



































Mitutoyo Precision Measuring Machines Trusted throughout the World

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Mitutoyo America Corporation

Established in 1963, Mitutoyo America Corporation has locations all across the US and Canada, including corporate offices, sales offices, M³ Solution Centers, calibration and repair laboratories, and research and development facilities. Mitutoyo America offers a full product line of precision measuring tools, instruments and equipment. Mitutoyo provides a comprehensive metrology organization, with dependable product and technical support, state-of-the-art calibration and repair services, unmatched education and training programs and cutting-edge research and development. As the leading metrology company in the world, Mitutoyo is committed to future product development that applies breakthrough technologies to its full range of dimensional measurement tools, instruments and systems. With the belief that providing high quality metrology goods and services to its customers will in turn, allow its customers to provide high quality product to theirs, Mitutoyo continues to develop the most advanced and sophisticated metrology equipment available. "Precision is our profession" is not just the company motto, but also the principle by which every Mitutoyo employee stands when serving our customers.

Mitutoyo

Precision is our Profession



One number to serve you better:
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M³ Solution Center

Mitutoyo Tools and instruments can be seen and demonstrated conveniently at any one of nine Mitutoyo M³ Centers nationwide. These centers are fully equipped featuring operational models of the latest Mitutoyo tools and instruments. By appointment or walk-in basis, product demonstrations at M³ Solution Centers are carried out by our experienced, highly trained staff. Contact your Mitutoyo distributor or the Mitutoyo regional office near you for more information.



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- Product and Part Availability
- Pricing
- Quotations

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Fax: (630) 978-3501

CMM Phone: (630) 723-3516
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Vision Phone: (630) 723-3516
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M³ Solution Centers

- Demonstrations
- Application support

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Toronto Phone: (905) 821-1261

Montreal Phone: (514) 337-5994

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- Application support

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Fax: (630) 820-9110

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- Seminars
- Textbooks

Mitutoyo Institute of Metrology

Phone: (630) 978-6469
Fax: (630) 978-6471

Marketing Services

- Product Literature

US Phone: (630) 723-3614
Fax: (630) 978-5394

Canada Phone: (905) 821-1261
Fax: (905) 821-4968



M³ Solution Center

*M³ = Mitutoyo, Measurement, Metrology

Product Demonstration / Application Support (M³ Solutions Centers)

With 9 locations across North America, Mitutoyo's M³ Solutions Centers provide hands on access to the full range of Mitutoyo Precision Tools and Instruments, including the latest technologies Mitutoyo has to offer. Available to walk-ins or by appointment, highly trained and industry experienced applications engineers will provide product demonstrations, answer questions and assist in the development of application specific solutions. Contact your Mitutoyo distributor or the M³ Solutions Center in your area for additional information.

Sales Support / Customer Service

To ensure fast, dependable responses to all product-related questions and needs, Mitutoyo America Corporation's Sales Support group is available to assist with information on all Mitutoyo precision tools and instruments. Friendly, knowledgeable customer service representatives can provide product specifications, availability, and pricing as well as recommend a local distributor authorized to sell Mitutoyo Products.

Technical Support Services

Fast technical support for all Mitutoyo precision tools, instruments and software applications is available to distributors and customers through Mitutoyo's technical support services and is just one phone call away. Highly skilled engineers and technicians possessing a wealth of knowledge on all Mitutoyo products can provide product information, answer technical questions, and offer application guidance. Contract programming and inspection services utilizing our most advanced technologies are also available.

Software Application Training

To maximize the value of Mitutoyo precision instrument purchases, Mitutoyo America Corporation provides customized end user training for all CMM, Vision, Form, and data management (MeasurLink) software applications it provides. Highly trained, industry knowledgeable software instructors provide hands-on one-on-one or group training with content appropriate for all customer needs. Training classes can be arranged at locations throughout North America.

Calibration Services

Mitutoyo America Corporation's calibration laboratory utilizes state-of the art technology to calibrate virtually any metrology tool made. A2LA accredited to ISO/IEC 17025 for testing and calibration labs, this facility employs professional calibration technicians to provide NIST-traceable accuracy certification as well as calibration services for Mitutoyo and other manufacturer's gages and gage blocks. Canadian calibration laboratory is CLAS accredited to ISO/IEC 17025.

Company Profile



Field Services



Committed to ensuring value and longevity in its products, Mitutoyo America Corporation provides field services for all of its major measuring instrument products. A fully-staffed field service department will arrange the installation, repair, and A2LA accredited calibration of Mitutoyo metrology instruments. Capable of certifying calibration on any service visit, Mitutoyo's accredited field service technicians get equipment back into production quickly. Service agreements are available at the time of equipment purchase. Canadian field service laboratory is CLAS accredited to ISO/IEC 17025.

Repair Services



Mitutoyo America Corporation's in-house repair facilities are capable of repairing the full range of Mitutoyo precision tools. Skilled technicians provide quality repairs backed by a full 90-day warranty on parts and labor. When sending an item in for repair, address the package to one of our two repair centers, 958 Corporate Blvd., Aurora, IL, or City of Industry, CA. Please include complete contact information in the package, including a fax number and a brief description of the problem. Once received, the item will be evaluated for repair requirements, and a repair estimate will be faxed to you. When sending in items for repair, it is not necessary to contact us in advance for a returned merchandise or returned goods authorization (RMA or RGA). Repair service is also available in Canada.

Parts Center

Mitutoyo America Corporation's product parts center stocks over 10,000 individual parts for Mitutoyo products. Same day and 24-hour shipping is available for most part requests. For CMM parts, a specialized group is available to provide additional CMM support services. A Mitutoyo product parts catalog is available on CD-ROM through the Parts Center or through a local Mitutoyo distributor.

Mitutoyo Institute of Metrology

The Mitutoyo Institute of Metrology provides training and metrology seminars on topics ranging from basic principles of metrology to advanced QC studies. The institute is a premier educational facility within the quality field with over 5,000 students per year taking our courses. Seminars are led by experienced, industry-leading professionals at locations across the US and Canada. Seminars can also be arranged for customers to be held at their own facilities. All courses are approved for CEU credits (Continued Education Units).

CT Lab / MEI (R&D and Software Development)

Mitutoyo America's CT Labs and Micro Encoder Inc. are part of an international network of Mitutoyo research and development facilities charged with the responsibility of developing breakthrough technologies for application to the company's range of dimensional measurement tools, instruments and systems and for the advancement of the field of metrology in general. Highly skilled developers and engineers utilize cutting edge development tools to produce the most advanced and sophisticated metrology software and equipment available. Mitutoyo America Corporation is a Microsoft® Gold Certified Partner, providing the entire organization access to a host of Microsoft® development tools and support, and helping to ensure that Mitutoyo software applications work reliably in Microsoft® OS and network environments.

Sales Solutions / System Design and Integration

Standard products alone can not always solve our customers' measuring challenges. That is why we established an engineering group to integrate our equipment into application-engineered custom solutions. Called Sales Solutions, this group can sometimes create a solution as simple as fixturing. Other times, the answer may require integration of the latest metrology equipment, process control software and robotics to create an automated metrology cell. Whatever the level of complexity, for application and integration of measurement technologies simple or complex – proven or newly emerging – you can count on Sales Solutions to develop a plan to improve your process capability, productivity and bottom line.

- Flexible turn-key measurement solutions
- Automated measurement cell technology

Since the establishment of its first micrometer factory in Japan in 1934, Mitutoyo Corporation has expanded its operations throughout the world. Mitutoyo currently maintains 58 sales, manufacturing, engineering and R&D facilities in 28 countries, and has established a superior network of distributors in 80 countries internationally. Mitutoyo retains its premier status as a leading global metrology provider by satisfying the unique precision measurement needs of every regional market that it serves.



Headquarters



Tohoku Sales Section



Kita-Kanto Sales Section 1



Koshin Sales Section



Kansai Sales Section 1



Seibu Sales Section



Kawasaki Plant



Tsukuba Laboratory



Utsunomiya Operations



Kiyohara Production Department



Nakatsugawa Plant



Shiwa Production Department



Kure Production Department



Miyazaki Plant



Gohara Production Department



- Headquarters
- Sales
- Service Center
- Calibration Center
- M³ Solution Center
- Mitutoyo Institute of Metrology
- Research and Development Facility
- Manufacturing Facility

Japan Headquarters

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Kooriyama Office TEL (024) 931-4331

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Utsunomiya Office TEL (028) 660-6240
Tsukuba Office TEL (029) 839-9139

Kita-Kanto Sales Section 2

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Isezaki Office TEL (0270) 21-5471
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Saitama Office TEL (048) 667-1431

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Tokyo Office TEL (03) 3452-0481

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Atsugi Office TEL (046) 226-1020
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Koshin Sales Section

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Anjo Office TEL (0566) 98-7070
Hamamatsu Office TEL (053) 464-1451

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Yokkaichi Office TEL (059) 350-0361

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Kansai Sales Section 2

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Kanazawa Office TEL (076) 924-1807

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Minami-Kanto Service Section 1

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Koshin Service Section

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Tokai Service Section 1

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Tokai Service Section 2

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Kansai Service Section

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Chu-Shikoku Service Section

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Utsunomiya Operations

Production Department 2

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Hiroshima Operations

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- Sales
- Research and Development Facility
- Manufacturing Facility



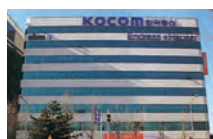
Mitutoyo Sul Americana Ltda.
Argentina Branch



Mitutoyo Mexicana S.A. de
C.V.



Mitutoyo Taiwan Co., Ltd.



Mitutoyo Korea Corporation



Mitutoyo Measuring
Instruments (Suzhou) Co., Ltd.



Mitutoyo Measuring Instruments
(Shanghai) Co., Ltd.



Tianjin Office



Mitutoyo Sul Americana Ltda.
Factory (Suzano)

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Meaning of Symbols

ABSOLUTE

ABSOLUTE Linear Encoder

Mitutoyo's technology has realized the absolute position method (absolute method). With this method, you do not have to reset the system to zero after turning it off and then turning it on. The position information recorded on the scale is read every time. The following three types of absolute encoders are available: electrostatic capacitance model, electromagnetic induction model and model combining the electrostatic capacitance and optical methods. These encoders are widely used in a variety of measuring instruments as the length measuring system that can generate highly reliable measurement data.

Advantages:

1. No count error occurs even if you move the slider or spindle extremely rapidly.
2. You do not have to reset the system to zero when turning on the system after turning it off^{*1}.
3. As this type of encoder can drive with less power than the incremental encoder, the battery life is prolonged to about 3.5 years (continuous operation of 20,000 hours)^{*2} under normal use.

*1: Unless the battery is removed.

*2: In the case of the ABSOLUTE Digimatic caliper. (electrostatic capacitance model)

IP Codes

These are codes that indicate the degree of protection provided (by an enclosure) for the electrical function of a product against the ingress of foreign bodies, dust and water as defined in IEC standards (IEC 60529: 2001) and JIS C 0920: 2003. [IEC: International Electrotechnical Commission]

First characteristic numeral	Degrees of protection against solid foreign objects	
	Brief description	Definition
0	Unprotected	—
1	Protected against solid foreign objects of $\geq 50\text{mm}$ and greater	A $\geq 50\text{mm}$ object probe shall not fully penetrate enclosure*
2	Protected against solid foreign objects of $\geq 12.5\text{mm}$ and greater	A $\geq 12.5\text{mm}$ object probe shall not fully penetrate enclosure*
3	Protected against solid foreign objects of $\geq 2.5\text{mm}$ and greater	A $\geq 2.5\text{mm}$ object probe shall not fully penetrate enclosure*
4	Protected against solid foreign objects of $\geq 1.0\text{mm}$ and greater	A $\geq 1.0\text{mm}$ object probe shall not fully penetrate enclosure*
5	Protected against dust	Ingress of dust is not totally prevented, but dust that does penetrate must not interfere with satisfactory operation of the apparatus or impair safety.
6	Dust-proof	No ingress of dust allowed.
7	—	—
8	—	—

*: For details of the test conditions used in evaluating each degree of protection, please refer to the original standard.

Second characteristic numeral	Degrees of protection against water	
	Brief description	Definition
0	Unprotected	—
1	Protected against vertical water drops	Vertically falling water drops shall have no harmful effects.
2	Protected against vertical water drops within a tilt angle of 15 degrees	Vertically falling water drops shall have no harmful effects when the enclosure is tilted at any angle up to 15° on either side of the vertical.
3	Protected against spraying water	Water sprayed at an angle up to 60° either side of the vertical shall have no harmful effects.
4	Protected against splashing water	Water splashed against the enclosure from any direction shall have no harmful effects.
5	Protected against water jets	Water projected in jets against the enclosure from any direction shall have no harmful effects.
6	Protected against powerful water jets	Water projected in powerful jets against the enclosure from any direction shall have no harmful effects.
7	Protection against water penetration	Ingress of water in quantities causing harmful effects shall not be possible when the enclosure is temporarily immersed in water under standardized conditions of pressure and time.
8	Protected against the effects of continuous immersion in water	Ingress of water in quantities causing harmful effects shall not be possible when the enclosure is continuously immersed in water under conditions which shall be agreed between manufacturer and user but which are more severe than for IPX7.



• Dust-tight + water jet protected IP65



• Dust-tight and water protected IP66



• Dust- and watertight IP67

Independent Confirmation of Compliance

IP65, IP66 and IP67 protection level ratings for applicable Mitutoyo products have been independently confirmed by the German accreditation organization, TÜV Rheinland.



Measuring Instruments Shipped with Inspection Certificate

Mitutoyo guarantees product quality as a leading precision measuring instrument manufacturer and ships measuring instruments with an inspection certificate that includes inspection data so that customers can use them with confidence.

Mitutoyo also calibrates the purchased measuring instrument and issues, for a fee, a calibration certificate that proves traceability to the relevant standard.

* For the meaning of the inspection marks shown at left, refer to the detailed description of each product.

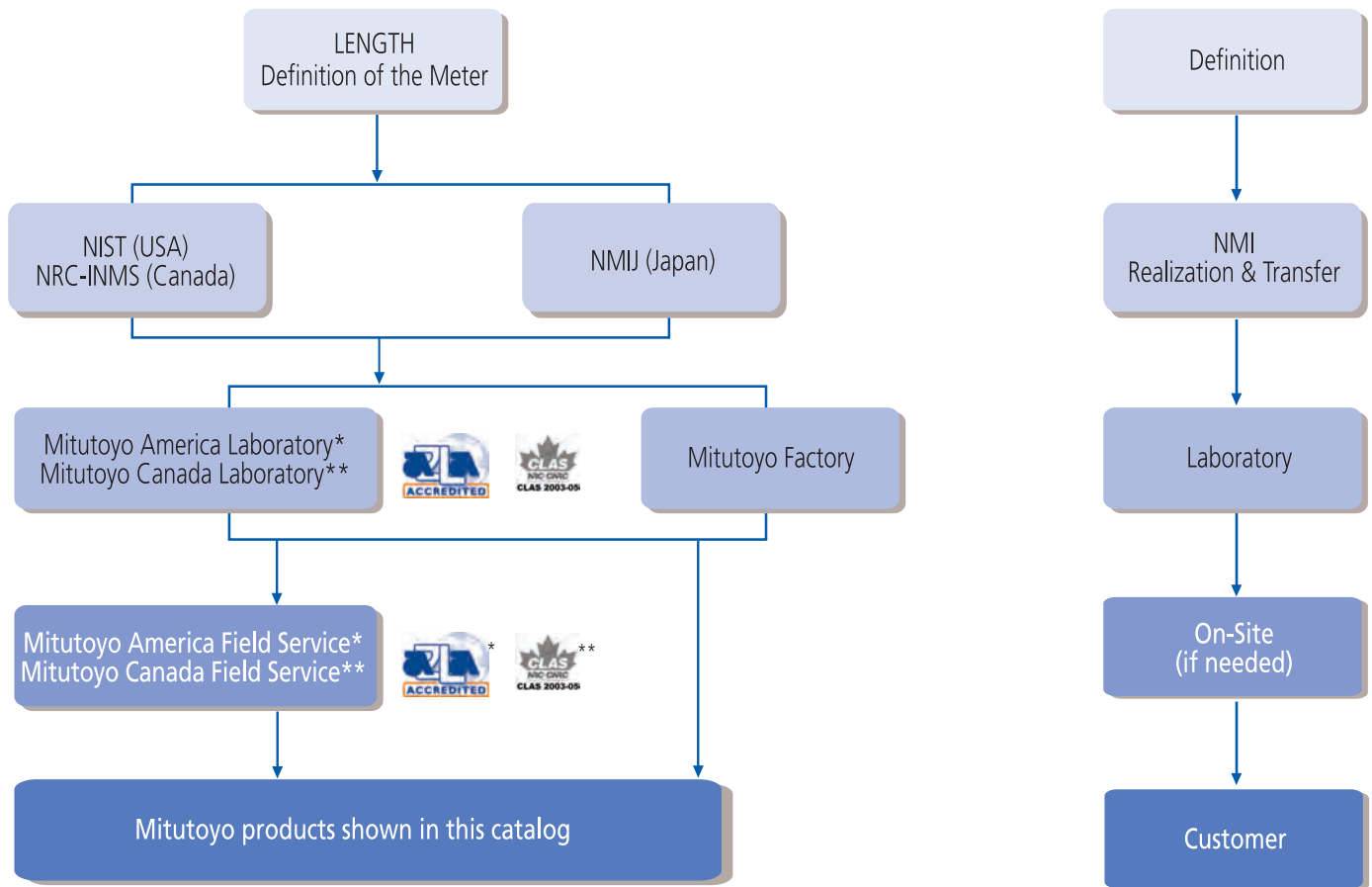
**Main Unit
Startup System**

Installation of Main Unit Startup System

As a part of the enhancement of our export control system, the large CNC measuring machines (all the CNC Coordinate Measuring Machines, Vision Measuring Systems, and Form Measuring Machines) are now equipped with a Main Unit Startup System (relocation detecting system) before export. This system is designed to take a machine out of operation upon detecting the mechanical shock that accompanies relocation. If you intend to relocate a measuring machine fitted with this system, please contact us beforehand so that our service engineers can assist you.

On the other hand, the system may be triggered in the event of a natural event such as a powerful earthquake. In this case, our service engineers will deal with the situation at the earliest opportunity.

Traceability Mitutoyo North America



Traceability is an essential requirement for all measurements. At Mitutoyo, we consider providing traceability to our customers to be a critical part of our business. Traceability is often referred to as a “chain of comparisons”, and that chain always starts with a precise definition. For length measurements, the meter is defined by how far light moves in a vacuum in a defined amount of time. The job of reducing that definition into a practical measurement belongs to the world’s National Metrology Institutes (NMI). The NMI in the U.S. is the National Institute of Standards and Technology (NIST), where they realize and transfer the definition of length to physical measurements of gage blocks, line scales, and other primary standards. From there, traceable measurements at other laboratories and factories are possible. Mitutoyo factories and calibration labs regularly send their standards to NIST; however, traceability can also be established through other recognized NMIs, such as the National Metrology Institute of Japan (NMIJ). The world’s leading NMIs, such as NIST and NMIJ, routinely participate in intercomparisons to ensure global traceability to the same unit of length.

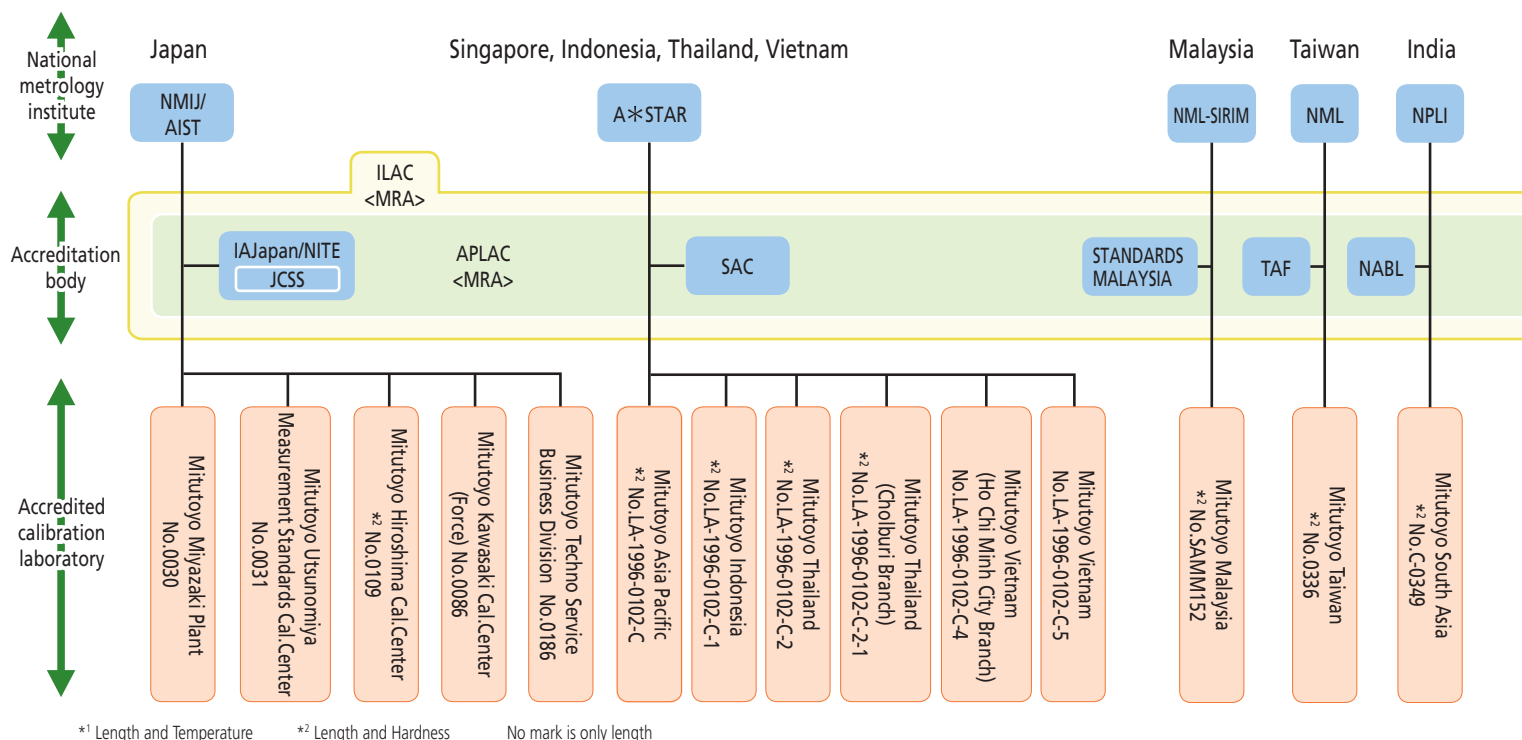
The requirements for demonstrating traceability vary from industry to industry. In the past, some industries required NIST test numbers, but that practice is now obsolete and has been replaced in many industries by the much more demanding requirement of ISO 17025 accreditation. To meet these needs, Mitutoyo America offers our customers A2LA accredited calibrations either in our labs or at your facility. None of our competitors can match the range and accuracy of accredited calibration services offered by Mitutoyo. Not every quality system requires accreditation, and for the less demanding needs, our standard factory issued certificates can still be used to ensure the required traceability.

Whatever the measurement, whatever the requirements for traceability, Mitutoyo has the most technically advanced metrology products and calibration services to meet your specific needs.

Offering Reliable Traceability Worldwide

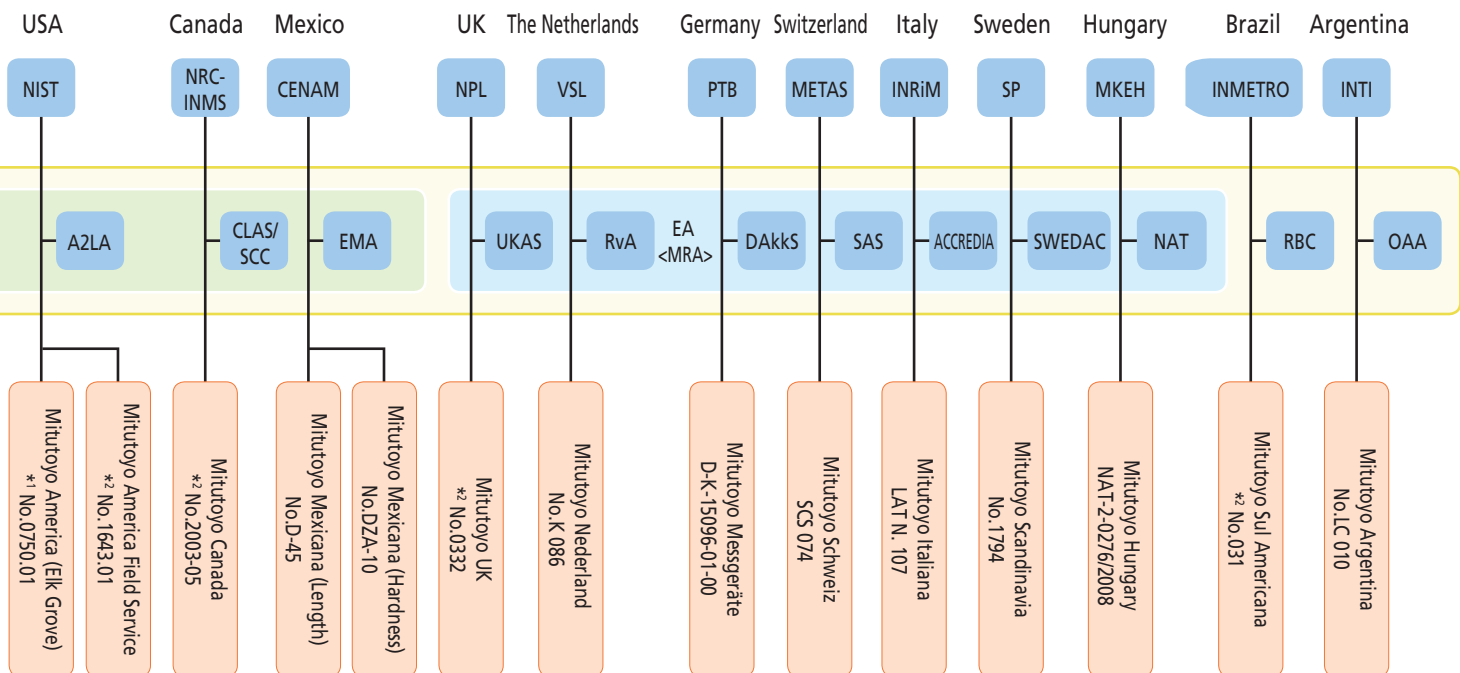
Calibration laboratories worldwide

Mitutoyo has a system allowing comprehensive support for the calibration of precision measuring products in the global market. In order to provide calibration services on a global basis, Mitutoyo has calibration laboratories that have received ISO/IEC 17025 certification, which is an international standard, from the accredited organizations in each of the countries in which Mitutoyo operates and subsidiaries are located, both in Japan and overseas.



AIST:	National Institute of Advanced Industrial Science and Technology
NMIJ:	National Metrology Institute of Japan
JCSS:	Japan Calibration Service System
NITE:	National Institute of Technology and Evaluation
IAJapan:	International Accreditation Japan
A*STAR:	Agency for Science, Technology and Research
SAC:	Singapore Accreditation Council
NML:	National Measurement Laboratory
TAF:	Taiwan Accreditation Foundation
NML-SIRIM:	National Metrology Laboratory, Standards and Industrial Research Institute of Malaysia
STANDARDS MALAYSIA:	Department of Standards Malaysia
NIST:	National Institute of Standards and Technology
A2LA:	American Association for Laboratory Accreditation
NRC-INMS:	National Research Council of Canada-Institute for National Measurement Standards
CLAS:	Calibration Laboratory Assessment Service
SCC:	Standards Council of Canada
CENAM:	Centro Nacional de Metrología
EMA:	Entidad Mexicana de Acreditación, a.c.
UKAS:	United Kingdom Accreditation Service
NMI:	Nederlands Meetinstituut

RvA:	Raad voor Accreditatie
PTB:	Physikalisch-Technische Bundesanstalt
DAKKS:	Deutsche Akkreditierungsstelle GmbH
METAS:	The Swiss Federal Office of Metrology and Accreditation
SAS:	Swiss Accreditation Service
IMGC:	Istituto di Metrologia " GUSTAVO COLONNETTI "
ACCREDIA:	L'NTE ITALIANO DI ACCREDITAMENTO
SP:	Swedish National Testing and Research Institute
SWEDAC:	Swedish Board for Accreditation and Conformity Assessment
INMETRO:	Instituto Nacional de Metrologia Normalizacao e Qualidade Industrial
RBC:	Rede Brasileira de Calibração
INTI:	Instituto Nacional de Tecnología Industrial
OAA:	Organismo Argentino de Acreditación
NPL:	National Physical Laboratory
NPLI:	National Physical Laboratory of India
NABL:	National Accreditation Board for Testing and Calibration Laboratories
(ILAC):	International Laboratory Accreditation Cooperation
(APLAC):	Asia-Pacific Laboratory Accreditation Cooperation
(EA):	European Accreditation Cooperation
(MRA):	Mutual Recognition Arrangement
#:	Accreditation No.

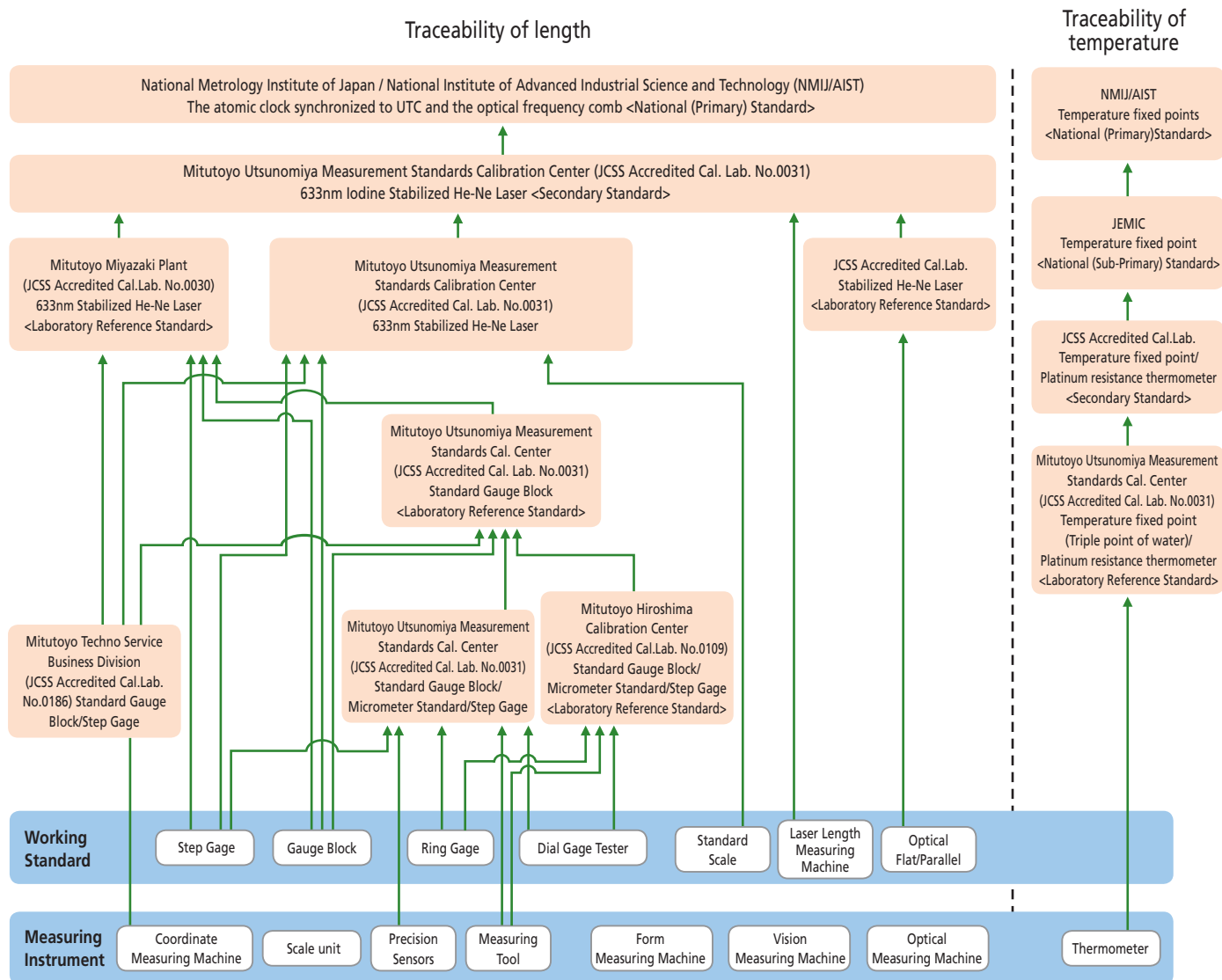


Precision Assured Products through High Level in-house Calibration

Traceability system

Mitutoyo has a traceability system made possible through an in-house calibration organization certified by the ISO/IEC 17025 international standard, with length standards directly related to national standards (atomic clock synchronized to UTC and the optical frequency comb) at the highest level.

National standards are mutually recognized by CIPM, and the certified calibration organization is mutually recognized by ILAC, so that the establishment and maintenance of traceability for Mitutoyo products is achieved both in Japan and overseas.

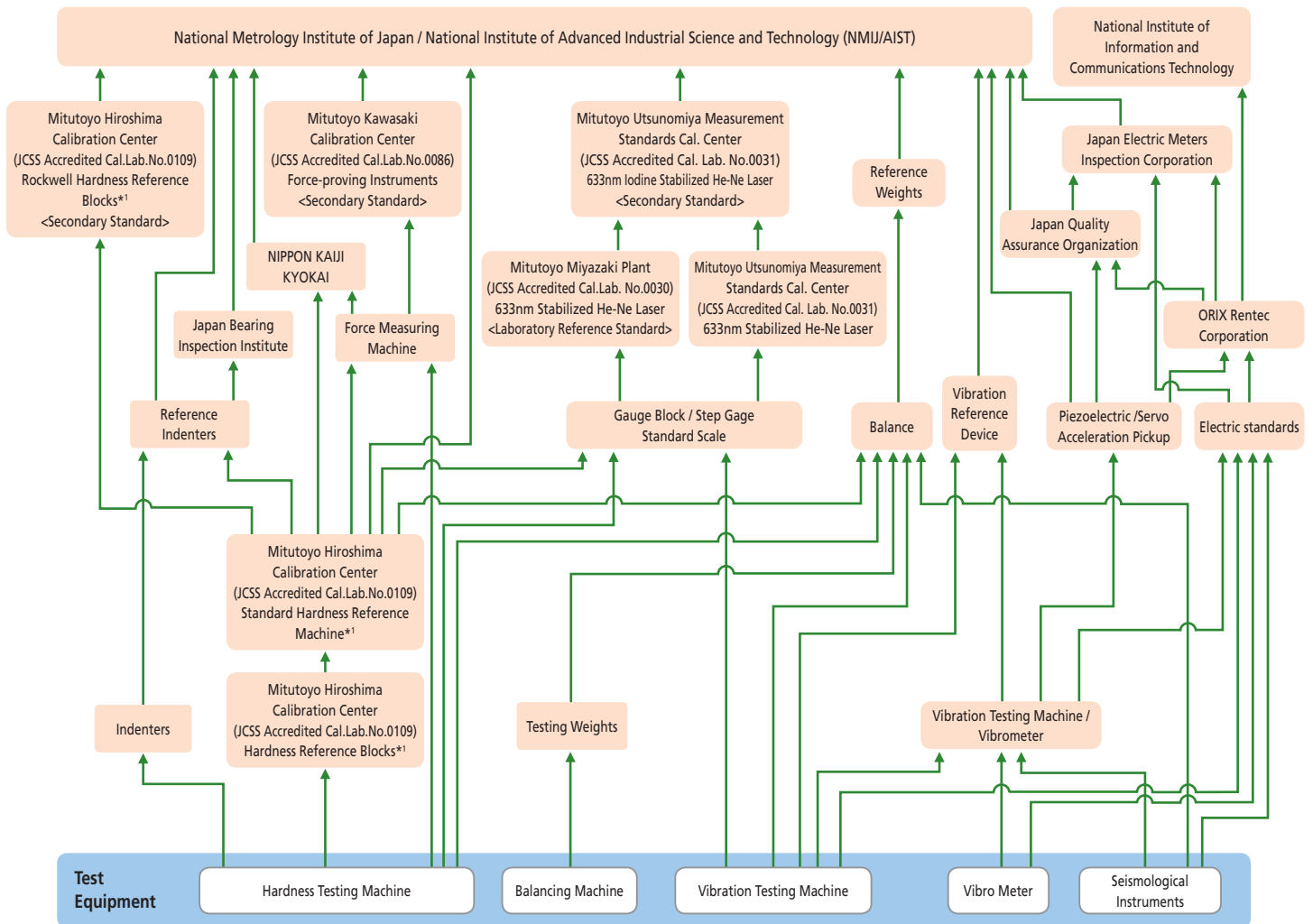


Note: This chart is a simplified representation of Mitutoyo's overall traceability system. Detailed traceability charts are published for each product.



Certificate of JCSS accredited laboratory (Mitutoyo Utsunomiya Measurement Standards Calibration Center)

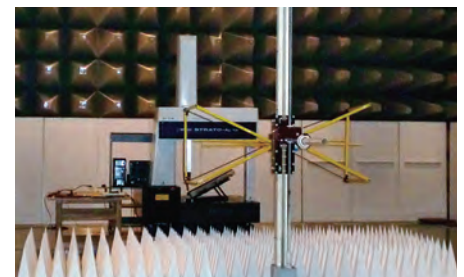
Traceability of Test Equipment



*1 The scope of JCSS accreditation is from 20HRC up to 65HRC in Rockwell Hardness Testing Machines and Hardness Reference Blocks.
Note: This chart is a simplified representation of Mitutoyo's overall traceability system. Detailed traceability charts are published for each product.

Conformance to CE Marking

In order to improve safety, each plant has programs to comply with the Machinery Directives, the EMC Directives, and the Low Voltage Directives. Compliance to CE marking is also satisfactory. CE stands for "Conformité Européenne". CE marking indicates that a product complies with the essential requirements of the relevant European health, safety and environmental protection legislation.



Measuring System Implementation

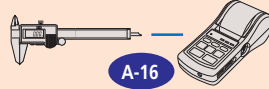
The following introduces system implementation principles showing how measurement results from various Mitutoyo measuring instruments are recorded and used for quality control purposes.

Implementation Step 1

Recording and storing measurement results

Eliminating writing by hand

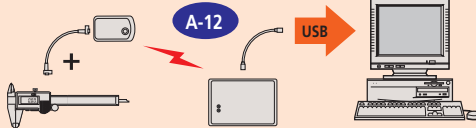
Prints out measurement data easily, providing the statistical calculation function.



Digimatic Mini-Processor DP-1VR

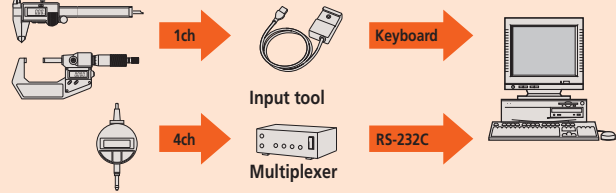
To perform wireless communication

U-WAVE



To input data to a PC

A keyboard signal conversion type Input tool can input measurement data directly into spreadsheet software such as Excel.



RS-232C conversion type unit requires separate communication software.

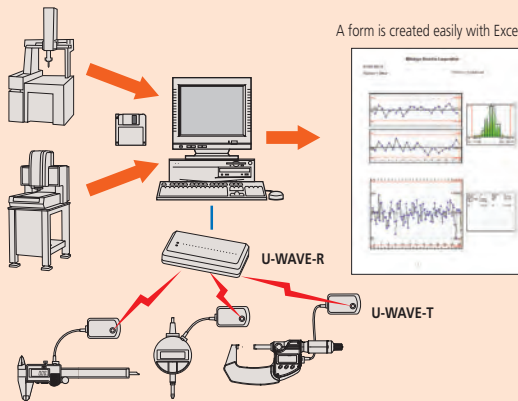
Input tool series A-10

Multiplexers A-14

Implementation Step 2

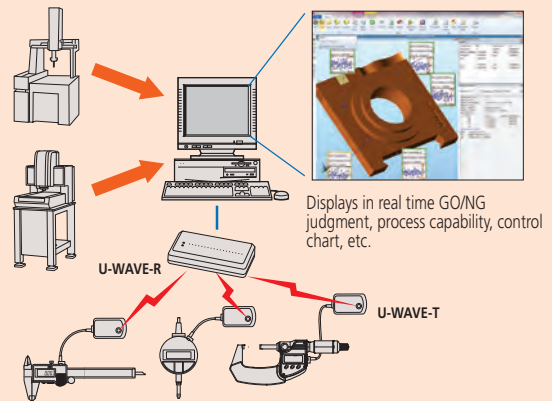
Using dedicated inspection and quality control software

Setup for statistical process control



MeasurLink Real-Time A-4

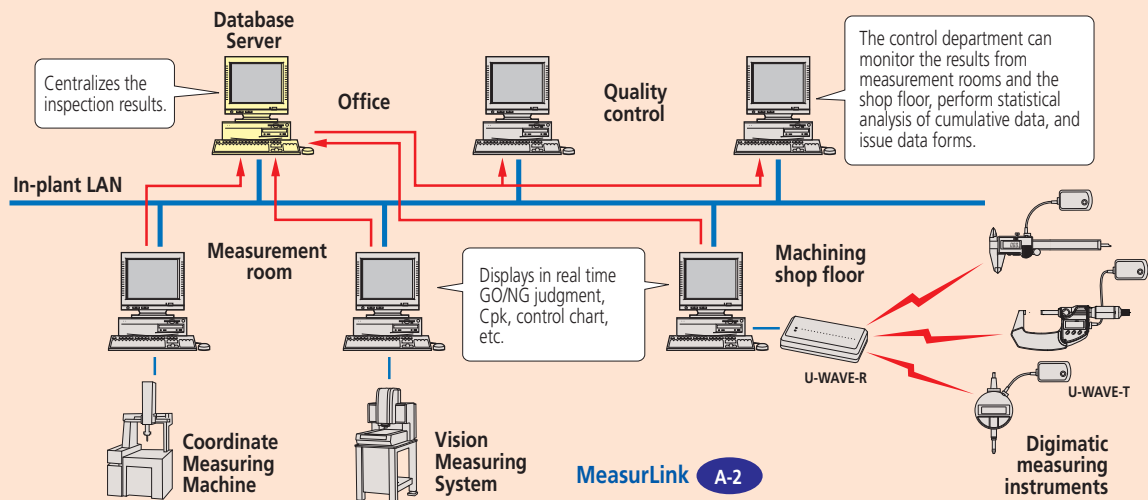
Performing statistical process control



Implementation Step 3

Networking quality control data gathered from various locations

Centralizing and analyzing measurement results



MeasurLink A-2