracy, versatility and also for meeting both high and uncompromised quality standards.
- MC5 Multifunction Calibrator
- MC5-IS Intrinsically Safe Multifunction Calibrator
- MC2 Series
- MC4 Documenting Process Calibrator
- MC2-IS Intrinsically Safe Multifunction Calibrator

Workstations
A workstation can be considered ideal when most of the maintenance and calibration tasks are performed in the workshop.
- MCS100 Workstation
- MC5P Calibration Host Module

Accessories
Beamex's calibration accessories complete your investment into calibration equipment.
- External pressure modules
- Calibration hand-pumps
- Spare parts

Calibration software
Plan, manage and document all your calibrations efficiently and safely using Beamex's calibration software.
- CMX Light
- CMX Professional
- CMX Enterprise

Professional services
An essential part of a total calibration solution is Professional Services — service and re-calibration, installation and training, software support, validation services and integration services.
- Re-calibration and service
- Installation and training
- Software Service Agreement (SSA)
- Validation services (pharmaceutical industry)
- Integration services



Introducing a smarter way to calibrate temperature

Beamex® FB & MB Series Temperature Blocks

Beamex introduces a smarter, more efficient and accurate solution for calibrating temperature. Beamex® has two different dry block series: the Beamex® FB Series Field Temperature Blocks and the Beamex® MB Series Temperature Metrology Blocks. The dry blocks in the FB Series are lightweight, high-accuracy temperature dry blocks for industrial field use. The dry blocks in the MB Series deliver bath-level accuracy for industrial applications.

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Read more at www.beamex.com

Portable calibrators
Workstations
Calibration software
Professional services
Industry solutions

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