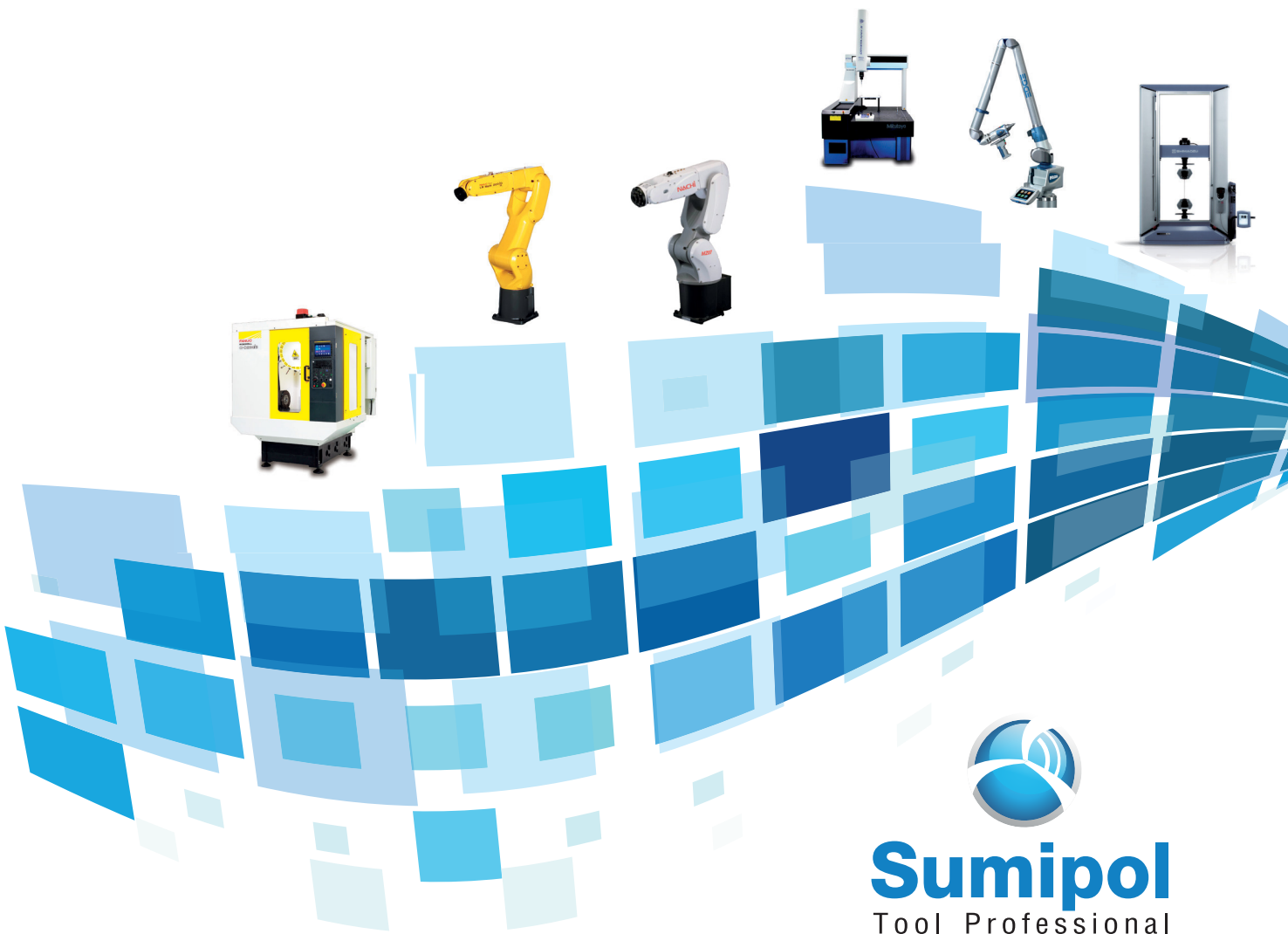


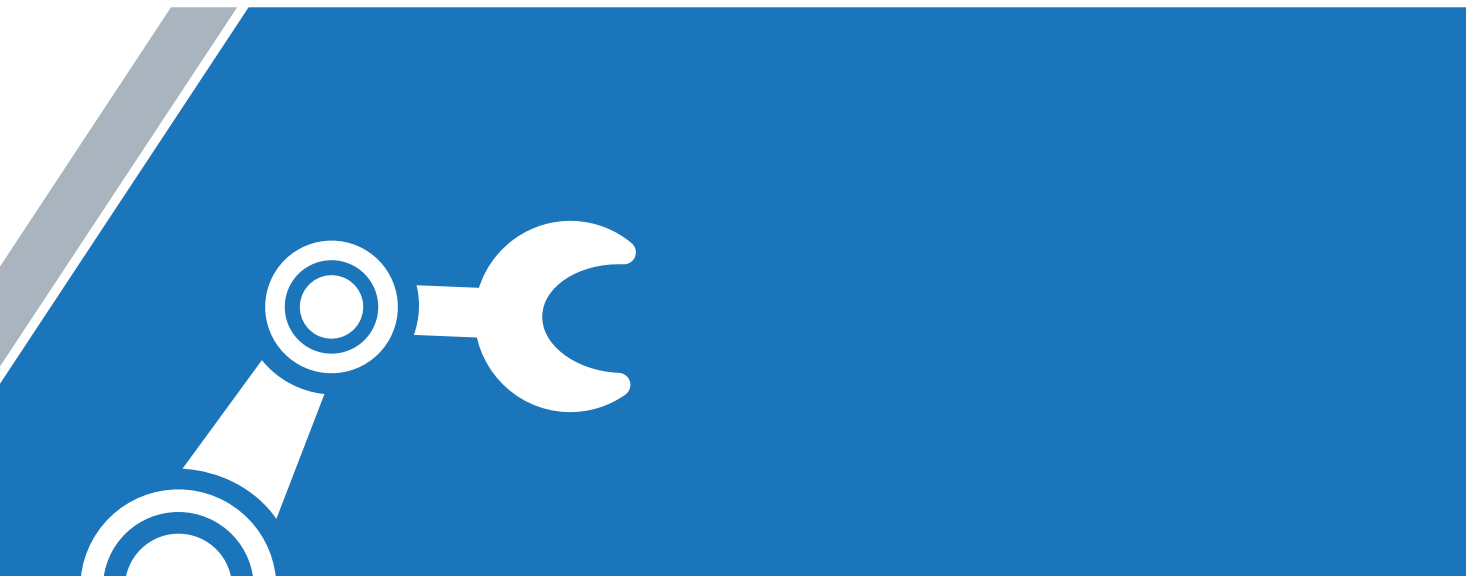
# MACHINES, MEASURING INSTRUMENTS AND AUTOMATION TECHNOLOGY



**Sumipol**  
Tool Professional

# *World-Class Machines, Measuring Instruments, and Automation Technology*





With 30 years of experience in distributing high quality industrial tools, Sumipol Corporation Limited is trusted by thousands of manufacturers in various industries. Now, we are ready to expand our service to a new product group: "Machines, Measuring Instruments, and Automation Technology". By representing world-class brands we are able to continue to fulfill customer's needs as a total industrial service provider.

Applying technology plays a critical role in enhancing manufacturing efficiency amidst intense competition. Sumipol Corporation, as a supply partner, is committed to maximizing customers' benefits. Besides carefully selecting top quality products, we focus on both before and after sales service. Therefore, you can be rest assured of the right machines and instruments for the applications, optimizing productivity and return on investment.



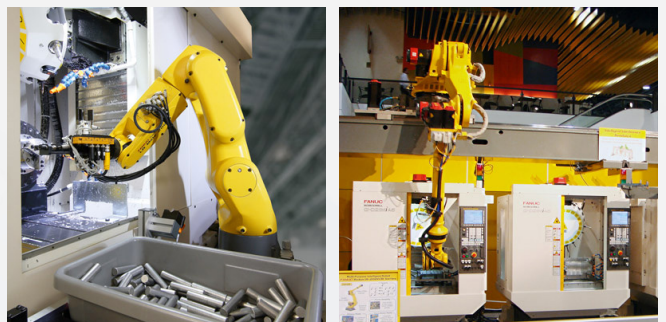
# MACHINING SOLUTIONS



- Advice on optimal selection of CNC machines, cutting tools, tooling systems, jig/fixture, etc
- Design process of machining workpieces according to customers' requirements
- Machining line diagnosis in terms of cost, line balancing and time study to improve productivity and efficiency

# AUTOMATION SOLUTIONS

Provide analysis of production lines to plan and design semi-automation or full automation that is suitable for each manufacturing process and maximize return on investment through use of industrial robots, modern automation equipment, and software to demonstrate work simulation.



# MEASURING SOLUTIONS



- Advice on optimal selection of measuring instruments for customers' quality control requirements
- Provide technical advice, training on usage and maintenance, as well as troubleshooting by specialists
- Mitutoyo's showrooms to demonstrate measurement of customer's workpieces to facilitate maximum return on investment
- Provide after-sales service, including ISO/IEC 17025 accredited calibration, and advice on software upgrades and accessory options to enhance instrument performance
- Provide advice on measurement data management systems to visualize product quality

## Measurement Data Network System MeasurLink

### Preventive Measures Against Product Scrapping

All data from measuring tools and instruments connected to the network is collected in real time, allowing product failure prediction by implementing statistical process control.

### Causal Analyses Enabled with Accumulated Data

Immediate database access to measurement results enables statistical analysis to be applied for rapid identification of process issues.



## Measurement Data Wireless Communication System U-WAVE

This is a system that transmits data from Mitutoyo Digimatic gages to software such as Excel or Notepad via wireless communication. It saves time and eliminates misinput, helps achieve cost reductions and better efficiency while maintaining excellent operability.



# DMG MORI

DMG MORI brings together German and Japanese tradition, precision and technological leadership in machine tool building. Behind DMG MORI is the combined engineering mastery of 68 years of Mori Seiki and 148 years of GILDEMEISTER.

Innovative and solutions-based with new technologies. As one of the leaders in innovation in the industry, DMG MORI is continuously developing trend-setting products. Through its pooled innovative capacity, DMG MORI is optimising its product and service portfolios, and setting technological standards.

Turning

## Solution-based Standard Machine for Every Shop Floor ALX 2000

DMG MORI developed the ALX Series with a desire to provide a machine that is truly reliable and can be used by various fields of customers for a long time.

With its high versatility, the ALX Series is capable of handling a broad range of workpieces in any industry.

Each of the series models elaborately designed to details is a highly reliable new standard for turning centers.

ALX 2000 | 300 is machine type of the distance between centers 300, with a 8-inch chuck size.



Turning

## Rigid and Precise Turning Center NLX Series



### Highlights

- Turret equipped with BMT (Built-in Motor Turret)
- Thoroughly controlled thermal displacement
- Magnescale absolute linear measuring system
- Elaborate Design in Pursuit of Usability

### Technical Data

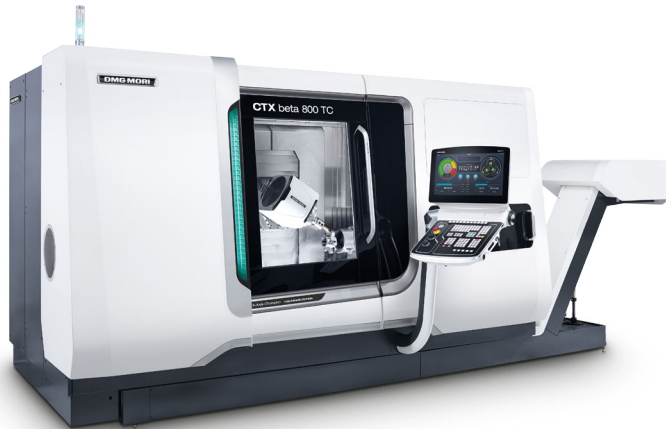
- **Max.** turning diameter **920 mm**
- **Max.** work piece length with a tailstock **2,000 mm**
- **Max.** Chuck size **610 mm**
- **Max.** spindle motor speed **8,000 rpm**
- Drive power rating (100% DC) **55 kW (AC)**
- **Max.** bar capacity diameter **117 mm**

### The NLX Series impresses with its extremely rigid design and outstanding turning and milling properties

From the compact NLX 1500 to the NLX 6000 for the production of large parts, the versatile models combine an extremely rigid design, maximum drive power and state-of-the-art equipment options. The reliability, precision and user-friendliness of the NLX turning centres are properties that convince users from the automotive and mechanical engineering industries and many other branches.

# Turn & Mill Complete Machining Center CTX TC Series

Turning



## Highlights

- 6-sided complete machining by main spindle and optional counter spindle
- Ultra-compact turn-mill spindle compactMASTER
- Tool magazine as a disk or chain magazine

## Technical Data

- **Max.** turning diameter **700 mm**
- **Max.** turning length **3,050 mm**
- Integrated spindle motor with C-Axis (0.0001°) **5,000 rpm**
- **Max.** bar work capacity **127 mm**
- **Max.** spindle speed turn-mill spindle **20,000 rpm**
- **Max.** number of tool stations **180 pockets**

## Turn & Mill Complete Machining Centers

The turn-mill machines of the CTX TC and CTX TC 4A series represent the premium class of universal turning centres. Up to 6-side turning and up to 5-axis CNC milling can be achieved in one setting with these turning machines. The combination of diverse technologies and methods is one of the defining trends in modern manufacturing. The CTX beta TC sets new standards in this area by means of extensive series equipment, a wide range of options and numerous technology integrations.

# High-Precision, High-Efficiency Integrated Mill Turn Center NTX Series

Turning

## Highlights

- Incorporating two cutting-edge technologies: turning Centers and machining centers
- Six variations selectable according to purpose
- High-rigidity construction not susceptible to aging
- Fully equipped to support high-accuracy machining

## Technical Data

- **Max.** turning diameter **660 mm**
- **Max.** turning length **1,540 mm**
- Integrated spindle motor with C-Axis (0.0001°) **6,000 rpm**
- **Max.** bar work capacity **80 mm**
- **Max.** spindle speed turn-mill spindle **12,000 rpm**
- **Max.** number of tool stations **10 Pockets**



## The NTX mill/turn centres produce the most demanding workpieces with maximum precision and absolute efficiency

The NTX 1000 2nd Generation and the NTX 2000 stand in the DMG MORI portfolio as a synonym for maximum productivity in the production of complex components. The mill/turn centres master every challenge, from medical applications and precision instruments to components for the aerospace and automotive industries and on to include applications in tool and mould making.

# Rigid and Precise Vertical Machining Center NVX 5000 Series

## Highlights

- Best surface quality - highest accuracy for any machining operations
- Unprecedented rigidity and accuracy
- Ultimate hybrid structure
- Outstanding machining capability
- Unmatched high-performance spindle
- Best chip disposal solution in the industry

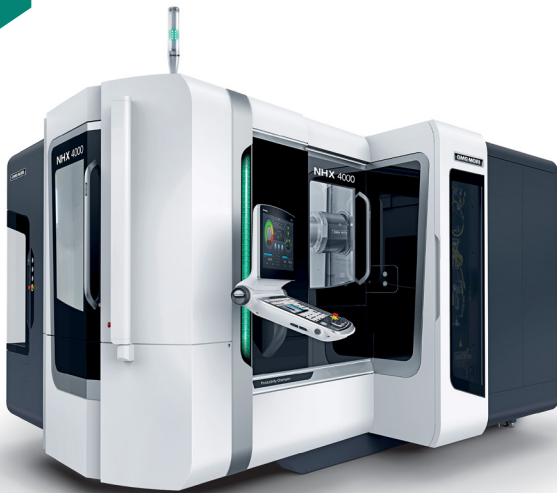
## Technical Data

- **Max. travels (x,y,z)**      **1,540 / 760 / 660 mm**
- **Max. table load**                      **2,000 kg**
- **Table length**                              **1,700 mm**
- **Table width**                                **760 mm**



The NVX 2nd Generation vertical machining centers achieve world's highest accuracy, with a meticulous attention to details and technical ingenuity. Offering unparalleled high-precision machining, the machines can handle a wide variety of workpieces in any industry, allowing itself to be the ideal choice for customers machining various kinds of workpieces or those considering diversifying into new fields.

# High-Precision, High-Speed Horizontal Machining Center NHX Series



## Highlights

- Strong speedMASTER-Spindle as Standard
- Compact construction for economic production
- Extensive cooling measures and multi-sensor compensation
- FEM optimized machine body and stepped travel column

## Technical Data

- **Max. travels (x,y,z)**                      **1,700 / 1,400 / 1,510 mm**
- **Max. table load**                              **5,000 kg**
- **Table length**                                **1,000 mm**
- **Table width**                                **1,000 mm**

## High-precision machining and maximum productivity are the strengths of the proven NHX series from DMG MORI.

With the NHX 4000 2nd Generation and NHX 5000 2nd Generation, DMG MORI presents compact and dynamic horizontal machining centers. Those general-purpose horizontal machining centers enable high-efficiency, continuous machining and mass production machining in various areas such as the automotive and other mechanical fields. Both models are equipped with our latest spindle, the speedMASTER with up to 20,000 rpm speed or up to 200 Nm torque, ensuring high-speed and stable high-precision machining.



# CNC Universal Milling Machine With Swivel Rotary Table DMU 50 3<sup>rd</sup> Generation

Milling  
5-Axes

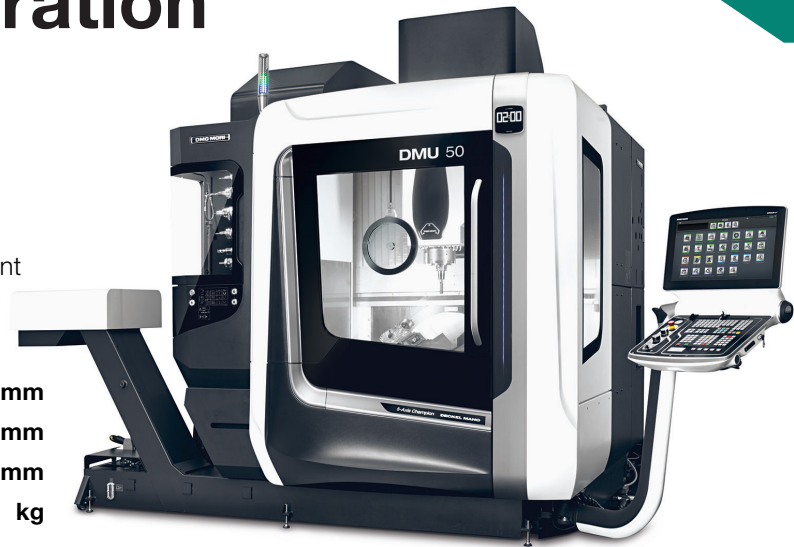
## Highlights

- 5-axes simultaneous machining
- Swivel rotary table with large bearings
- Tool magazines - set up during machining time
- Excellent accessibility and low space requirement

## Technical Data

- **Max.** X travels
- **Max.** Y travels
- **Max.** Z travels
- **Max.** Table load
- Table diameter

650 mm  
520 mm  
475 mm  
300 kg  
630 mm



## Universal Milling Machines

The Universal Milling Machines of the DMU Series are offering the economical entry into 5-axes machining up to 5-axes simultaneous machining. The rigid swivel rotary table allows a swivel range up to 110°. With spindle speeds up to 20,000 rpm the DMU is suited for an universal use from education up to the demanding production.

## The monoBLOCK Series has a Machine Concept for Every Sector

Milling  
5-Axes

# DMU 75 monoBLOCK



## Highlights

- Strong speedMASTER-Spindle as Standard
- Large door opening with unique access to the working area
- Extensive cooling measures and multi-sensor compensation
- Several table solutions up to milling and turning

## Technical Data

- **Max.** X travels
  - **Max.** Y travels
  - **Max.** Z travels
  - **Max.** Table load
  - Table length
- 750 mm  
650 mm  
560 mm  
600 kg  
650 mm

## DMU monoBLOCK series

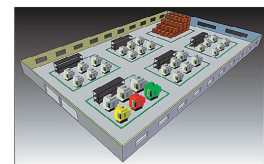
The monoBLOCK series has a machine concept for every sector: Be it 5-axis simultaneous machining, highly dynamic high-speed milling with spindle speeds up to 40,000 rpm, integrated mill-turning with table speeds up to 1,200 rpm, high-torque cutting with torques up to 430 Nm or the broad field of productive parts machining in 3 – 5 axes. With the new monoBLOCK machines, every component produced becomes an impressive masterpiece.



# Industrial Robots made for higher productivity

From its inception in 1956, FANUC is the leading global manufacturer of factory automation. With almost 60 years of experience in the development of computer numerical control equipment, more than 19.5 million products installed worldwide and more than 5,200 employees, FANUC is the leading global manufacturer of factory automation. Whether it's industrial robots, CNC systems, wire cut EDM, injection moulding machines or vertical machining centres.

## FANUC ROBODRILL $\alpha$ -DiB series



Condition overlook screen



Operation achievement

### High-Reliability and High-Performance Compact Machining Center

FANUC ROBODRILL is a fully-fledged compact CNC milling, tapping and drilling centre that delivers unrivalled quality and precision at great hourly rates. Proven to be extremely robust and reliable, it offers huge versatility across a wide range of applications from prototypes to entire production runs - and by far the shortest cycle times for most milling and drilling tasks.

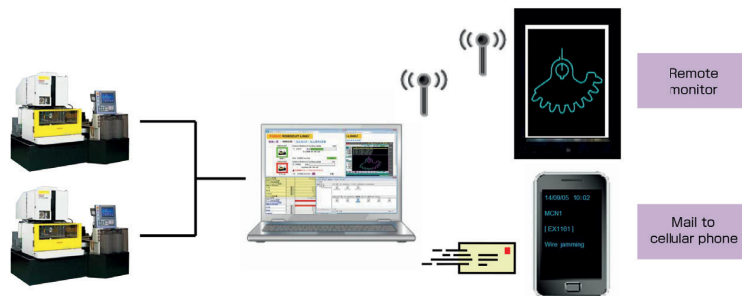
### Minimizing Down time

FANUC's legendary reliability coupled with easy preventative maintenance procedures keep downtime to an absolute bare minimum and ensure machines provide a great return on investment thanks to extremely long lifespans.

### Ease of use with ROBODRILL - Linki

- Support improvement of machine utilization by collecting and visualizing machine information
- Real time display of the entire production area helps to understand the condition of each machine at once
- Collecting operation achievement data for each machine and show in the graph
- Easy utilization of high function by excellent user-Interface

# FANUC ROBOCUT $\alpha$ -CiB series



7

## High-Reliability and High-Performance Wire-cut Electric Discharge Machine

Where wire EDM is concerned, accuracy has traditionally come at the cost of speed. That's why FANUC has developed a next generation ROBOCUT wire EDM machine. The  $\alpha$ -CiB series comprises three versatile all-rounders, including the first model with an 800 mm table. With incredibly long mean times between failures, low maintenance, longevity and excellent uptimes, these future-proof machines are designed to save time and drive down unit costs while ensuring superlative accuracy and cutting.

### Designed for ultimate performance

- High reliability of auto wire feeding AWF2 providing unmanned machining
- Consumables management function and Maintenance guidance function supporting routine maintenance
- ROBOCUT- Linki for production and quality information management tool

### Ease of use

- FANUC CNC and operation guidance function providing superior operations
- Fulfilling cutting technologies supporting high speed, high precision, and high quality cutting
- Automatic Function supporting set-up operation



# FANUC's Industrial Robots

## - Top performers for smarter automation

With more than 100 models, FANUC offers the widest range of industrial robots in the world. Covering a diverse range of applications and industries, FANUC robots are easy to operate and provide complete flexibility thanks to a range of application-specific options, straightforward integration, payloads up to 2.3 t and maximum reaches up to 4.7 m.

### LR Mate Series

- Lightweight but strong

Available with different reaches and wrist speeds, this human-arm sized robot is your best compact solution for fast handling and processing parts up to 7 kg and a calculated TCP speed of max. 11 meters/sec across a whole range of industries including food or metal.



### ARC Welding Robots

- Full range for all your application needs

Purpose built for arc welding applications, Arc Mate series robots are the product of years of experience in robotics and welding. With payloads of up to 20 kg and reaches up to 2.0 m, this series is suitable for a wide range of arc welding, laser welding, soldering and cutting applications.



### M-10 Series

- Slim and fast

The fastest handling robot in its class, the M-10 series delivers improved throughput and optimized cycle times across a wide range of pick, place and machine tending operations.



### M-710 Series

- The multi-purpose workhorse

This innovative series of lightweight robots is designed for handling applications involving medium payloads from 12 to 70 kg. Featuring a slim wrist, rigid arm and small footprint, M-710 series robots are suitable for a wide range of applications and come with a reach of up to 3.1 m.



### M-1 Series

- Compact high-speed picking and assembly

Discover the unique, ultra-compact FANUC M-1 and enter a new dimension in high-speed small parts handling. With 3, 4 or 6 axes, this series of high-speed assembly robots are ideal for a variety of applications requiring a maximum payload of 1 kg and a work envelope of up to 420 mm.





# NACHI

## Nachi Fujikoshi's industrial robots are breaking new ground in the era of advanced manufacturing.

Nachi Fujikoshi started producing robots in 1968, leveraging the know-how from the hydraulic and machine tool divisions. Nachi Fujikoshi has grown and advanced to earn the trust and respect in facilities around the world. The world comes to Nachi Fujikoshi for all its needs, from compact precision operation to lifting heavy loads in a full range of assembly and welding solutions. Nachi Fujikoshi's robots are revolutionizing production facilities with their incredible speed. They will continue to evolve with customers to meet the challenge of the world's automation needs.

### World's fastest lightweight compact robot

#### MZ07 Series

- Number of controlled axes: 5 or 6 axes
- Payload capacity: 7 kg
- Maximum reach : 723 to 913 mm



- MZ07 (6 axes)**      **MZ07L (6 axes, long arm)**
- MZ07P (5 axes)**      **MZ07LP (5 axes, long arm)**

World's fastest operating performance, lightweight, compact, dust-proof and drip-proof specifications, plus installation specifications are flexible for an all-around compact high performance robot. Contributes to better productivity and is applicable for automating a variety of processes. Hollow wrist construction means wiring for the hand is streamlined for doing work in narrow locations.

### Compact and super fast robot

#### MZ04 Series

- Number of controlled axes: 6 axes
- Payload capacity: 4 kg
- Maximum reach : 541 mm

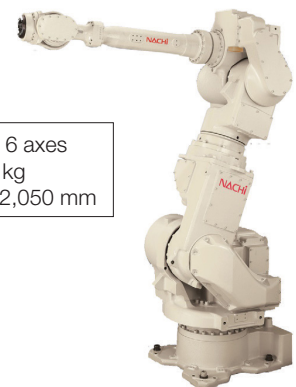


The new MZ04 robot arms feature ultra high-speed motion capability with advanced through-arm dress capabilities to simplify routing of hoses and cables for material handling, assembly, vision and many other applications. The lightweight and compact robot arm helps keep the equipment simple and saves space. The installation area is half that of the MZ07 (A5 paper size).

### Powerful and compact multi-purpose robot

#### MC Series

- Number of controlled axes: 6 axes
- Payload capacity: 10 to 70 kg
- Maximum reach : 1,400 to 2,050 mm



- MC20**      **MC10L**      **MC12S**
- MC35**      **MC50**      **MC70**

High dust and drip proofing, top level operating performance, and a full range of functions to handle a variety of applications keep these robots working in a variety of production environments. Maximum reach of 2,050 mm, (best in class). Strong wrist torque can handle a large variety of application.



# Mitutoyo

## Mitutoyo's CMM

### - The World's Top Measuring Instruments Manufacturer

Mitutoyo has been offering measuring tools such as micrometers and calipers, and system instrument products such as coordinate measuring instruments, form measurement instruments, and optical measuring instruments, to markets around the world under the motto of "Quality First", and the company's products have since then been in demand and used by customers everywhere.

#### CRYSTA - APEX S Series

**High-Performance, low-price CNC coordinate measuring machine that meets global standards**

The CRYSTA-APEX S Series is a high performance, cost effective coordinate measuring machine, designed and constructed according to Mitutoyo's extensive experience in CNC CMM technology. It offers you the following benefits:

- High-speed, high-acceleration drive
- Temperature compensation system (16°C to 26°C)
- High accuracy in the 1.7 µm in class
- Designed for high rigidity



#### CRYSTA - PLUS M



**A low cost, highly accurate, compact and easy to operate measuring instrument**

The Crysta-Plus M is an intelligent alternative to complex and cost-intensive measuring machines or conventional measuring tools. As a high performance manual 3D coordinate measuring instrument, Crysta-Plus M is self-centering despite various types of measurements and materials.

- Length measuring accuracy is 3.5 µm.
- High Resolution Dustproof Glass Scales
- Air Bearings on All Axes
- One-Touch Air Clamp
- Stably Constant Grip
- Powerful and User Friendly Software

#### In Line CNC Coordinate Measuring System MACH Series



**Much-awaited, Fastest In-line Coordinate Measuring Machine, Bursting out of the Inspection Room.**

An absolute requirement for a measuring machine to operate around the clock in a factory is the structural design: with due consideration given to superior durability for stable operations, significant reduction in measuring time, accuracy assurance under a wide range of temperature environments, security and ease of maintenance. The Mach series is Mitutoyo's in-line CNC coordinate measuring system that meets these demanding criteria

## Quick Image Series 361

### Non-contact 2-D Vision Measuring

A manual 2D Mitutoyo Vision Measuring System featuring double-telecentric, fixed-magnification optics with long focal length and deep focal depth, large-quadrant ring lighting and mega-pixel color CCD camera to provide efficient, cost-effective measurement in the inspection room or laboratory. Ideal for applications requiring distortion-free imaging with accurate measurement capability. It offers several unique features to improve the efficiency of your measurements, including:

- An illustrated guidance tool provides instructions for carrying out measurement.
- High-resolution images enable smooth observation and measurement.
- Icon based macros for maximum ease of use.
- Alignment of workpiece is automatically located via pattern recognition.
- Provides quick results of features (GO/NG/PASS/FAIL).
- Accuracy within the screen :  $\pm 2.7\mu\text{m}$  (high resolution),  $\pm 4\mu\text{m}$  (normal mode)



## CNC Vision Measuring System

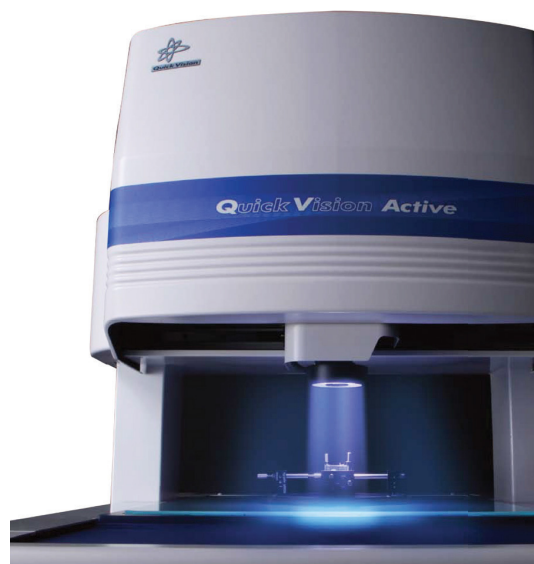
### Quick Vision Active Series

#### Easy-to-operate, space-saving model with advance functionality to meet various needs

The Quick Vision Active is highly efficient and flexible, offering a wide field of view with interchangeable objective zoom lenses to meet the challenges of measuring small to large features. Quick Vision Active is available with measuring ranges of 10 x 8 x 6 inches (250 x 200 x 150 mm) or 16 x 16 x 8 inches (400 x 400 x 200 mm), with or without the touch-probe measuring option.

**High efficiency** – The “automatic edge detection” function will provide high reproducibility in measurements regardless of the skill level of the operator. The “pattern search” function automatically recognizes the registered form of the workpiece.

**Flexible Utility** – The newly designed 7:1 ratio zoom unit and interchangeable objective provide 0.5-7X optical magnification.



# Mitutoyo

## Micro Vickers Hardness Testing Machines

### HM-210/220 Series



The latest technology electromagnetic force motor used in the loading mechanism enables the test force to be freely selected over the wide range of 0.4903mN to 19610mN (0.05gf to 2 kgf). It is also possible to freely set load dwell times. Now your desire for absolute control over the indentation size in Vickers hardness testing can be satisfied.

## Portable Surface Roughness Tester

### SURFTEST SJ-410 Series



This Series of Surface Roughness Testers feature the ability to do both skidded and skid-less measurements. Equipped with 46 roughness parameters that conform to the latest ISO, DIN, ANSI and JIS standards.

- Measuring range: 800µm
- Resolution: 0.000125µm (at 8µm range)

## Contour Measuring Systems

### CONTRACER CV-3200/4500 Series



The new Contracer® CV-3200/4500 Series machines feature a precision arc-scale built into the Z1 axis (detector) allowing the arc trajectory of the stylus tip to be read directly, thus minimizing error for best in-class accuracy.

Accuracy:

- CV-3200: Z1 axis (detector) =  $\pm (1.6 + |2H| / 100)$  µm; X axis (drive) =  $\pm [0.8 + 0.01L]$  µm;
- CV-4500: Z1 axis (detector) =  $\pm (0.8 + |2H| / 100)$  µm; X axis (drive) =  $\pm (0.8 + 0.01L)$  µm.

## Roundness/Cylindricity Measurement

### ROUNDEST RA-2200 Series



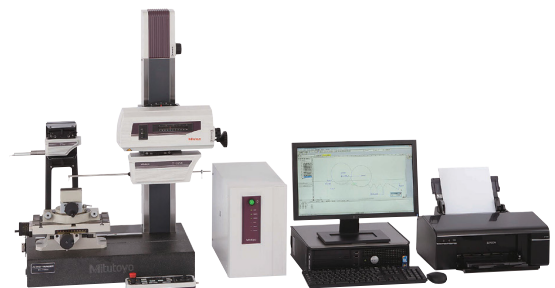
All models are equipped with a highly accurate turntable that enables simple and accurate centering and leveling of the workpiece, which account for the majority of the essential setup work for measuring roundness/cylindricity.

- Rotational accuracy (radial):  $(.8 + .35H)$  µm  $\{(0.02 + 3.5H/10000)\}$  µm
- Rotational accuracy (axial):  $(.8 + .35R)$  µm  $\{(0.02 + 3.5R/10000)\}$  µm

## Surface Roughness/Contour Measuring System

### Formtracer SV-C3200 / SV-C4500 Series

This particular model in the line of Mitutoyo's surface roughness measurement instruments features an enhanced overall drive velocity (X1 axis: 80mm/s, Z2 axis column: 20mm/s), which greatly minimizes overall moment of measurement.





## Profile Projectors

# PJ-H30 Series 303

By separating axial motion, and stabilizing the XY measuring table in the vertical direction, high measuring accuracy of  $(3+0.02L)\mu\text{m}$  has been achieved on the PJ-H30 Series Profile Projectors. Focusing is accomplished by moving the screen head itself up & down with the hand wheel or motorized unit. The power focusing (PJ-H30D type) provides higher performance.

- Newly designed optical system with high NA lenses provide drastically brighter and clearer screen images during surface illumination.
- The three-lens mounting turret includes a 10X lens as standard. Four types of projection lenses (5X, 20X, 50X, 100X) are available.



## High-power Multi-function Measuring Microscopes

# MF-U Series 176

Mitutoyo designs, develops and manufactures all microscope parts – including those for the body, such as the lenses and optical tube – and the highly accurate built-in digital scale. New optional sliding nosepiece allows one of two objectives to be quickly moved into position to change the magnification, and a circular illuminator to be fitted. Operability has improved in this series by allowing freedom of mounting position for the digital display.

- Clear and flare less erect image, wide field of view.
- Long working distance objectives, up to 200X magnification (total: 4000X).
- Infinity-correction optical system same as that of high power inspection microscopes (FS series).
- Bright/Dark-field observations, Polarized observation and Differential Interference Contrast (DIC) observation.
- Zero-set switches (X- and Y-axis) are also located near the stage feed handles.
- Inward type revolver with 4 lens mount.





# FARO

## FARO

### - The world's most trusted source for 3D measurement technology

FARO develops and markets portable CMMs (coordinate measuring machines) and 3D imaging devices to solve dimensional metrology problems. Technology from FARO permits high-precision 3D measurement, imaging and comparison of parts and compound structures within production and quality assurance processes. FARO's 3D measurement technology allows companies to maximize efficiencies and improve processes.

#### THE FARO Edge ScanArm HD

The FARO Edge ScanArm HD combines the flexibility and the functionalities of a FARO Edge measuring Arm with the high-definition Laser Line Probe HD creating a powerful contact/non-contact portable measurement system ideal for challenging application requirements.

- Accuracy-  $\pm 25\mu\text{m}$  ( $\pm .001\text{in}$ )
- Scan rate- 280 frames/second, 280fps x 2,000 points/line = 560,000 points/sec



#### THE FARO EDGE

With its built-in touchscreen computer and "SmartArm" technology, the Edge simplifies the user experience with improved performance, portability, and reliability.

- Spherical working volume 1.8 – 3.7 m (6 ft. – 12 ft.)
- Repeatability 0.024mm – 0.064mm (0.0009 in. – 0.0025 in.)



#### THE FARO PRIME

Delivers the highest Faro Arm accuracy at an amazing value. The ideal solution for measurements in inspection, reverse engineering, CAD-to-part analysis and for anywhere else a high-accuracy, hard-probing measurement solution is needed.

- Spherical working volume 1.2 – 3.7 m (4 ft. – 12 ft.)
- Repeatability 0.016mm – 0.060mm (0.0006 in. – 0.0024 in.)



#### THE FARO ARM FUSION

The perfect blend of precision, durability technology and cost effectiveness. The all-in-one portable measurement arm for inspection, CAD-to-part analysis and reverse engineering.

- Spherical working volume 1.8 – 3.7 m (6 ft. – 12 ft.)
- Repeatability 0.036mm – 0.104mm (0.0014 in. – 0.0041 in.)



#### THE FARO Laser Tracker Vantage

The FARO® Vantage Laser Trackers are extremely accurate, portable coordinate measuring machines that enable you to build products, optimize processes, and deliver solutions by measuring quickly, simply and precisely.

- Accurate, large volume 3D measurement
- Short-to-long range measurement application up to 80 m.



# Analytical and measurement instruments from Shimadzu

Under the corporate philosophy of “Contributing to Society through Science and Technology,” we are primarily involved in the field of analytical and measuring instruments, medical system, and aircraft equipment. Their lineup of analytical and measuring instruments is particularly broad, and in the international automobile and electrical & electronic components industries, our instruments play an active role in fields ranging from research & development to quality assurance.

## Autograph **AG-X plus Series**

Precision Universal Tester

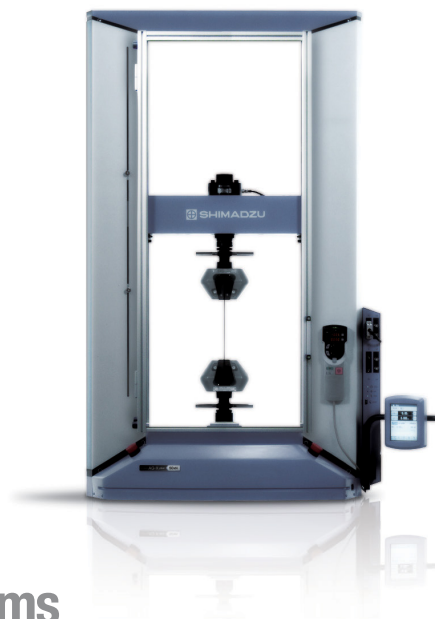
### Reliable, stress-free workflow

**Power savings (power consumption during standby) 10 to 25% less than for conventional models**

The Shimadzu Autograph AG-X plus series delivers high-level control measurement performance utilizing technologies developed from conventional models. In addition, development focused on intuitive operation and convenient support functions.

**NEW Short-column (SC) type added to the lineup** - The total height of the testing machine is 1130 mm, which means it can be installed in a room with a low ceiling. The testing space is 700 mm.

**NEW Up to 25% Environmental load reduced by saving power during standby** - Reducing CO2 emissions is a global necessity. The AG-X plus helps to lessen environmental load by reducing power consumption during standby. Power consumption is reduced by 10 to 25% depending on the frame capacity.



## Microfocus X-Ray Inspection Systems **SMX-1000 Plus, SMX-1000L Plus**

The SMX-1000 Plus and SMX-1000L Plus X-ray inspection systems are a further refinement of their popular predecessors, the SMX-1000 and SMX-1000L, which have become the benchmarks of the industry.

**Further Improved Operability** - Remodeled windows and an enlarged display with a simple, user-friendly layout ensure the intended operation is performed without guesswork.

**Clear Images** - As with earlier models, the combination of flat panel detector with Shimadzu image processing technology leads to clear, distortion-free images.

**Inclined Fluoroscopy** - The flat panel detector with a tilt angle of up to 60° enables fluoroscopy over an extensive range while maintaining constant magnification, so defects that are undetectable with vertical fluoroscopy can be detected.





# Sumipol

Tool Professional

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JQA-QMS240