

PRECISION IS OUR PROFESSION

Bulletin No. 2027

Introduction to Precision Measuring Instrument Solutions

— Medical Device and Pharmaceutical Industries Edition —



Mitutoyo

Mitutoyo's precision measuring instruments —



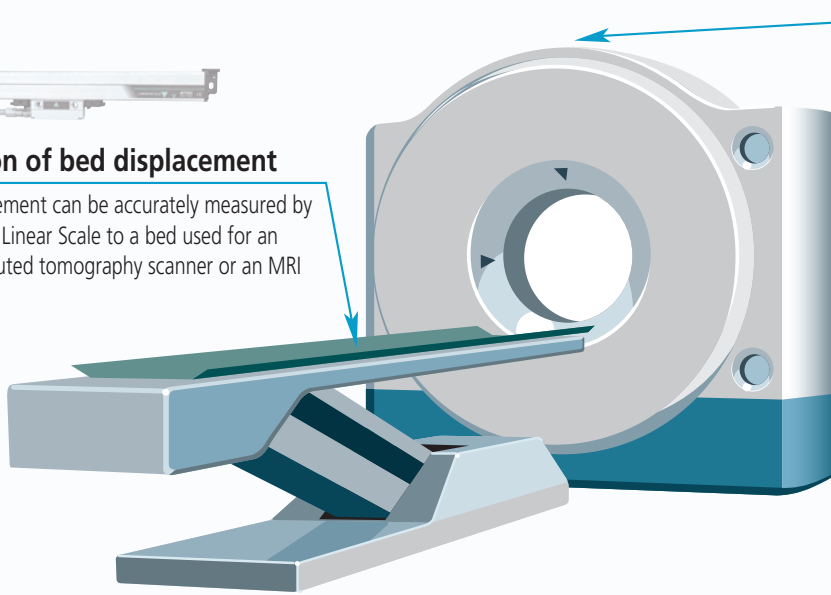
For the Diagnostic Device Field

X-ray computed tomography scanners



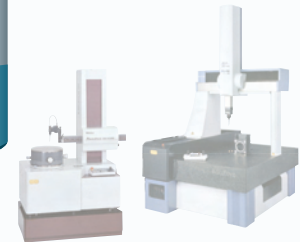
Detection of bed displacement

Bed displacement can be accurately measured by mounting a Linear Scale to a bed used for an X-ray computed tomography scanner or an MRI device.

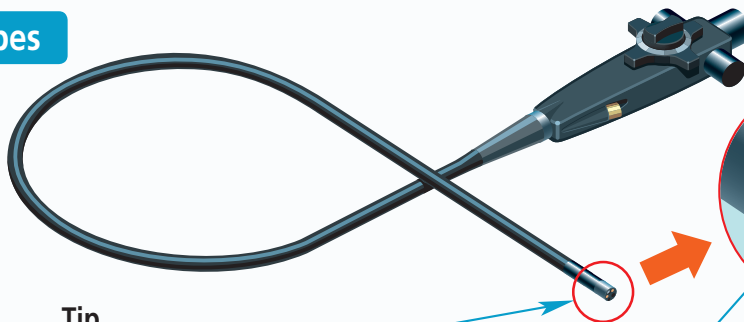


Large axle bearing

High-accuracy Roundness Measuring Machines and Coordinate Measuring Machines can be employed for roundness measurement of large axle bearings used in X-ray computed tomography scanner gantries.

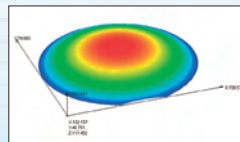


Endoscopes



Tip

Vision and Optical Measuring Instruments are most appropriate for measuring the size and the position of small holes such as lens mounts and clamps.



Objective lens

Using CNC Form Measuring Instruments, high-accuracy profile, surface evaluation, and surface roughness measurement of aspheric lenses used in endoscopes and lenses for various medical optical devices is possible.



For various fields including the research, development and production of Medical Device

Small Tools (calipers, micrometers, dial indicators, etc.) and Linear Gages are helpful for dimension and form measurement of various component parts and finished products.

- Support for the development and production sites



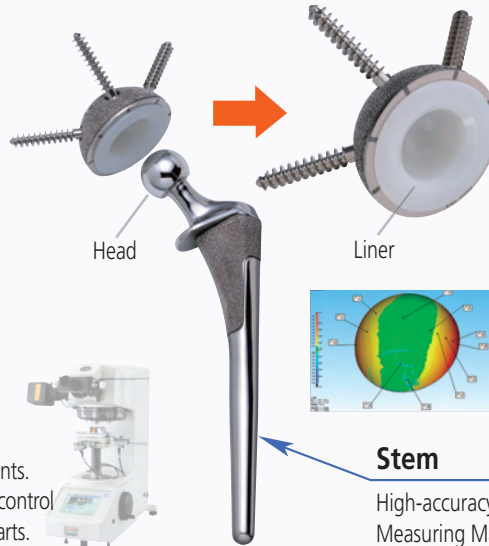
For the Therapeutic Device Field

Artificial joints



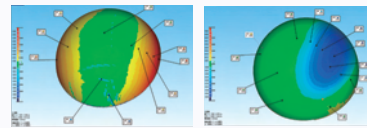
Material management

The bearing surface is an important factor determining the durable years of artificial joints. Hardness Testing Instruments are helpful to control the abrasion resistance of the component parts.



Head/Liner

Coordinate Measuring Machines can measure 3D shapes with high speed and accuracy providing the efficient measurement of heads and liners necessary to improve the fit and functionality of artificial joints.



Stem

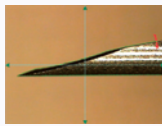
High-accuracy Coordinate Measuring Machines provide efficient measurement of curved workpieces such as stems.

Injector/Catheter



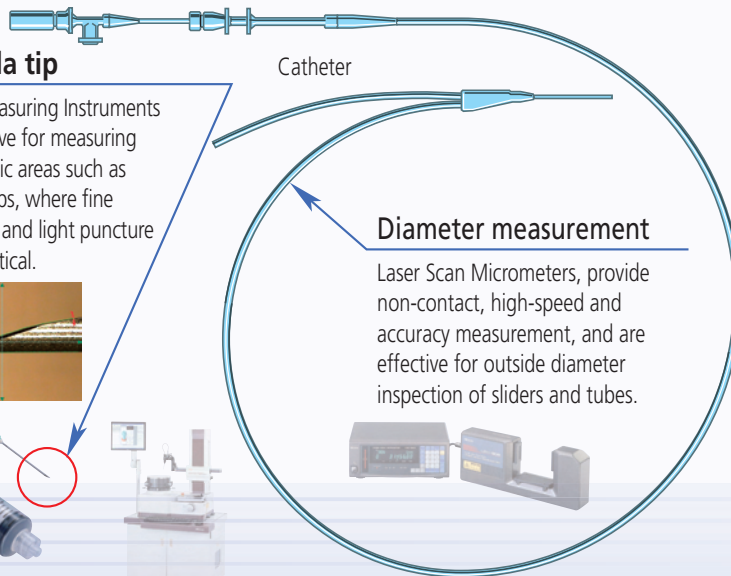
Cannula tip

Vision Measuring Instruments are effective for measuring microscopic areas such as cannula tips, where fine sharpness and light puncture force is critical.



Syringe

The internal shape of a syringe can influence fluid leakage and plunger operation. Roundness Measuring Machines can measure the roundness, cylindricity and surface roughness with high accuracy.

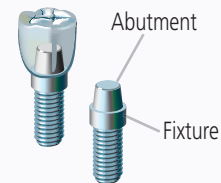


Diameter measurement

Laser Scan Micrometers, provide non-contact, high-speed and accuracy measurement, and are effective for outside diameter inspection of sliders and tubes.



Dental implants



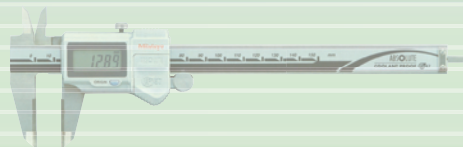
Fixture/Abutment

Optical and Surface Roughness Instruments are employed for dimensional- and surface-roughness control of abutments and fixtures, critical components affecting implant wear.



Plastics and Pharmaceutical Goods

Various workpieces such as materials,



of Medical Devices and Pharmaceutical Goods

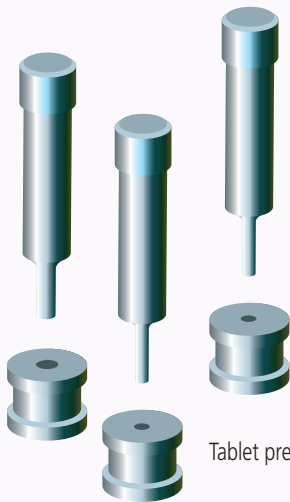


For the Pharmaceutical Goods Field

Tablets and capsules

Molds for tables

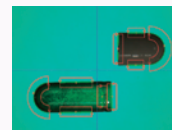
Surface Measuring Instruments that measure dimension, surface-roughness and form/contour simultaneously, are effective for the form control of tablet press molds used in tablet production.



Tablet press molds

Capsules

Vision and Optical Measuring Instruments provide non-contact, high-speed and accuracy measurement, effective for capsule dimension and inner diameter inspection and deformity control.

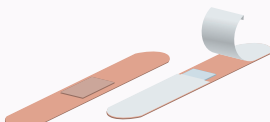


Tablets

Hardness Testing Instruments can be used to inspect tablet hardness, an important texture attribute of medicinal chemicals, and can also evaluate the hardness of the plating layers of tablet press molds.



Poultice, plaster, emergency adhesive plaster, etc.



Emergency adhesive plaster



Plaster

Soft material object

The Litematic is very appropriate for measuring deformable workpieces. Measurement of thickness is accomplished with low measuring force, and minute impact on the base.

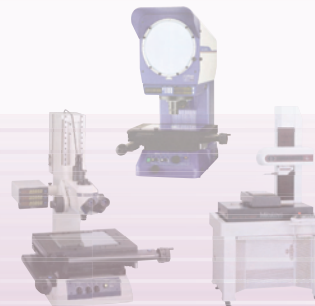


Container



Mouths of containers/bottles

Optical and Form Measuring Instruments are effective for the measurement of screws thread form, bottle diameters and container openings, where control of air-tight seals is critical. Surface Roughness Instruments can be used to inspect openings where surface roughness can affect the sealed state.



Precision Measuring Instruments Supporting Medical Devices and Pharmaceutical Industries

The following are application examples for Mitutoyo's precision measuring instruments.

Field of Application		Mitutoyo's Precision Measuring Instruments								
		Coordinate Measuring Instruments	Vision Measuring Instruments	Form Measuring Instruments	Optical Measuring Instruments	Sensor Systems	Testing Instruments	Scales	Small Tools	*MeasurLink®
Diagnostic devices	X-ray computed tomography scanner	Measurement of gantries' large bearings	●		●				●	●
		Measurement of bed frame dimensions	●						●	●
		Bed positioning control						●		●
	Ultrasonic medical diagnosis system	Dimensional measurement of component parts	●	●	●	●		●	●	●
X-Ray diagnostic equipment	Dimensional measurement of component parts	●	●	●	●		●	●	●	
Medical Treatment Devices	Proton beam medical treatment equipment	Form and dimensional measurement of boluses and collimators	●						●	●
	Injection syringes	Form measurement of syringes	●		●	●			●	●
		Form measurement of plunger parts		●	●	●			●	●
		Dimensional and angle measurement of injection needle tips		●	●	●	●	●	●	●
		Hardness measurement of cannulas		●				●		●
	Suture needles	Dimensional and angle measurement of needle tips		●	●	●	●		●	●
	Artificial hip and knee joints	Dimensional and form measurement of heads and liners	●	●	●			●	●	●
	Artificial bones	Dimensional and form measurement of fixation and connection plate parts for heads and liners	●	●	●	●			●	●
	Dental implants	Measurement of fixtures and abutments		●	●	●		●	●	●
	Catheters	Outside diameter measurement					●		●	●
		Elasticity measurement						●		●
	Stents	Dimensional and hardness measurement of parts		●		●		●	●	●
	Contact lenses	Form and thickness measurement			●		●		●	●
	Dental instruments	Measurement of dental unit frames	●						●	●
		Dimensional measurement of hand pieces	●	●	●	●			●	●
		Dimensional measurement of drills		●	●	●			●	●
		Hardness measurement of metallic materials						●		●
	Electric and magnetic therapy apparatuses	Dimensional measurement of component parts	●		●				●	●
	Hearing aids	Dimensional measurement of component parts		●		●			●	●
	Pacemakers	Dimensional measurement of component parts		●		●			●	●
Steel equipments	Dimensional and hardness measurement of parts	●	●	●	●		●	●	●	
Blood drawing, fluid and blood transfusion instruments	Dimensional and form measurement of joints		●	●	●			●	●	
Pharmaceutical	Tablets	Dimensional measurement		●		●			●	●
		Hardness measurement of tablets						●		●
	Capsules	Dimensional measurement		●		●			●	●
	Antiphlogistic analgetic for external use	Thickness and surface roughness measurement			●		●		●	●
	Containers and ampules	Dimensional measurement	●	●	●	●			●	●
Metal molds	Metal molds for tablet press	●	●	●	●	●	●	●	●	
	Molds for various plastic products	●	●	●	●	●	●	●	●	

* MeasurLink® advances your Quality Process by supporting the FDA 21 Part 11 compliance specifications for electronic data storage and signatures with enhanced login security profiles and audit trails.

Remarks:

Names of the precision measuring instruments presented in this leaflet are classified into the products mentioned above.

Coordinate Measuring Instruments: Coordinate Measuring Machines

Form Measuring Instruments: Surface Roughness Measuring Instruments; CNC Form Measuring Instruments; Form Measuring Instruments; Roundness Measuring Machines

Optical Measuring Instruments: Optical Measuring Instruments, Profile Projectors, Measuring Microscopes, Surface Measuring Instruments

Sensor Systems: Laser Scan Micrometers, Litematic

Testing Instruments: Hardness Testing Instruments

Scales: Linear Scales

Note: All information regarding our products, and in particular the illustrations, drawings, dimensional and performance data contained in this printed matter as well as other technical data are to be regarded as approximate average values. We therefore reserve the right to make changes to the corresponding designs. The stated standards, similar technical regulations, descriptions and illustrations of the products were valid at the time of printing. In addition, the latest applicable version of our General Trading Conditions will apply. Only quotations submitted by ourselves may be regarded as definitive.

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We reserve the right to change specifications and prices without notice.

Coordinate Measuring Machines	=====
Vision Measuring Systems	=====
Form Measurement	=====
Optical Measuring	=====
Sensor Systems	=====
Testing Equipment and Seismometer	=====
Digital Scale and DRO Systems	=====
Small Tool Instruments and Data Management	=====

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