Coordinate Measuring Machines

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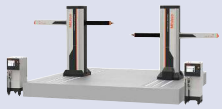

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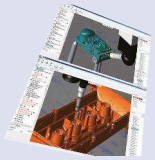

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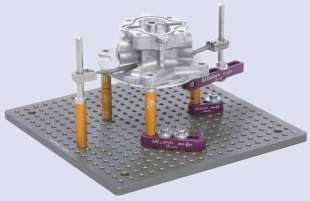
CRYSTA-Apex V PLUS 500, 700 & 900 Series

Specifications

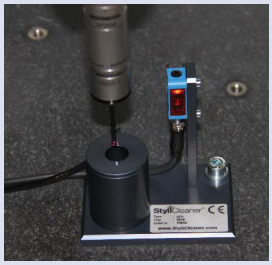
Accuracy	E0, MPE from: (1,8+3L/1000) µm
Max. drive speed	519 mm/s (3-axis)
Digital step	0,1 µm

Accuracy is specified for the following environmental conditions for the CMM*:

Temperature range		18°C - 22°C	16°C - 26°C	15°C - 30°C
Temperature change	Per hour	2°C	2°C	2°C
	Per 24 hours	2°C	5°C	5°C
Temperature gradient	Vertical	1 °C/m	1 °C/m	1 °C/m
	Horizontal	1 °C/m	1 °C/m	1 °C/m



Mitutoyo eco-fix fixture kits:
- flexible & quick setup
- time & cost saving
- easy adaption of product changes



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Optional joystick-box M2 with speed adjustment knob

CRYSTA-Apex V PLUS brochure on request

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CRYSTA-APEX V PLUS 500, 700 & 900 Series

CRYSTA-Apex V PLUS Multi-Wire
High-precision CNC coordinate measuring machine for versatile applications

The CRYSTA-Apex V PLUS Multi-Wire combines a compact design with excellent cost-efficiency and high performance. It is engineered to deliver precise measurement results even under varying environmental conditions. Prepared for both touch-trigger and scanning probes, it offers flexibility from single-point measurements to complex scanning applications.

Key benefits:

- Proven bridge-type construction with high-rigidity air bearings on all axes for long-term accuracy.
- High measurement accuracy for reliable quality control.
- Fast axis movements for reduced cycle times and increased productivity.
- Temperature compensation from 15°C to 30°C - including the workpiece - for stable results in production environments.
- ABS scales: no homing required, immediate operation, and high resistance to environmental influences.
- UC480 controller with service monitor function for simplified maintenance and system diagnostics.
- Air reduction feature: automatically reduces air supply during standby to lower power usage and environmental impact.

Extended operating range:

The V PLUS series expands the guaranteed accuracy temperature range to 15-30°C. This allows reliable use in warmer environments, for example at 28°C in summer, without requiring strict air-conditioning control at 20°C.
This contributes to reduced running costs for air conditioning and enables use outside traditional measurement rooms. In stable environments within the 15-30°C range, the machine can be placed near production lines, meeting the growing demand for near-line measurement.

CRYSTA-Apex V PLUS9106

CRYSTA-Apex V PLUS 500, 700 & 900 Series

CRYSTA-Apex V PLUS Models:

No.	Model	Range [mm]	Comments
191-131	CRYSTA-Apex V PLUS544	500 x 400 x 400	Standard stand
191-132	CRYSTA-Apex V PLUS544	500 x 400 x 400	Anti vibration stand
191-133	CRYSTA-Apex V PLUS574	500 x 700 x 400	Standard stand
191-134	CRYSTA-Apex V PLUS574	500 x 700 x 400	Anti vibration stand
191-135	CRYSTA-Apex V PLUS776	700 x 700 x 600	Standard stand
191-136	CRYSTA-Apex V PLUS776	700 x 700 x 600	Anti vibration stand
191-137	CRYSTA-Apex V PLUS7106	700 x 1000 x 600	Standard stand
191-138	CRYSTA-Apex V PLUS7106	700 x 1000 x 600	Anti vibration stand
191-139	CRYSTA-Apex V PLUS9106	900 x 1000 x 600	Standard stand
191-140	CRYSTA-Apex V PLUS9106	900 x 1000 x 600	Anti vibration stand
191-141	CRYSTA-Apex V PLUS9166	900 x 1600 x 600	Standard stand
191-142	CRYSTA-Apex V PLUS9166	900 x 1600 x 600	Anti vibration stand
191-143	CRYSTA-Apex V PLUS9206	900 x 2000 x 600	Standard stand
191-144	CRYSTA-Apex V PLUS9206	900 x 2000 x 600	Anti vibration stand
191-145	CRYSTA-Apex V PLUS9108	900 x 1000 x 800	Standard stand
191-146	CRYSTA-Apex V PLUS9108	900 x 1000 x 800	Anti vibration stand
191-147	CRYSTA-Apex V PLUS9168	900 x 1600 x 800	Standard stand
191-148	CRYSTA-Apex V PLUS9168	900 x 1600 x 800	Anti vibration stand
191-149	CRYSTA-Apex V PLUS9208	900 x 2000 x 800	Standard stand
191-150	CRYSTA-Apex V PLUS9208	900 x 2000 x 800	Anti vibration stand

CRYSTA-Apex V PLUS9108

CRYSTA-Apex V1200, 1600 & 2000 Series

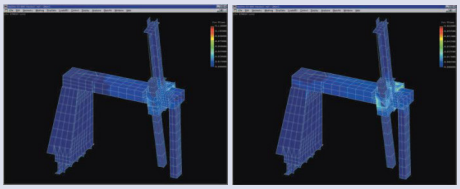
Specifications

Accuracy	E0, MPE from: V1200 (2,3+3L/1000) µm E0, MPE from: V1600 & V2000 (3,3+4,5L/1000) µm
Max. drive speed	693 mm/s (3-axis)
Digital step	0,1 µm

Joystick-box V2 with speed adjustment knob, standard accessory.

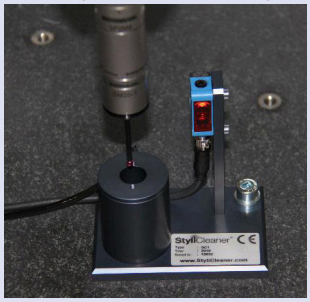
Accuracy is specified for the following environmental conditions for the CMM:

Temperature range		18°C - 22°C	16°C - 26°C
Temperature change	Per hour	2°C	2°C
	Per 24 hours	2°C	5°C
Temperature gradient	Vertical	1°C/m	1°C/m
	Horizontal	1°C/m	1°C/m



The machine structure has been optimized using FEM (Finite-element Method) and modal analysis

CRYSTA-Apex V brochure on request



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CRYSTA-Apex V1200, 1600 & 2000 Series

The CRYSTA-Apex V1200, 1600 & 2000 series offers you up to 12,8m³ measuring volume and still keeps an excellent 4,5 µm accuracy or better.

This series is developed for supporting quality evaluation of volumetric parts.
This high performance, cost effective coordinate measuring machine, designed and constructed according to Mitutoyo's extensive experience in CNC CMM technology.

Ready for touch trigger probe, scanning probe, optical probe and laser scanner probe.

Main benefits:

- Proven lightweight bridge-type construction with high rigidity air-bearings on every axis
- High accuracy, high speed and high acceleration
- Temperature sensors for compensation of machine and workpiece from 16° to 26°C and monitoring of the environmental temperature.
- ABS linear scales provide high environmental resistance and saves time at start-up as homing is not necessary
- UC480 controller supporting Multi-sensor and SMS functionality (Smart Measuring System)

CRYSTA-Apex V162012

CRYSTA-Apex V Models:

No.	Model	Range [mm]	Comments
191-481	CRYSTA-Apex V121210	1200 x 1200 x 1000	Standard stand
191-482	CRYSTA-Apex V121210	1200 x 1200 x 1000	Anti vibration stand
191-485	CRYSTA-Apex V122010	1200 x 2000 x 1000	Standard stand
191-486	CRYSTA-Apex V122010	1200 x 2000 x 1000	Anti vibration stand
191-489	CRYSTA-Apex V123010	1200 x 3000 x 1000	Standard stand
191-491	CRYSTA-Apex V123010	1200 x 3000 x 1000	Anti vibration stand
191-848	CRYSTA-Apex V 162012	1600 x 2000 x 1200	Standard stand
191-848H	CRYSTA-Apex V 162016	1600 x 2000 x 1600	Standard stand
191-849	CRYSTA-Apex V 162012	1600 x 2000 x 1200	Anti vibration stand
191-849H	CRYSTA-Apex V 162016	1600 x 2000 x 1600	Anti vibration stand
191-853	CRYSTA-Apex V 163012	1600 x 3000 x 1200	Standard stand
191-853H	CRYSTA-Apex V 163016	1600 x 3000 x 1600	Standard stand
191-854	CRYSTA-Apex V 163012	1600 x 3000 x 1200	Anti vibration stand
191-854H	CRYSTA-Apex V 163016	1600 x 3000 x 1600	Anti vibration stand
191-857	CRYSTA-Apex V 164012	1600 x 4000 x 1200	Standard stand
191-857H	CRYSTA-Apex V 164016	1600 x 4000 x 1600	Standard stand
191-858	CRYSTA-Apex V 164012	1600 x 4000 x 1200	Anti vibration stand
191-858H	CRYSTA-Apex V 164016	1600 x 4000 x 1600	Anti vibration stand
191-812H	CRYSTA-Apex V 203016	2000 x 3000 x 1600	Standard stand
191-813H	CRYSTA-Apex V203016	2000 x 3000 x 1600	Anti vibration stand
191-817H	CRYSTA-Apex V 204016	2000 x 4000 x 1600	Anti vibration stand

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CRYSTA-Apex EX1200R Series

REVO-2, 5-axis scanning operation

5-axis operation reduces the time required for probe repositioning movements and allows more flexible positioning. This also facilitates access to complex workpieces and saves time during both programming and measurement.

The CRYSTA-Apex EX1200R series are equipped with the REVO-2 probe head which allows ultra high-speed 5-axis scanning (max. 500 mm/s), far surpassing conventional -axis control.

Support for high-speed sampling of up to 4 points per second allows acquisition of densely spaced measurement points, even during fast scanning.

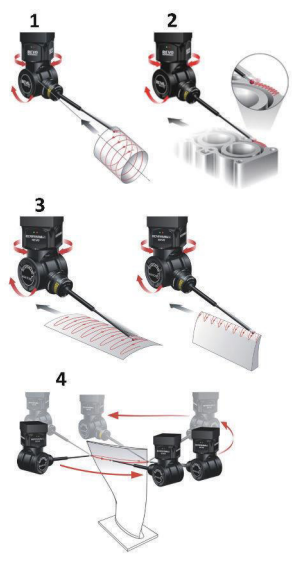
- Internal implementation of laser sensing technology ensures high-accuracy measurement, even with long styli (up to 500 mm*1).

*1 Distance from probe rotation center to stylus tip

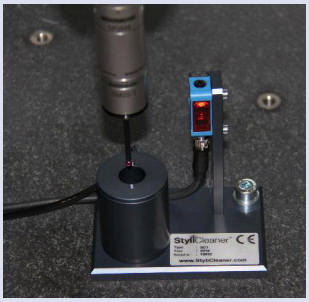
No.	Model	Range [mm]	Comments
191-481V	CRYSTA-Apex EX121210R	1200 x 1200 x 1000	Standard stand
191-482V	CRYSTA-Apex EX 121210R	1200 x 1200 x 1000	Anti vibration stand
191-485V	CRYSTA-Apex EX 122010R	1200 x 2000 x 1000	Standard stand
191-486V	CRYSTA-Apex EX 122010R	1200 x 2000 x 1000	Anti vibration stand
191-489V	CRYSTA-Apex EX 123010R	1200 x 3000 x 1000	Standard stand
191-491V	CRYSTA-Apex EX 123010R	1200 x 3000 x 1000	Anti vibration stand

Specifications

Accuracy	E0, MPE from: (2,9+4L/1000) µm
Max. drive speed	300 mm/s (3-axis)
Digital step	0,1 µm



Refer to the CRYSTA-Apex V brochure



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STRATO-Active Series

Specifications

Accuracy	E0, MPE from: (1,2+3L/1000) µm
Max. drive speed	300 mm/s (each axis)

Accuracy is specified for the following environmental conditions for the CMM

Temperature range	18°C - 22°C	
Temperature change	Per hour	1°C
	Per 24 hours	2°C
Temperature gradient	Vertical	1°C/m
	Horizontal	1°C/m

STRATO-Active with rotary table MRT320

Surface Measure 201FS (02AQJ900)

Refer to the STRATO-Active brochure

STRATO-Active Series 700/900

High precision CNC CMM, designed to provide top scanning performance with high accuracy measuring, ready for touch trigger probe, scanning probe, optical probe including laser scanner probe.

Main benefits:

- Improve structural rigidity bridge type construction with new compensation technology.
- High accuracy
- High speed and acceleration
- Temperature compensation from 18° to 22°C, including the work piece (2 contact sensors).
- Adoption of ABS scale, saving time no homing necessary and high resistance of environmental conditions.
- Granite working table with M8 threads
- Optional Multi-Function Joystick Box including two levers and a speed adjustment knob.

STRATO-Active 776

No.	Model	Range [mm]	Comments
355-731	STRATO-Active 776	700 x 700 x 600	Standard stand
355-733	STRATO-Active 7106	700 x 1000 x 600	Standard stand
355-735	STRATO-Active 9106	900 x 1000 x 600	Standard stand
355-737	STRATO-Active 9166	900 x 1600 x 600	Standard stand

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STRATO-Apex 500, 700 & 900 Series

STRATO-Apex 500, 700 & 900 Series

The challenges for measurement equipment are rising. Products are continuously improving as a result the lifetime of products is increasing while their energy consumption is reduced. Additionally, the throughput of production is driven up. All these facts must be taken into account for your measuring equipment.
With the STRATO-Apex CMM, Mitutoyo offers you the opportunity to match both: precision and velocity.

This high accuracy CNC coordinate measuring machine that allows you to get accurate results at lightning speed.

Main benefits:

- High measurement accuracy and high-speed motion
- High-performance scanning
- Ultra high precision scales on each axis, resolution 0,02 µm
- Temperature sensors for monitoring of the environmental temperature and compensation of machine and workpiece
- Anti-vibration system reduces the impact of nearby vibration sources (optional for 574)
- Multi-sensors capability
- UC480 controller supporting Multi-sensor and SMS functionality (Smart Measuring System)

STRATO-Apex 9166

STRATO-Apex Models:

No.	Model	Range [mm]	Comments
355-701	STRATO-Apex 574	500 x 700 x 400	Standard stand
355-702	STRATO-Apex 574	500 x 700 x 400	Anti vibration stand
355-705-10	STRATO-Apex 776	700 x 700 x 600	Anti vibration stand
355-707-10	STRATO-Apex 7106	700 x 1000 x 600	Anti vibration stand
355-709-10	STRATO-Apex 9106	900 x 1000 x 600	Anti vibration stand
355-712-10	STRATO-Apex 9166	900 x 1600 x 600	Anti vibration stand

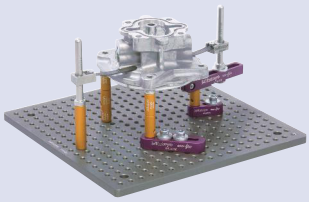
Specifications

Accuracy	E0, MPE from: (0,7+2,5/1000) µm
Max. drive speed	519 mm/s (3-axis)
Digital step	500/700/900: 0,02 µm

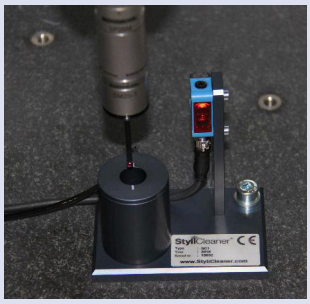
Accuracy is specified for the following environmental conditions for the CMM:

Temperature range	Series 500: 18°C -22°C Series 700/900: 19°C -21°C	
Temperature change	Per hour	1°C
	Per 24 hours	2°C
Temperature gradient	Vertical	1°C/m
	Horizontal	1°C/m

Optional joystick-box M2 with speed adjustment knob



Mitutoyo eco-fix fixture kits:
- flexible & quick setup
- time & cost saving
- easy adaption of product changes



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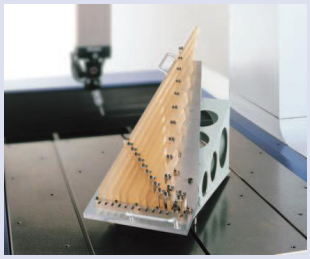
Refer to the STRATO-Apex brochure

LEGEX Series

Specifications

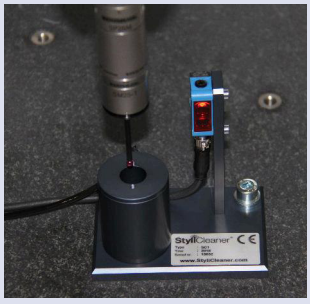
Accuracy	E0, MPE from: (0,23+0,7L/1000) µm
Max. drive speed	200 mm/s (3-axis)
Digital step	0,01 µm

Optional joystick-box M2 with speed adjustment knob



CMM calibration using a virtually zero thermal expansion glass gauge

Mitutoyo offers you over 1000 styli products plus highly specialised equipment for your measuring task.



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LEGEX [Takumi Model] Series

The LEGEX Series is an ultra-high precision CNC coordinate measuring machine.

A fixed bridge structure and precision air bearings running on highly rigged guideways, ensure superior motion stability and ultrahigh geometrical accuracy. Drive systems placed in the "Center of gravity" of the sliders, gives best possible dynamic performance. In addition, an active anti-vibration stand has have been utilized to provide ultra-high accuracy.

The construction is designed for thermal stability, low expansion crystallized glass scales and temperature compensation, results in guaranteed high accuracy within a temperature range of 19 °C to 21 °C.

Main benefits:

- Rigorous analysis of all possible error-producing factors, and elimination or minimization of their effects, delivers unsurpassed accuracy of 0.23µm
- Ultra-high accuracy crystallized-glass scale with the ultra-low expansion coefficient of 0.01x10-6/K is used on each axis
- The fixed bridge structure and precision air bearings, running on highly rigid guideways, give you superior motion stability and ultra-high geometrical accuracy
- UC480 controller supporting Multi-sensor and SMS functionality (Smart Measuring System)
- You can use several different types of optional probe systems, including Mitutoyo's high precision MPP310Q scanning probe

LEGEX Takumi

LEGEX Models:

No.	Model	Range [mm]	Comments
356-407-10	LEGEX 574	500 x 700 x 450	Anti vibration stand
356-417-10	LEGEX 774	700 x 700 x 450	Anti vibration stand
356-427-10	LEGEX 776	700 x 700 x 600	Anti vibration stand
356-437-10	LEGEX 9106	900 x 1000 x 600	Anti vibration stand

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CRYSTA-KM565

CRYSTA-KM565 Manual CMM Range 500x600x500

Economical high-performance CMM for high-precision inspection of small and medium-sized parts.

Main benefits:

- Advanced ultra-rigid alloy platform
- Rapid thermal diffusion through the frame when the temperature changes
- FEA design ensures optimal moment of inertia and stiffness, enabling strong acceleration
- Base composed of a single piece of granite with M8 threaded top inserts in a large checkerboard design
- Rigid air bearings
- Z-axis pneumatic counterbalance
- Measuring scales with 0.1 micron resolution with dynamic signal processing
- Passive vibration damping system that isolates from external vibrations
- Free access to the measurement area of the CMM

CRYSTA–KM565

No.	Model	Range [mm]
196-940MEU	CRYSTA-KM565	500 x 600 x 500

Specifications

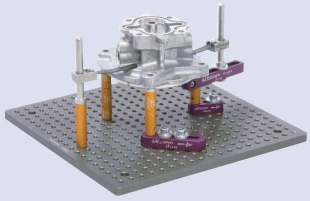
Accuracy	With MH20i-TP20: E0, MPE = (3,2+5,0L/1000) µm

MACH Ko-ga-me

Specifications

Accuracy	E0, MPE from: (2,4+5,7L/1000) µm
Max. drive speed	340 mm/s (3-axis)
Digital step	0,02 µm

Joystick-box M2 with speed adjustment knob, standard accessory.



Mitutoyo eco-fix fixture kits:
- flexible & quick setup
- time & cost saving
- easy adaption of product changes

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MACH Ko-ga-me Series

Agile Measurement System

The MACH Ko-ga-me is a unique and compact CMM ideal for integration into in-line systems for automated measurements. Perfect for automated cells and stand-alone solutions, this compact metrology solution delivers reliability in a lightweight and easy to mount form factor. The CMM also provides flexible production performance for any manufacturing environment thanks to its guaranteed accuracy within a temperature range of 10 °C up to 35 °C.

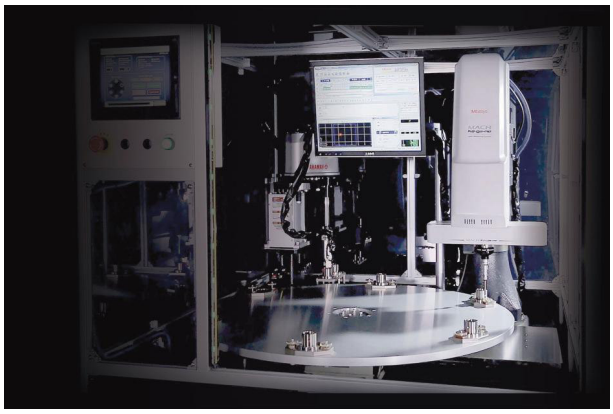
Main benefits:

- High measurement speed and acceleration
- Extremely small footprint saves valuable space for production
- Ideal for single feature inspection and usable with both scanning and touch-trigger probes
- Absolute measurements
- Maintenance-free linear-guidings (no air bearings)
- Multi-function joystick box-M2, including two levers and a speed adjustment knob
- Measuring range 120 x 120 x 80 mm
- High precision scales with 0.02 µm resolution
- UC400K controller supporting SMS functionality (Smart Measuring System)

MACH Ko-ga-me Models:

No.	Model	Range [mm]
357-172-10	MACH-Ko-ga-me 12128-C	120 x 120 x 80

MACH Ko-ga-me



In-line Application example with MACH Ko-ga-me

MiSTAR

MiSTAR Series

Compact shop floor CNC CMM

The MiSTAR is a CNC coordinate measuring machine conceived to be the "measuring machine for any environment." It comes with a wide accuracy-guaranteed temperature range, environment-resistant absolute scale, and an all-in-one space-saving design. With performance that sets it apart from conventional coordinate measuring machines, the MiSTAR is guaranteed to boost your productivity. MiSTAR can be equipped with PH6M, PH10MQ and PH20 probe head.

Main benefits:

- High accuracy, high speed and high acceleration
- Temperature sensors for compensation of machine and workpiece from 10° to 40°C and monitoring of the environmental temperature.
- ABS linear scales provide high environmental resistance and saves time at start-up as homing is not necessary
- New UC480 controller supporting Multi-sensor and SMS functionality (Smart Measuring System)

MiSTAR 555

Quick launcher for easy part program execution

Equipped with the PH6M probe head

Equipped with the PH10MQ probe head

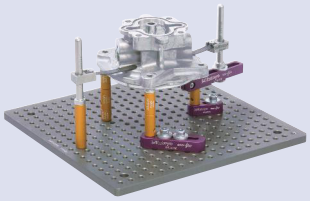
No.	Model	Range [mm]
357-305	MiSTAR 555	570 x 500 x 500
357-313	MiSTAR 575	570 x 700 x 500

Specifications

Accuracy	E0, MPE from: (2,2+3L/1000) µm
Max. drive speed	606 mm/s (3-axis)
Digital step	0,1 µm

Optional accessories

No.	Description
63AAA778	Anti-vibration system, for Mistar 555 & QV404
63AAA779	Anti-vibration system, for Mistar 555, Mistar 575 & QV404



Mitutoyo eco-fix fixture kits:
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- easy adaption of product changes

K543667 Shop-floor CMM loading station eco-load duo for MiSTAR

MACH-3A 653

MACH-3A 653 Series

High Speed In-Line CMM

The MACH-3A 653 is a horizontal spindle type with index table coordinate measuring machine and is designed for fast and precise inline measurement. It grants outstanding throughput will allow you to boost up your measuring process. His small foot print and protection against rough production environments makes him suitable for workshop and inline production measurements.

Main benefits:

- Super High speed and acceleration
- Drastic reduction of the measurement cycle compared with any conventional CMM
- All in One Compact design to minimize the foot print in the workshop and to improve the dust resistance
- Work piece handling and routing in the same posture as for other horizontal spindle machining centres
- Control unit and PC are installed in the dust-tight rack with heat exchanger
- Ease-of-maintenance construction and air-free operation using high accuracy linear ball bearing
- Temperature compensation from 5°C to 40°C
- Glass scale with high resolution 0,1 µm
- Safety joystick box with deadman switch and speed adjustment
- UC400K controller supporting SMS functionality (Smart Measuring System)
- Optional with index table for higher flexibility

MACH-3A 653

No.	Model	Range [mm]
360-417	MACH-3A 653	600 x 500 x 280

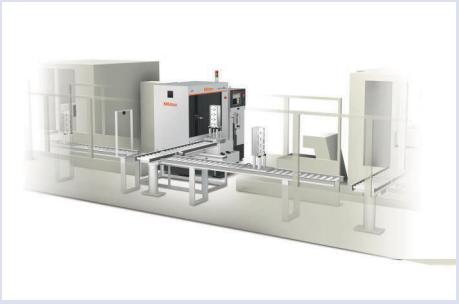
Specifications

Accuracy	E0, MPE from: (2,2+3,5L/1000) µm
Max. drive speed	1212 mm/s (3-axis)
Digital step	0,1 µm

Accuracy is specified for the following environmental conditions for the CMM

Temperature range		5°C - 40°C
Temperature change	per hour	2°C
	per 24 hours	10°C
Temperature gradient	Vertical	1°C/m
	Horizontal	1°C/m

Safety System
For this type series, Mitutoyo offers a customized safety system. Depending on the local situation in your facility, Mitutoyo will propose a tailor-made solution meeting the requirements of the Machinery Directive.



Refer to the INLINE Measuring systems brochure

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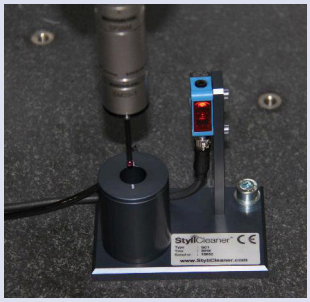


StyliCleaner always Reliable and Clean Stylus

Mitutoyo

MACH-V9106

MACH-V 9106 Series

High Speed In-Line CMM

The MACH-V 9106 is a vertical spindle type coordinate measuring machine and is designed for fast and precise inline measurement. It grants outstanding throughput will allow you to boost up your measuring process.
His design is so chosen that work pieces can be conveyed through the CMM either in front/back or left/right. This makes it a very flexible system to integrate. Also it can provide pre/post machining feedback to your machine tools for process tuning.

Main benefits:

- Higher speed and accuracy with barycentric drive
- Improved dust resistance by installing all drive system and scale units in the dust-tight enclosure on the machine top
- Control unit and PC are installed in the dust-tight rack
- Space-saving design helps installation in a production line
- Flexible loading options due open access to the measuring area
- Ease-of-maintenance construction and air-free operation using high accuracy linear ball bearing
- Temperature compensation from 5° to 35°C
- Glass scale with high resolution 0,1 µm
- Safety joystick box with deadman switch and speed adjustment
- UC400K controller supporting SMS functionality (Smart Measuring System)

MACH-V9106

No.	Model	Range [mm]
360-228	MACH-V9106	900 x 1000 x 600

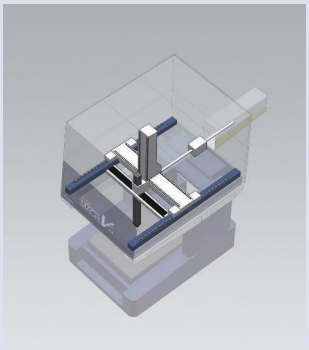
Scan QR Code with your mobile device and watch our product videos on YouTube

Specifications

Accuracy	E0, MPE from: (2,5+3,5L/1000) µm
Max. drive speed	866 mm/s (3-axis)
Digital step	0,1 µm

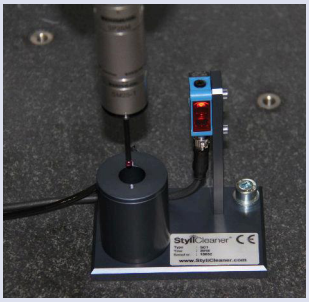
Accuracy is specified for the following environmental conditions for the CMM

Temperature range		5°C - 35°C
Temperature change	per hour	2°C
	per 24 hours	10°C
Temperature gradient	Vertical	1°C/m
	Horizontal	1°C/m



Safety System
For this type series, Mitutoyo offers a customized safety system. Depending on the local situation in your facility, Mitutoyo will propose a tailor-made solution meeting the requirements of the Machinery Directive.

Mitutoyo eco-fix fixture kits:
- flexible & quick setup
- time & cost saving
- easy adaption of product changes



StyliCleaner always Reliable and Clean Stylus

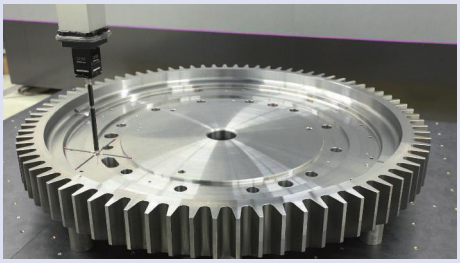
High-accuracy Separate Guide Type MICROCORD STRATO-Apex Series

Specifications

Accuracy	E0, MPE from: (3,5+4,5L/1000) µm
Max. drive speed	520 mm/s (3-axis)
Digital step	0,1 µm

Accuracy is specified for the following environmental conditions for the CMM:

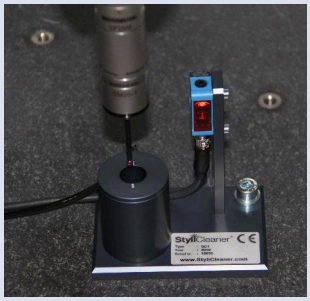
Temperature range		18°C - 22°C
Temperature change	Per hour	1°C
	Per 24 hours	2°C
Temperature gradient	Vertical	1°C/m
	Horizontal	1°C/m



Scanning with probe SP80 and 100 mm styli.

Safety System
For this type series, Mitutoyo offers a customized safety system. Depending on the local situation in your facility, Mitutoyo will propose a tailor-made solution meeting the requirements of the Machinery Directive.

Foundation
This type series always requires a special foundation. Please contact your local Mitutoyo partner for further details.



StyliCleaner always Reliable and Clean Stylus

Joystick-box V2 with speed adjustment knob, standard accessory.

- The STRATO-Apex Series are CNC CMMs that use Mitutoyo's standard structure for large machines which are designed to be used for measuring large and heavx workpieces with high accuracy. The picture below gives a good idea of how large the machine is. The measuring accuracy and drive speed are the world's highest in the X-axis measuring range of 2000mm and 3000mm.
- High-accuracy linear encoders (manufactured in-house) are built into the length measuring units used for position detection. Their excellent position detection capability is what makes the control of the high-accuracy devices possible. The series also applies a multitude of technologies regarding structure, control, component processing, assembly, and other aspects that enable large CMMs to deliver high-accuracy measurements.
- These series are equipped with a system to automatically restore accuracy deterioration (MOVAC) caused by foundation deformation as a standard feature.
- Equipped with a temperature compensation system that guarantees the specified accuracy within the wide range of 18 to 22°C under certain environmental conditions, although high-accuracy CMMs should ideally be installed in a temperature controlled room.
- Safety devices such as a Z-axis beam sensor, tape switch, and area sensor are available as options.

STRATO-Apex 3000G Series

Mitutoyo

CARBstrato Series

CARBstrato Series

A large, horizontal-type arm CNC CMM for measuring car bodies or similar components. Single/dual-head types are available ; the dual-head type measures by controlling two heads simultaneously, one from each side.

MAIN FEATURES CARBstrato : large, high precision, dual-head type.

CARBstrato (Dual-arm type)

No.	Model	Accuracy[(1)] $E_{0,MPE}$
CARBstrato	CARBstrato	(18+20L/1000) µm

[(1)] According to ISO 10360-2:2010 when using probe SP25M, module SM25-1, stylus ø 4x50 mm. L= measured length (mm).

Specifications

Range X-axis	4000-8000 mm
Scale	High accuracy linear encoder
Guide system	X-axis : linear guide ; YZ-axis : air bearing
Max. drive speed	866 mm/s (CARBstrato)
3D Acceleration	0,2G (CARBstrato)
Digital step	0,1 µm

CARBstrato brochure on request

Safety System
For this type series, Mitutoyo offers a customized safety system. Depending on the local situation in your facility, Mitutoyo will propose a tailor-made solution meeting the requirements of the Machinery Directive.

Foundation
This type series always requires a special foundation. Please contact your local Mitutoyo partner for further details.

Mitutoyo offers you over 1000 styli products plus highly specialised equipment for your measuring task.

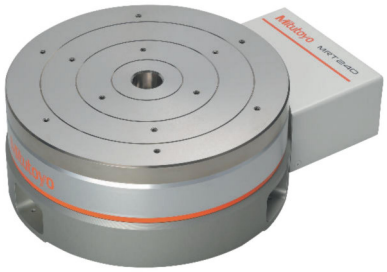
CMM Rotary Tables

Application of MRT240.

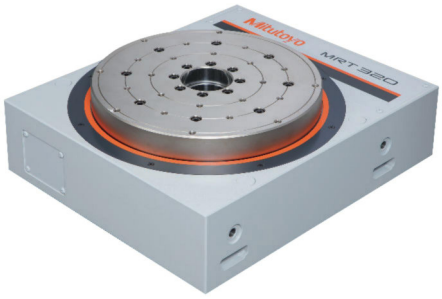
Rotary Tables

Rotary tables expand the scope of applications, simplify the measurement procedure, and reduce measurement time via the scanning mode.

This additional axis allows the use of simple stylus combinations and extends the available measurement range. The programming of the parts to be measured is simplified since the paths of the CMM are shorter. Rotary tables are used for the measurement of various parts but their main use is to considerably simplify the measurement of parts of revolution presenting periodically repeating geometries, such as gears, rotors, turbines, etc.
All angles are immediately available and allow easy access to the measurement of elements inaccessible by an adjustable head or a fixed measuring head. The flexibility doesn't stop there. Mitutoyo measuring machines also allow an indexed swivel head to be coupled to Mitutoyo MRT240 / MRT320 rotary tables.



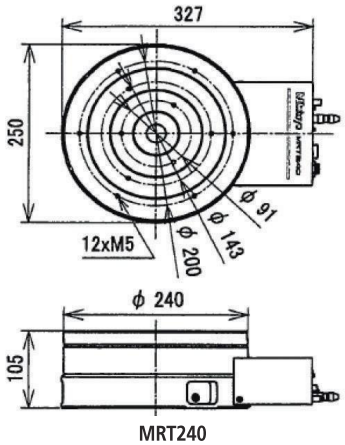
MRT240



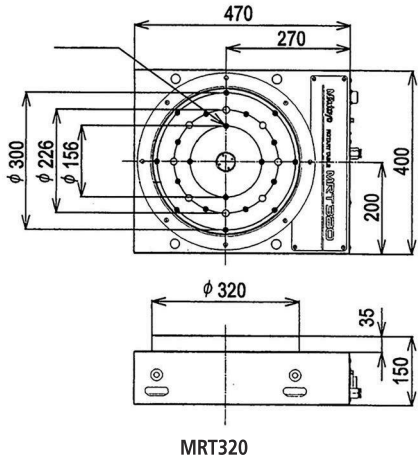
MRT320

Air bearing

No.	Model	Diameter	Range [mm]	Rotational speed [rpm]	Max. Load	Mass
06AGW305	MRT240	240 mm	327 x 250 x 105	6	40 Kg	20 Kg
06AGX660	MRT320	320 mm	470 x 400 x 150	9	100 Kg	120 Kg



MRT240



MRT320

Mitutoyo

CMM Probes

SurfaceMeasure

Ultra-high speed data collection
SurfaceMeasure is a laser probe that collects coordinate values of the surface of the workpiece by moving and irradiating laser light over the workpiece.

Advantages of non-contact type
Non-contact measurement enables measurement of materials that can be easily-deformed by contact measurement, including resin or thin, elastic parts.

Powder-less measurement
Automatic configuration of the camera sensitivity and the laser intensity settings according to the environment and materials enable establishing a simple and comfortable laser-scanning environment since measurement is now powder and spray free.

Evaluation cases
The collected point cloud data can be used by various optional software in a wide range of applications, such as editing, plane creation, comparison using CAD data and

SM 1110

SM 201FS

Measurement of glossy parts

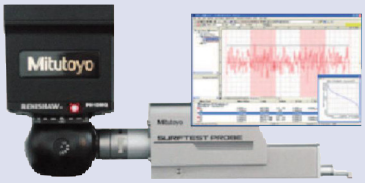
The flying spot type is capable of scanning difficult parts, such as this impeller, precisely and achieves highest scanning accuracy in the class.

No.	Model	Laser irradiation method	Max. scan width	Max. scan depth	Working distance [mm]	Scanning error (*1)	Max. Acquisition rate	Laser Class EN/IEC
02AQJ900	SM 201FS	Flying spot	23 mm	15 mm	57.5	1,8 µm	25000 points/sec	Class2 [EN/IEC 60825-1: 2014]
02AQK010	SM 1110	Line Laser	110 mm	100 mm	156.5	9 µm	300000 points/sec	Class2 [EN/IEC 60825-1: 2014]

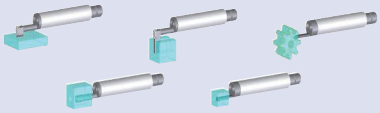
(*1): Accuracy according to Mitutoyo Standard (1σ)

No.	Laser Class JIS	Laser Type	Line Laser Wavelength	Line Laser Output	Mass
02AQJ900	Class2 [JIS C 6802 : 2014]	Flying Spot method	670 nm	1 mW	500 g
02AQK010	Class2 [JIS C 6802 : 2014]	Red semiconductor	660 nm	2,5 mW	440 g

CMM Probes



SURFTEST Probe



Optional detectors

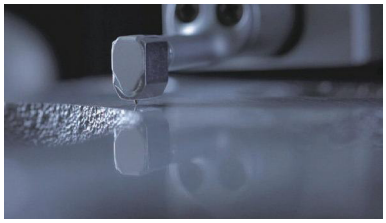
SURFTEST Probe

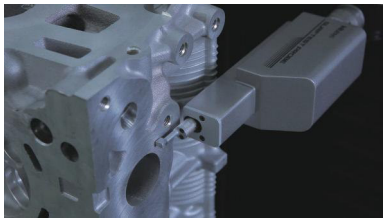
Surface Roughness Measurement directly on the CMM!

This Mitutoyo sensor head closes the gap between typical dimensional CMM measurements and surface roughness inspection. Instead of having to take the workpiece to another measuring instrument or using additional portable systems, the SURFTEST Probe adds roughness measurement capability to your CMM and so avoids all the cost and inconvenience of additional systems. It brings the proven technology of the SJ-310 series to the CMM with all its highly capable range of detectors developed for handling specialist applications such as roughness measurement on gears, inside small holes or deep grooves, in addition to simple flat surface measuring tasks.

Main benefits:

- Proven technology from Mitutoyo's SJ-310 Surftest
- Chose from five types of detector for variant applications
- High accuracy – no CMM movement during measurement
- One CNC measurement cycle produces all results
- Graphical and numerical output
- One Measurement report for all GD&T requirements





No.	Model	Comments
06AEN891	SURFTEST Probe kit	For PH10M/MQ mount
06AFE255	SURFPAK-SP software	Necessary option
178-270	Detector 0,75mN, 60° R2µm	Optional accessory*
178-280	Detector 4mN, 90° R5µm	Optional accessory*

* Chose at least one of these options

Mitutoyo

CMM Probes

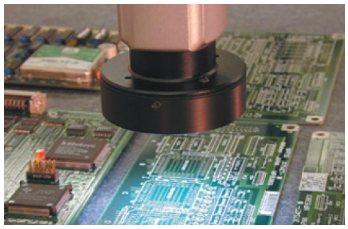
QVP Quick Vision Probe

Mitutoyo's Vision Probe System for CMMs

The Quick Vision Probe will make from your CMM an VMM (VisionMM). Put in an probe change rack you can use it together with other probes. Were traditional probes can not be used, very small holes and flexible parts, the QVP can do this Job.

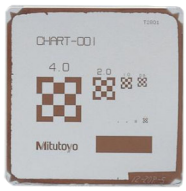
- Fast optical measurements – the perfect choice for small features and soft materials
- Ideal in combination with tactile probes
- Prepared for automatic probe change
- Four objective lenses offer different optical magnification
- From 0.375 x to 3.75 x
- White LED ring light
- White LED coaxial light

QVP (Quick Vision Probe)



ML objective lenses

Calibration gauge



Pixel calibration chart

No.	Model	Comments
359-051-9	Vision probe incl. ML 3X objective lens	
375-036-2	ML 1X objective lens	Optional accessory
375-034-1	ML 5X objective lens	Optional accessory
375-039	ML 10X objective lens	Optional accessory
02AQC310	Calibration gauge	Necessary accessory
02AKN020	Pixel calibration chart	Necessary accessory
02NBA813-DEE	Visionpak-Pro software	Necessary option

CMM Probes

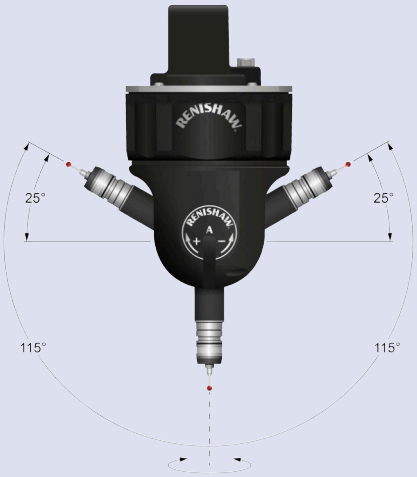
MPP-310Q

MPP-310Q

Ultra-High accuracy and low measuring force Scanning Probe

This ultra-high precision scanning probe incorporates built-in XYZ scales for highest accuracy performance.
The compact size of this probe is ideal for low measuring force and high speed scanning.
Data collection can be performed by scanning measurement, ultrahigh precision point measurement and center alignment measurement.
Special developed for our Ultra-High accuracy CMM

- High resolution of 0.01 µm
- Measuring range ±1 mm
- Extremely low measuring forces of 0.03 N
- Styli length up to 200 mm
- Air bearing for smooth measurements
- Axis clamping for scanning on slanted or arched surfaces



Infinite B-axis rotation

PH20

Rapid tactile measurements at any probe angle

- Head touch for improved repeatability
- Feature-based calibration for improved accuracy
- Automatic stylus change with TP20 modules and optional TCR20 change rack
- Allowing subsequent measurement at any head angle
- Full support in MCOSMOS and MiCAT Planner
- 5-axis control on CMM's with UC400 / 480 controller and PHC20 interface

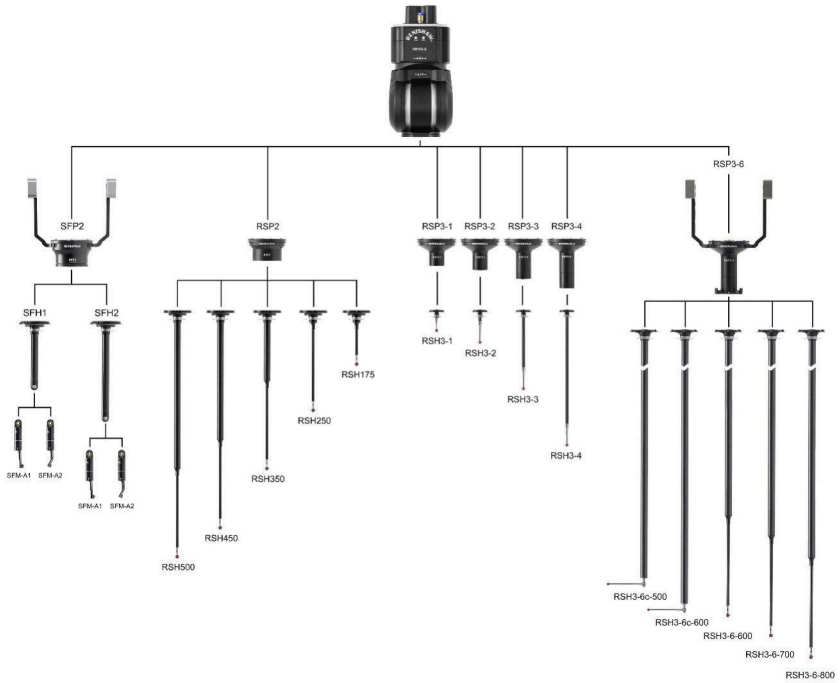
Mitutoyo

CMM Probes

Revo

5-axis measurement technology

- Rapid scanning at any angle
- Dynamic 2-axis head provides most of the stylus motion
- High accuracy and repeatability
- Scanning with 5-axes of simultaneous motion allows unparalleled measurement flexibility
- 'Head-touches' take measurement points faster, with improved accuracy and repeatability
- 5-axis motion eliminates time spent indexing the head
- Supports stylus lengths up to 500 mm



Revo

Refer to the Measuring Heads brochure

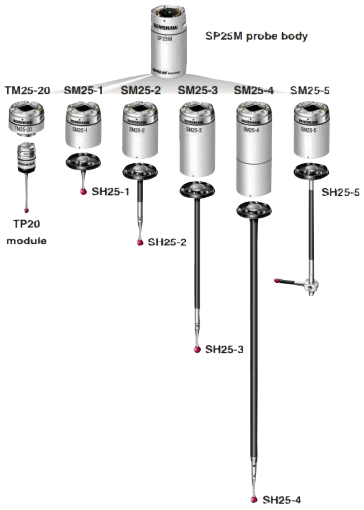
Scan QR Code with your mobile device and watch our product videos on YouTube

CMM Probes

Scanning probe systems

Scanning probes can acquire several hundred surface points each second, enabling measurement of form as well as size and position.
Scanning probes can also be used to acquire discrete points in a similar way to touch-trigger probes.
A range of solutions is available, suitable for all sizes and configurations of CMM.

SP80
is a quill-mounted scanning probe that uses digital scale and readhead technology, to provide exceptional scanning performance, even with long styli.



SP25M
At just 25 mm in diameter, the SP25M is small and light, making it ideally suited to mounting on articulating heads. It is also sufficiently compact to suit small CMM's

SP600
Renishaw's SP600 analogue scanning probe offers high-performance inspection, digitizing and profile scanning capability for a wide range of CMM's.

Touch-trigger probe systems

TP7M
High accuracy type

TP200
Compact and high accuracy (stylus change type)

TP20
Compact type

Probe heads with integrated Probe system.

MH20i
Manual Probe

Probe heads

PH10MQ
Motor drive index type

MIH
Manual index type

PH1
Simple manual type

CMM Probes brochure on demand

Mitutoyo

CMM Probes

Change Racks

MCR20 rack for use with TP20 probe

SCR200 rack for use with TP200 probe

TCR20 rack for use with PH20 probe

SCR600 rack for use with SP600 probe

FCR25 rack for use with SP25M probe

Modular Rack Systems

MRS system with optional ACR3-4 and FCR stylus modules

MRS2 single system and with additional front and back Rail

Modules for Modular Rack System

ACR3-4 passive 4 port probe changer

FCR25 for SP25M

SCP600 for SP600

RCP2 for REVO

RCP TC2 for REVO

Styli

Custom styli
If you cannot find what you are looking for in our standard range, please contact us at custom.styli@mitutoyo.eu and benefit from our longstanding experience.

CMM Styli

The stylus is the critical interface between the probe and the workpiece, directly influencing measurement accuracy. Mitutoyo styli are designed with optimized stiffness, low mass, controlled thermal behaviour, and high-precision Grade 5 (DIN 5401:2002) balls to ensure reliable, repeatable results. With decades of experience and a broad portfolio, Mitutoyo styli are **developed and manufactured in Germany**, reflecting the highest standards of precision engineering and quality.

Ball material properties

Ruby
- Standard all-round material for most applications
- Very hard and wear-resistant
- Low density → lightweight stylus, good dynamics
- Best for general touch-trigger and light scanning tasks

Silicon Nitride
- Extremely hard with the **smoothest surface**
- No adhesive wear with aluminum → ideal for scanning aluminum parts
- Very stable measurement results on soft metals

Zirconium Oxide (Ceramic)
- Excellent resistance to **abrasive wear**
- Best choice for scanning **cast iron surfaces**
- More robust than ruby in aggressive scanning applications

Diamond (Coated or Solid)
- **Highest hardness** and **wear resistance**
- Essential for very hard or coated surfaces (PVD, CVD, DLC, hardened steels)
- No material adhesion (e.g. aluminum, titanium)
- Longest service life → ideal for demanding, high-wear applications

Styli catalogue PRE 983017.

Mitutoyo Styli for measurably better results.

Discover the Mitutoyo online Styli catalogue or download the PDF.

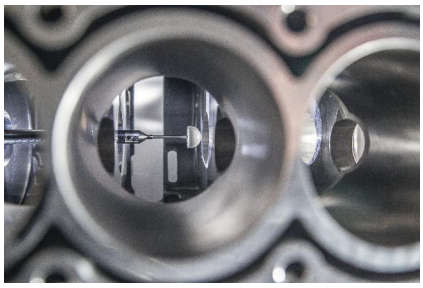
Styli Kits

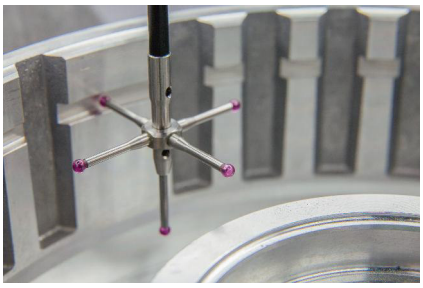
Styli Kits

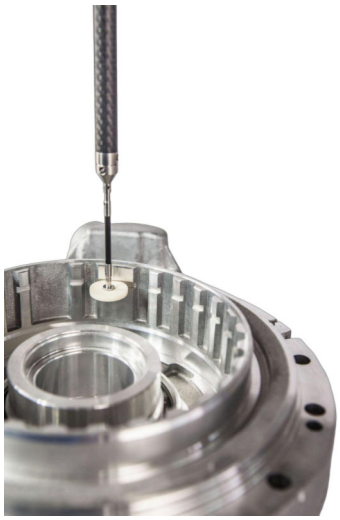
Preconfigured styli kits are available for the initial equipment or to suit different application or probe requirements.

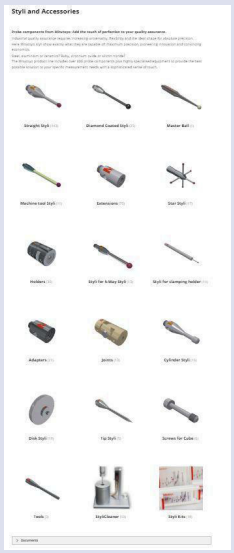
Please refer to our webshop and styli brochure for the best overview of available kits, single styli and accessories.

Our steadily increasing product range will provide the best styli for your application.





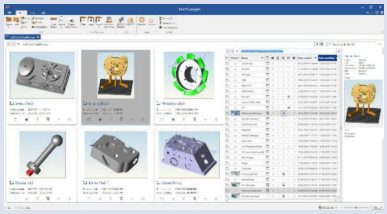


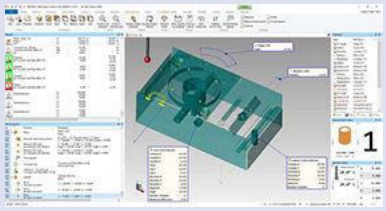


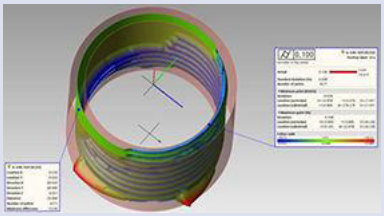
Mitutoyo Styli online catalogue

Scan QR-Code to see all Styli Kits.

CMM Software







For details, please ask for the MCOSMOS brochure.

MCOSMOS - The Modular Software for all Kinds of Measurement

The heart of your CMM: to organize, execute, calculate and report.

- Organize your measurement programs on the network
- Add commands and instructions to guide the operator
- Create individual reports meeting your customer's needs
- Archive your results in formats like PDF, XLS, HTML and many other
- SPC with MeasurLink or export data to CAQ systems
- Export detected geometrical elements to CAD systems
- Revision Management for authorized usage of validated part programs as standard
- Meet the requirements of **FDA Title 21 CFR Part 11** without extra costs

The following packages are also available for Offline programming.
The so called "**Offline MCOSMOS**" packages allow you to create part programs whilst the CMM is proofing your product quality.

Software package	MCOSMOS-1 Basic package	MCOSMOS-2 CAD package	MCOSMOS-3 CNC V5
Model			
Part Manager			
• System configuration	●	●	●
• Part program handling			
• Data management			
• Create report templates			
GEOPAK			
• On/Off-line	●	●	●
• For prismatic elements			
• Operator guidance			
• Parametric programs			
CAT1000P			
• CAD programming		●	●
• For prismatic elements			
• Collision control			
• Incl. simulation			
CAT1000S			
• CAD programming		●	●
• Free-form inspection			
• Surface + edge points			
• Grahical Reports			
SCANPAK			
• For 2D contours			●
• Evaluate + manipulate			
• Graphical Reports			
• Data exchange to CAD + NC			

Additional software packages meeting your needs:

MeasurLink:
SPC software with certified AQDEF interface. Allows you to collect data from different vendors and devices. Its database offers collecting and analyzing data from all over the world, analyse your process and create individual reports.

ROUNDPAK-CMM
Special evaluation tool for scanning measurements typically known from form measurement instruments. Topographic views and evaluation of form and position deviations.

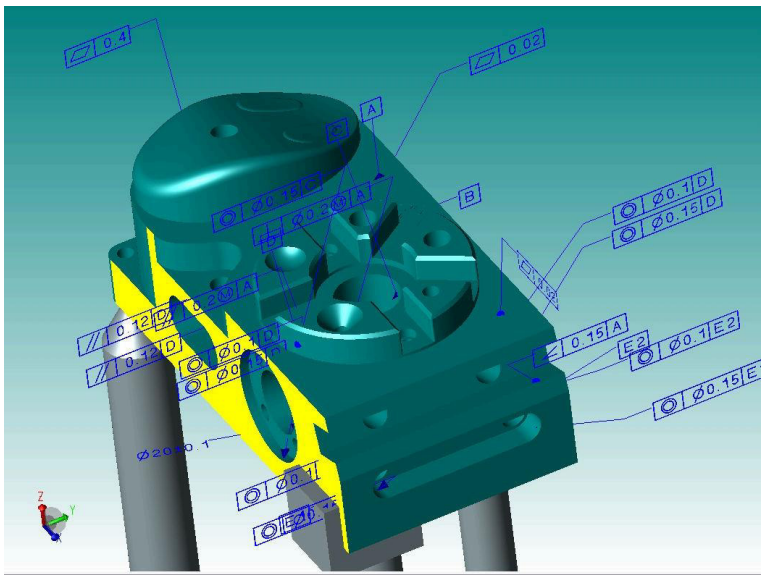
Mitutoyo

CMM Software

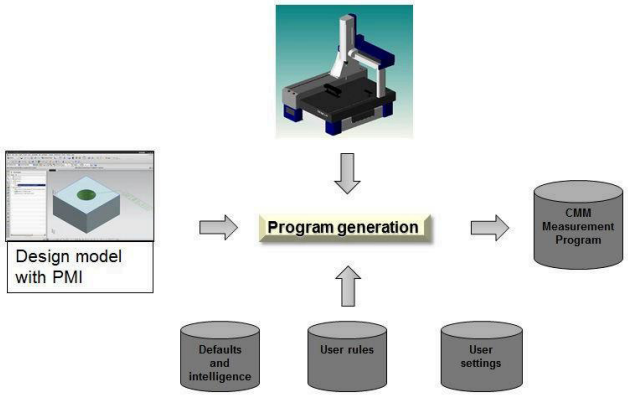
MiCAT Planner -The CMM Part Program Generator

The new CMM software generation for an efficient, safe and automatic CMM programming. MiCAT Planner drastically reduces the programming time and thus will make your work much more efficient! Programs will now be made within minutes where it took hours or even days before. MiCAT planner is using PMI (Product Manufacturing Information) tolerance information inside the CAD file and creates the complete part program by considering your individual measurement strategy and your specific CMM. This guarantees a collision-free program in the shortest possible time.

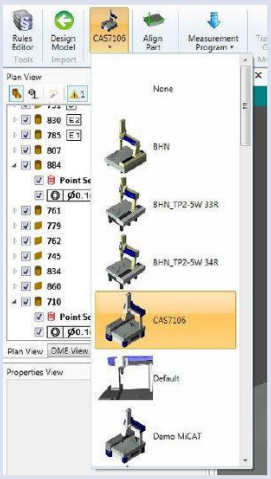
- Reduces programming time significantly
- Collision-free and optimized programs
- Increased availability of the measuring machine
- Flexibility in choosing the measuring machine
- Unified measurement strategies increase data quality
- Speeds up instruction of staff



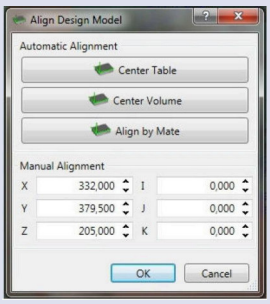
Step 1: Load the CAD model.
• Various CAD transaltors available: ACIS, STEP, CATIA V5, Pro-Engineer/CREO, Siemens NX, SolidWorks
• Add missing tolerance information



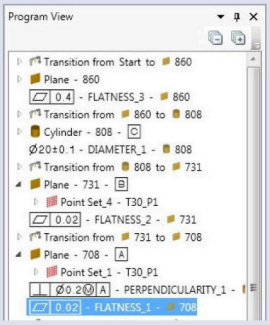
Workflow by MiCAT Planner



Step 2: Select the CMM



Step 3: Align CAD model

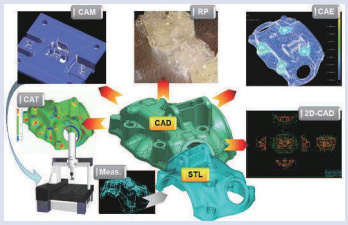


Step 4: Create the part program

Step 5: Transfer to MCOSMOS

Scan the QR Code with your mobile device and watch our product videos on YouTube

CMM Software



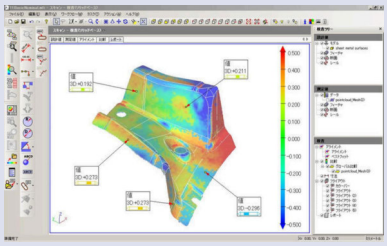
Screen sample from MSURF-S/I

MSURF - Point Cloud Processing Software for Coordinate Measuring Machines

MSURF-S

Calculates point cloud data measured by CNC CMM with SurfaceMeasure. It generates scanning paths by defining the scanning start position, length, and width.

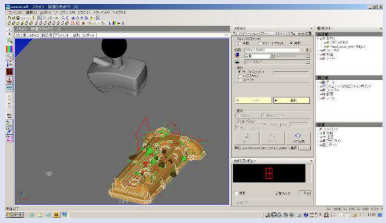
- Scanning paths can be created by simply defining three items : the scanning starting point, the scanning length, and the scanning width
- Scanning paths can be stored as measurement macros
- Point cloud data obtained from scanning can be exported in text or STL format
- MSURF-S can be started from MCOSMOS



MSURF-I

Conducts analysis or comparison verification of measured point cloud data in reference to nominal data (supporting CAD data import).

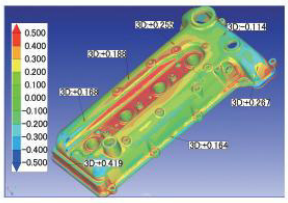
- Importing CAD data
- Feature-by-feature comparison
- Comparison of cross-sectional shapes



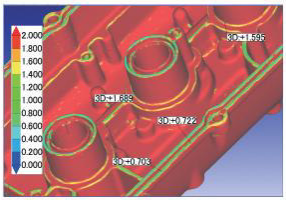
MSURF Planner

is software to automatically create measurement macros (surface form, feature form) for the line laser probe from 3D CAD data.
Optimized data (travel path, number of probe head revolutions, etc.) of a measurement path will contribute to improvements in productivity.

- Automatic scanning path programming.
- Automatic path generation for surface or feature extraction
- Mirroring function



Error colour-coded map

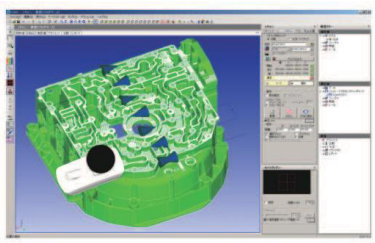


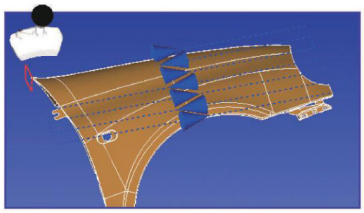
Surface curvature evaluation

MSURF-G

Off-line version for part program generation

- Semi-automatic function for creating measurement paths with optimum probe orientation
- Detection of collision between the probe and the workpiece model
- Generation of simulated data for the point cloud expected to be obtained through scanning
- Displaying measurement movements (scanner movements) in animation


Screen sample from MSURF-G


Screen sample from MSURF-G

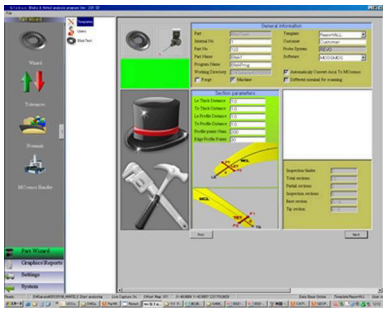
Mitutoyo

CMM Software

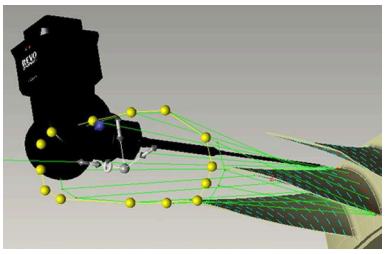
MAFIS Express - Rapid Air Foil Inspection Software

Mitutoyo introduces the fastest way for inspecting blades and blisks: MAFIS Express.

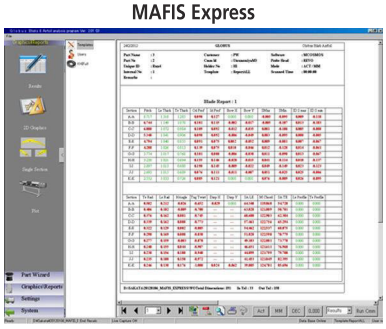
- Increases your throughput by time savings up to 90%
- Intuitive programming and easy handling
- For many kinds of airfoils like blades, blisks, gas turbines
- Easy Off-line programming on the CAD model
- Individual setting of the inspection routine: measure all or just some dedicated intersections
- Support of standards set by Rolls-Royce®, P&W, Siemens®, GE®, Honeywell®, SNECMA, Turbomeca® and others
- Ideal with the Revo® or SP25M probe heads



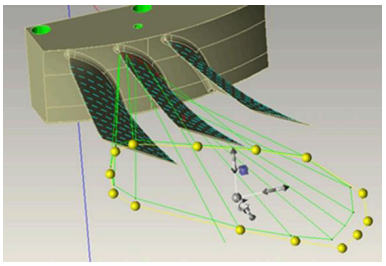
MAFIS Express



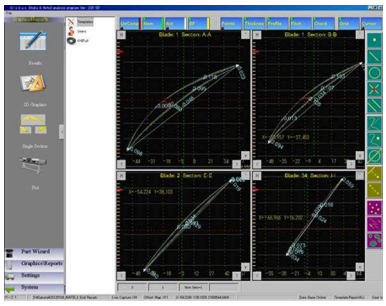
Setting intersections on the CAD model



Numerical evaluation

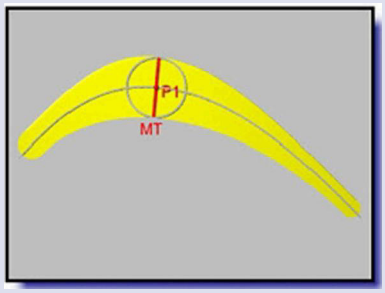


Optimizing the probe path

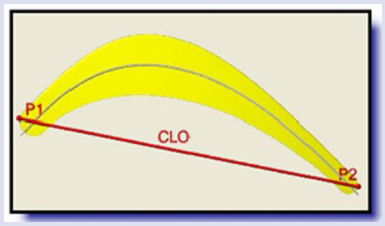


Graphical evaluation

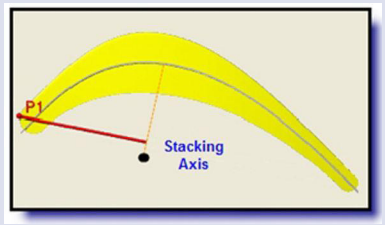
Take a look how quick air foils are inspected by MAFIS Express



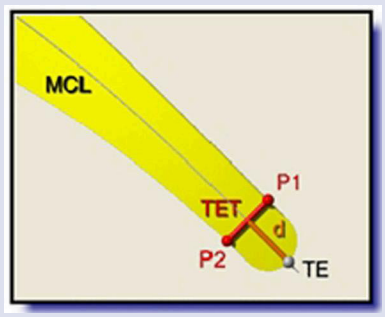
Maximum thickness



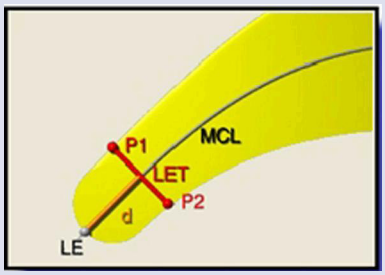
Overall Chord Length



Stacking Axis

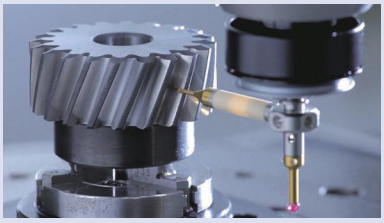


Trailing Edge – thickness on specific distance



Leading Edge – thickness on specific distance

CMM Software

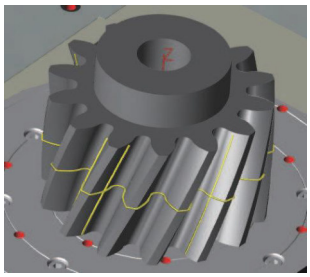


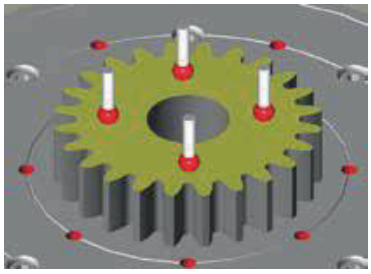
GEARPAK-Express

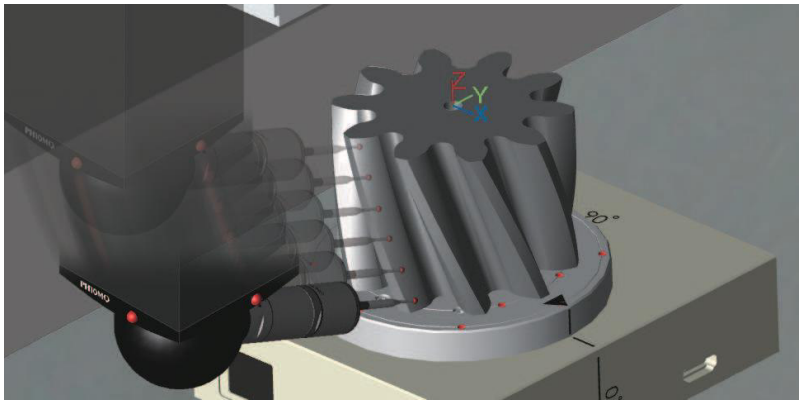
Gear Measurement and Evaluation software for cylindrical gears

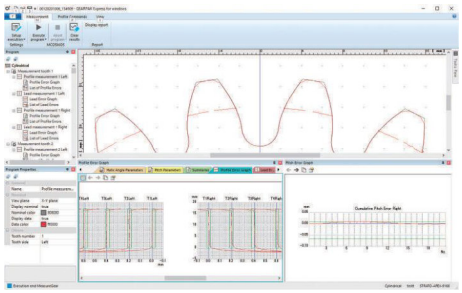
Main features:

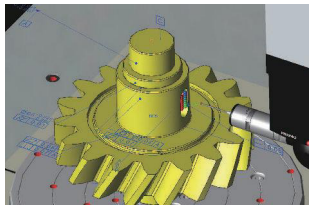
- A 3D model created from the provided gear specifications enables an easy visual check of the measurement strategy.
- Automatic program creation and on-screen measurement guidance help quick and easy setting of the coordinate system.
- "4-Axis nominal scanning" using an optional rotary table, makes scanning even faster. Depending on the size and accuracy class of the gear, the measurement time can be reduced up to 50% compared to conventional methods.
- The real-time display of the measurement result and tolerance judgment result enables early detection of non-conforming product.
- Performs dimensional measurement and geometrical tolerance evaluation without changing the setup during gear evaluation.











Enclosures

Protect your investment for contamination, improve reliability of measurements and reduce maintenance costs. Mitutoyo's Inspection Enclosures are designed to help keep your CMMs and instruments free of airborne contamination.

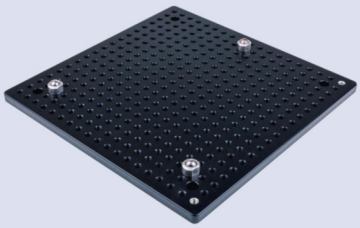
Features and benefits:

- Standard fans create positive pressure inside the enclosure to exclude airborne contaminants, increase reliability of measurements and reduce CMM maintenance costs.
- Air-conditioning option is available to add temperature control to the clean air environment.
- Enclosed volume provides greatly improved working conditions for intricate inspection operations.
- Double doors fold back enabling easy access for part loading.
- Modular Design with removable panels enables easy construction around existing machines, straightforward relocation (if required) and assists in annual CMM servicing.
- Enclosures are robustly built to whitstand the demands of a busy shopfloor manufacturing facility.
- Transparent, polycarbonate, easy-clean panels pass sufficient light for normal use and are shatterproof, tough and durable.
- Clean, functional design enhances the appearance of your CMMs.

Technical details:

- Framework fabricated from extruded aluminium.
- Lower panels made from PVC - available in a variety of colours
- Upper panels in clear polycarbonate.

CMM Fixtures



3-point repositiong Pallet Receiver System PRS

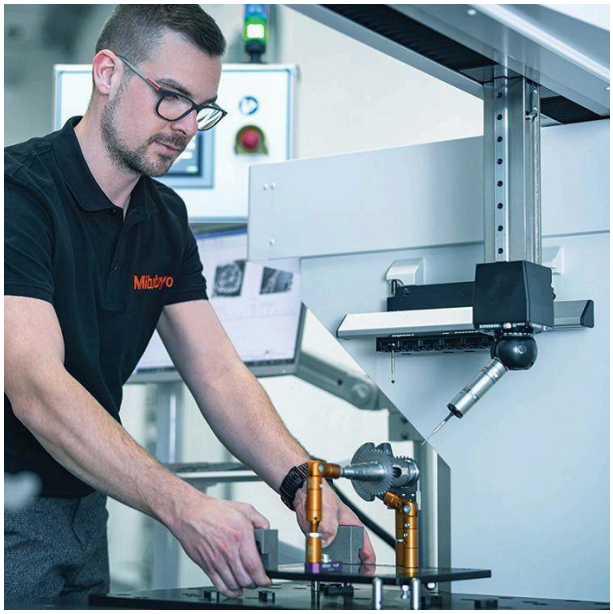
Mitutoyo Modular Fixturing Systems

Flexible. Repeatable. Made in Germany.

Accurate measurement begins with reliable fixturing. Mitutoyo Modular Fixturing Systems provide a stable, repeatable, and highly flexible foundation for CMM, form, and optical measurements. Designed for fast setup and long-term precision, all systems are developed and manufactured in Germany to meet the highest quality standards.

The Modular System Concept

Mitutoyo fixturing is built from standardized components that can be freely combined and reused. This modular approach reduces setup time, lowers costs, and ensures reproducible measurement results across single-part and serial inspections.



3-point repositiong Pallet Receiver System PRS

Mitutoyo

CMM Fixtures

Component Types

The separation of our fixture systems in clearly defined component types (base, build-up, positioning, clamping, etc.) creates technical, economic, and operational advantages throughout the entire measurement process.

This results in faster setup, higher repeatability and lower costs.

1. Base Components – The Foundation

- Rigid base plates made of hard-anodized aluminum with M6 grid patterns (12.5 / 25 / 50 mm). Prepared for 3-point positioning and pallet systems, suitable for light to heavy workpieces (**eco-fix / eco-fix^{plus}**).

2. Build-up Components – Height & Orientation

- Location pins, columns, joints, and receiver brackets enable flexible adjustment of height, reach, and angle while maintaining rigidity and repeatability.

3. Positioning Components – Precise Location

- Flat tops, stoppers, backsquares, V-blocks, prisms, cones, and center mounts support the proven 3-2-1 fixturing principle for reproducible positioning.

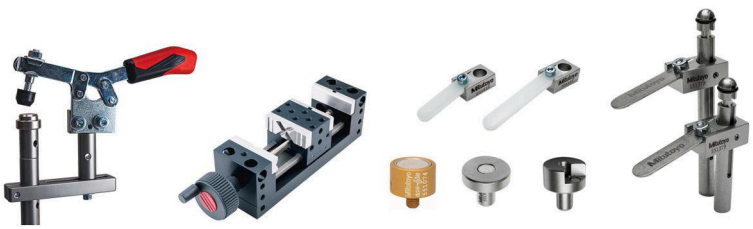
4. Clamping Components – Secure Fixation

- Spring clips, magnetic receivers, toggle clamps, and vices secure the workpiece safely without deformation, ensuring accurate measurement results.

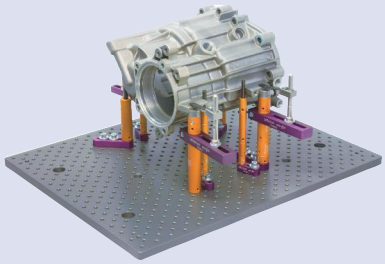
1. Base Components

2. Build-up Components

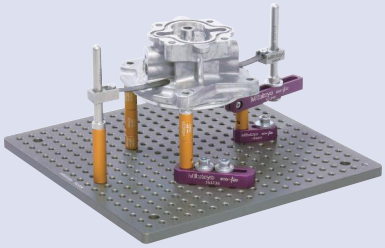
3. Positioning Components



4. Clamping Components



Workpiece set up on eco-fix base plate

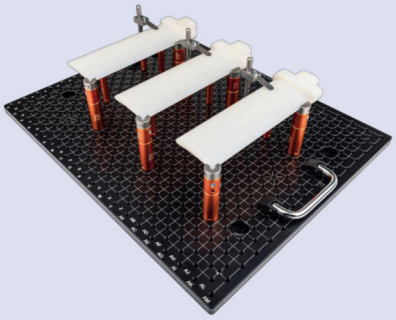


Fixtures catalogue PRE 1403

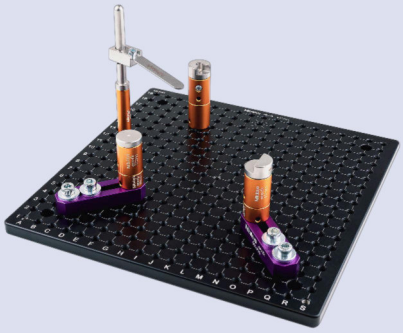
Mitutoyo Fixtures for measurably better results.

Discover the Mitutoyo online fixtures catalogue or download the PDF.

CMM Fixtures



eco-fix base plate with handles for easy handling



Mitutoyo Fixture Product Lines

Mitutoyo modular fixturing systems are organized into complementary product lines, each optimized for specific workpiece sizes, weights, and measurement tasks.
All lines are modular, reusable, and fully compatible within the system concept.

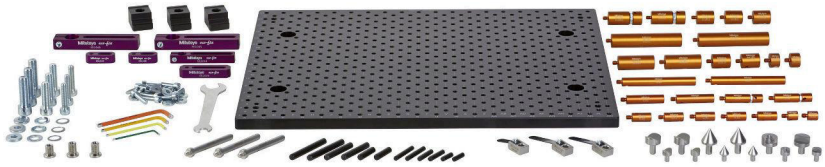
eco-fix

The alround modular fixturing system

- Designed for small to medium-sized, lightweight workpieces
- Components made from hard-anodized aluminum
- Base plates with M6 threaded grid (12.5 mm / 25 mm)
- Fast manual setup with low weight and easy handling

Typical use cases:
Prototyping, single-part inspection, small series, frequent part changes

Key benefit:
Cost-effective, fast, and flexible fixturing for everyday CMM measurement tasks



K551549 eco-fix kit

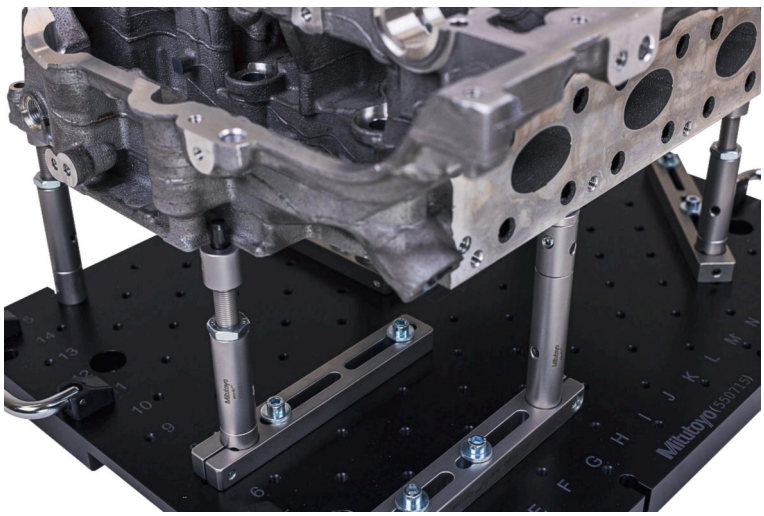
eco-fix^{plus}

The heavy-duty modular fixturing system

- Designed for medium to large and heavy workpieces
- Components made from stainless steel for high rigidity and durability
- M6 threaded grid (25 mm / 50 mm)
- Prepared for manual loading systems (MPS) and higher loads

Typical use cases:
Automotive, aerospace, gearbox, engine, and structural components

Key benefit:
Maximum stability and long service life under demanding conditions



CMM Fixtures

Mitutoyo Fixture Product Lines

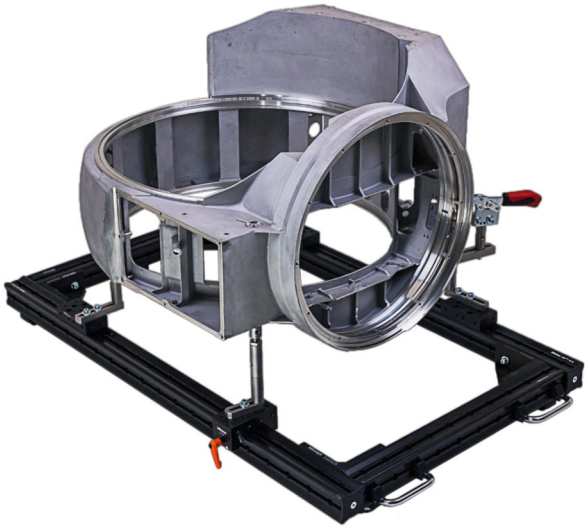
multiflexprofile

The scalable frame and profile system

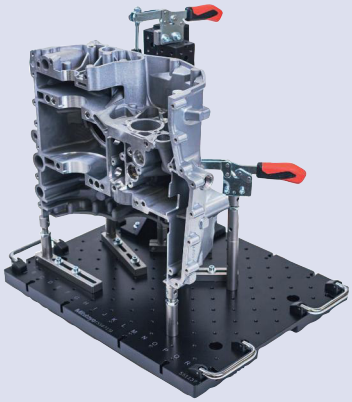
- Modular aluminum profile system
- Available with optional 50 mm grid for precise alignment
- Enables construction of large, lightweight fixturing frames
- Can be mounted directly on the CMM granite

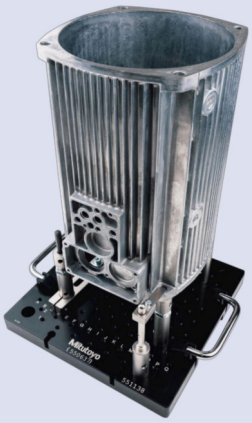
Typical use cases:
Large and complex shaped workpieces requiring open access

Key benefit:
High flexibility and scalability with excellent accessibility to the part



CMM Fixtures

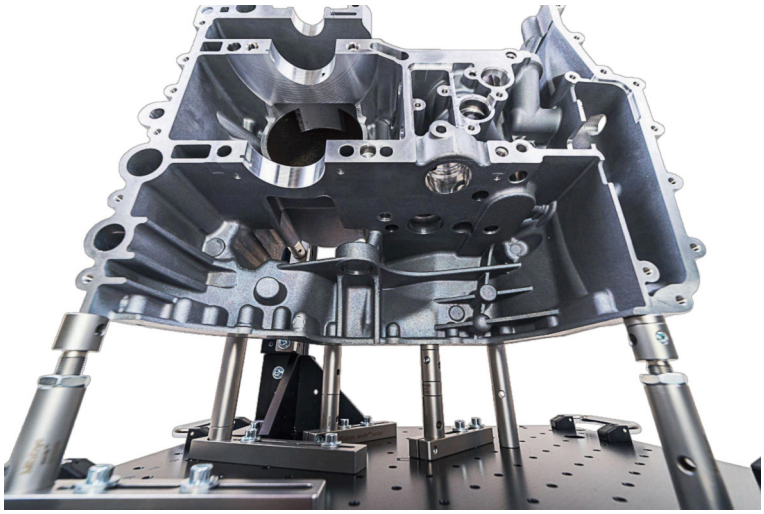


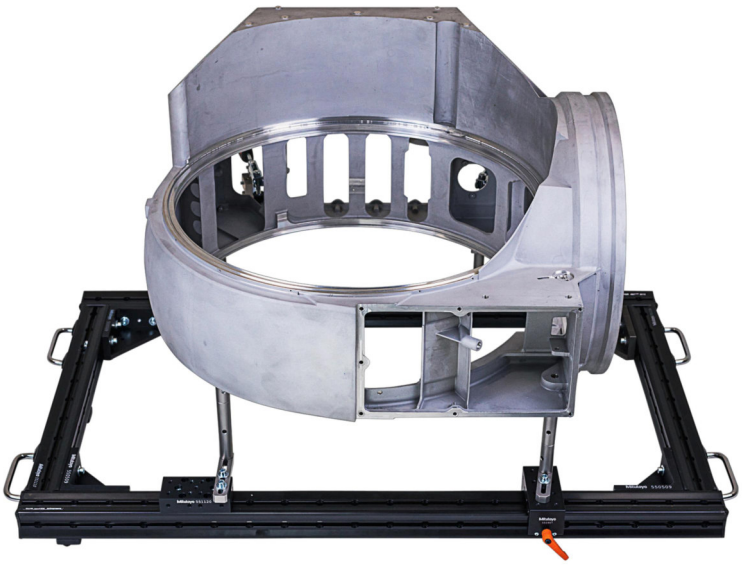


eco-fix^{plus} CMM fixtures Series

A new contestant has entered the modular fixturing world: **eco-fix^{plus}**

- The new fixturing system, made of solid and rigid steel components, is made for heavy and big workpieces.
- It significantly reduces the requirement for custom made solutions due to weight and dimension.
- Repeatable set-up configuration and high durability are only some of the product ranges advantages.
- M6 threading ensures full compatibility with eco-fix components and our **multiflex^{profile}** series.
- The combination with our profile frame series adds utmost flexibility for the fixturing of even bigger components.





CMM Fixtures

FixtureBuilder Software

The free of charge software **FixtureBuilder** enables the user to easily plan and set up his CMM fixture in just a few minutes. Repeatable fixturing has never been easier and at a better price performance ratio. FixtureBuilder is a software tool that allows users to create virtual clamping fixtures quickly and easily. Users can choose whether to set the virtual fixture up manually or to allow the software's "AutoMode" to perform the task.
The interactive "AutoMode" operating mode guides the user step by to step to a finalized clamping fixture. Only very few data need to be input, for example the choice of component to be clamped or the position and type of contact and tensioning points. This data is sufficient to enable **FixtureBuilder** to independently create a complete clamping fixture.

FixtureBuilder advantages

- Fixture building by mouse click
- Ideal for online programming with e.g., MiCAT Planner
- Parts list with material overview
- Documented structure
- Assembly instruction for each column
- Alpha numeric column positioning coordinates according to base plate markings
- Automatic weight determination
- Multiple data formats for file data import and export

FixtureBuilder software allows data to be imported in Acis (*.sat), Iges (*.igs) and Step (*.stp) formats. The export functions it offers include Hoops file (*.hsf), A, 3d PDF (*.pdf) and Acis Files (*.sat).
Available integrated in Mitutoyo's **MCOSMOS** CMM software, or as a free standalone version, FixtureBuilder allows data to be processed in all **MCOSMOS** import formats. The fixture design can be imported into the measuring software, either on its own or complete with component, and thus be used for offline programming of the coordinate measuring machine. The import works too with any compatible 3rd party CMM software.
Online part programming, for e.g., with part program generating software **MiCAT Planner**, is even easier by importing the fixture and part data directly into the software.
A parts list report with assembly instructions is available in various output formats for the assembly of the real fixture created in FixtureBuilder. The 3D function in PDF format is especially practical as it allows limitless variations on the view of the fixture model in the PDF document. The virtual design can therefore be examined from all possible views and positions.

Import data in

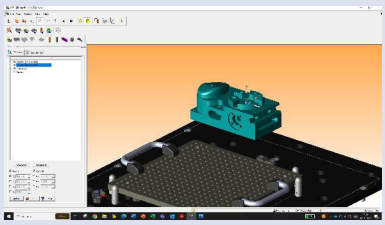
- Acis (*.sat) file format
- Iges (*.igs) file format
- Step (*.stp) file format

Save fixture report in

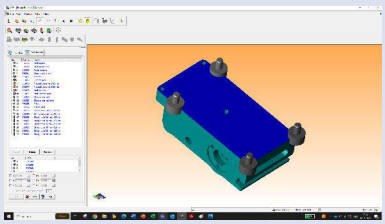
- PDF file format (3D option)
- HTML file format
- CSV file format

Save fixture data in

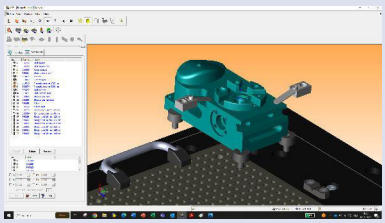
- HOOPS (.hsf) file format
- 3D PDF (.pdf) file format
- ACIS (.sat) file format



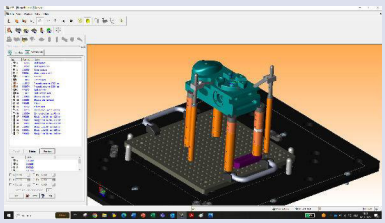
Imported CAD file and choosen base plate



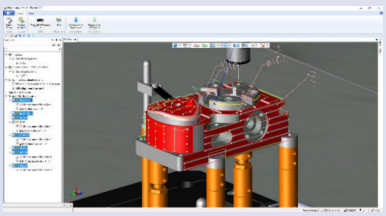
Application of support points



Applied support points and clamps



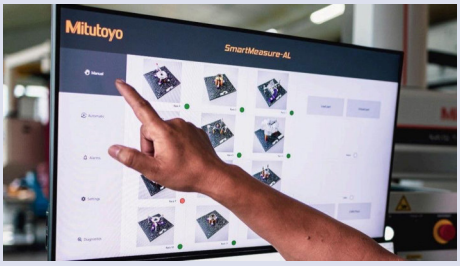
Automatically processed fixture



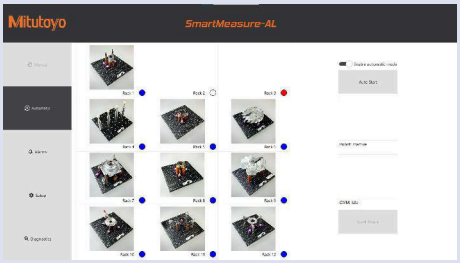
Imported Fixture project in MiCAT PLanner part programming software

FixtureBuilder Software

SmartMeasure-AL



Graphical user interface



Graphical user interface

Turnkey Solution

Smart Connectivity

Modular Configuration

24/7 Operation

SmartMeasure-AL

The SmartMeasure-AL is an advanced automated measurement system designed to operate seamlessly on Mitutoyo measuring machines. This innovative system revolutionizes industrial measurement processes by delivering precision, reliability, and full automation. The complete system includes a pick-up rack, an I/O station, a storage system, system pallets, a collaborative robot, and a Mitutoyo measuring machine (with a data processing PC).

Features

- **Efficient Measurement**: The system allows for automatic measurements even during nighttime, which not only increases efficiency, but also addresses the shortage of manpower. The operator simply needs to place the workpiece on the pallet, configure some measurement parameters, and let the system run autonomously.
- **Easy to Operate**: With our Space4Win software and an easy and user-friendly GUI, an operator without knowledge of the system can easily run the whole setup.
- **Re-measure**: With help of the user-friendly software, the operator can easily re-measure parts that are NOT OK without having to run the whole sequence again.
- **Result Display**: The measurement result is displayed via an indicator light on the HMI (green light for OK, red light for NOT OK).
- **Program Selection**: The part program can be automatically selected by reading the RFID tag mounted on the pallet and by using the RFID reader mounted on the robot gripper.
- **Flexible Configuration**:The combination of RFID tag and the part program can be modified simply by editing the settings file.
- **Connectivity** : Once measurement is completed, measurement results can be sent to statistical software or even to external software. Moreover, results can be send directly to CNC machines for tool correction with our Space4Win software.

No.	Remarks
K543869	For Mitutoyo measuring machine excluding robot and CMM