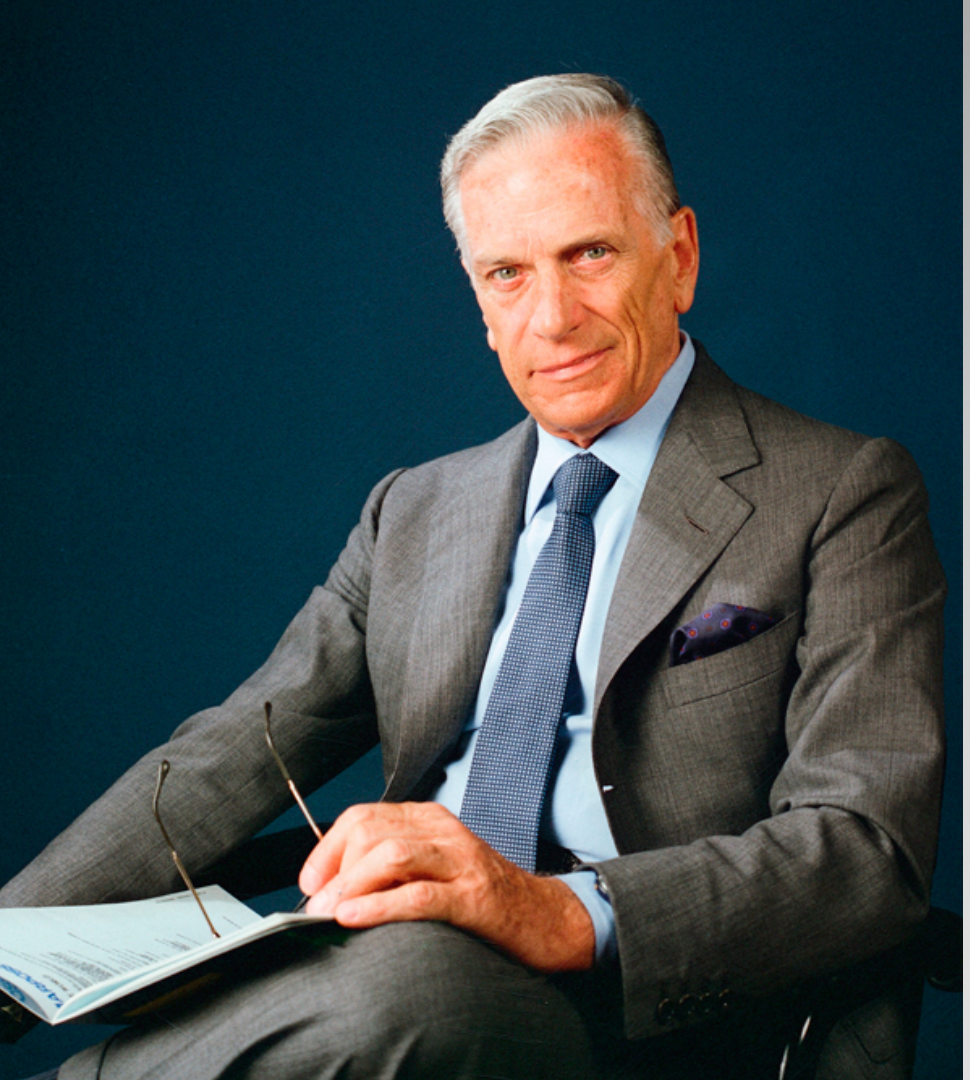
MARPOSS



The beginning

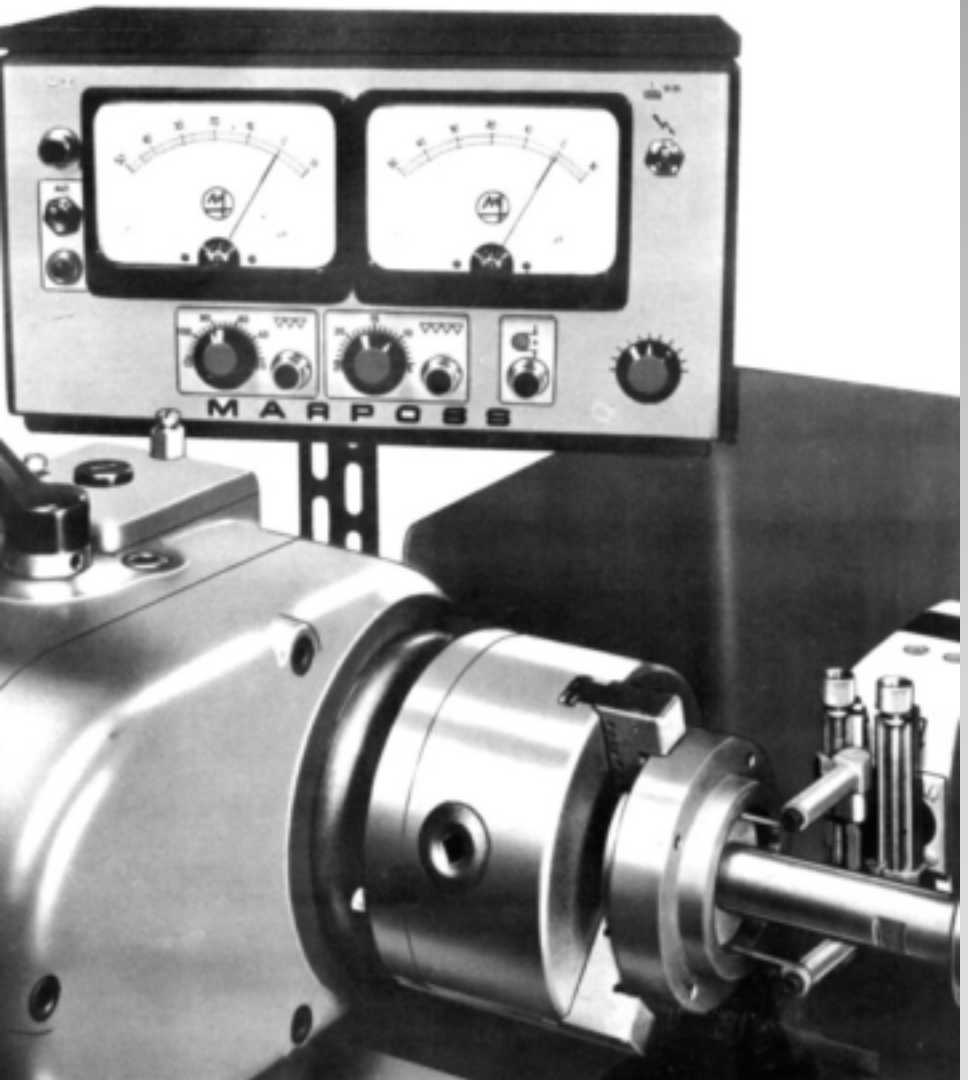
- Mr Mario Possati wanted to create a company according to his own principles and philosophy

MARPOSS

1952

- Mr MARIO POSSATI founded **MARPOSS**
- The first product was an **electronic** gauge for grinding machines

MARPOSS

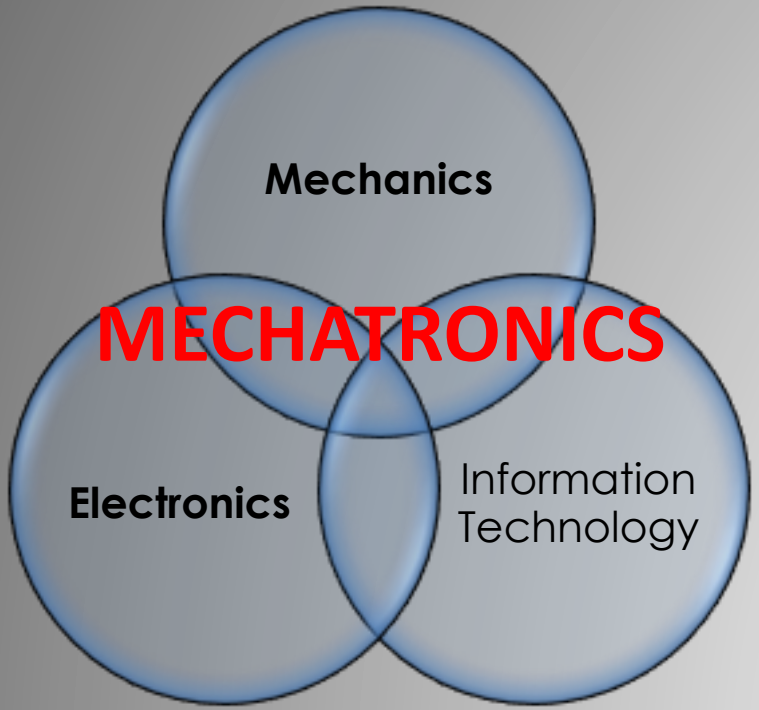


1952

- It was a real **innovation: mechanics and electronics** combined allowed a remarkable **production improvement**
  - increased quantity
  - enhanced quality
  - few or no rejects

MARPOSS

1952



- This happened almost 20 years before the word **MECHATRONICS** was coined in Japan!

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Our Business

- Provide **high precision equipment** for machine tool control and for part measurement and inspection in the shop floor environment
- Give a **global answer** to customers' production quality control

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Our Business

- Customers ask **questions**
- Marposs gives **answers**

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Highlights

- **Worldwide presence**
- **Widest product range**
- **Entire production chain**

MARPOSS

Worldwide presence

- Headquarters is in Bentivoglio, BO (ITALY)
- We are in **33 countries**
- Our own organization:
  - **80 locations** in 24 countries
- Agents/distributors :
  - **10 locations** in 9 countries

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Worldwide presence

- Main **Sales and Service** Centers in:
  - Germany, China, USA, Japan, Italy
- Main **Manufacturing** Plants in:
  - Italy, China, Germany, USA, France

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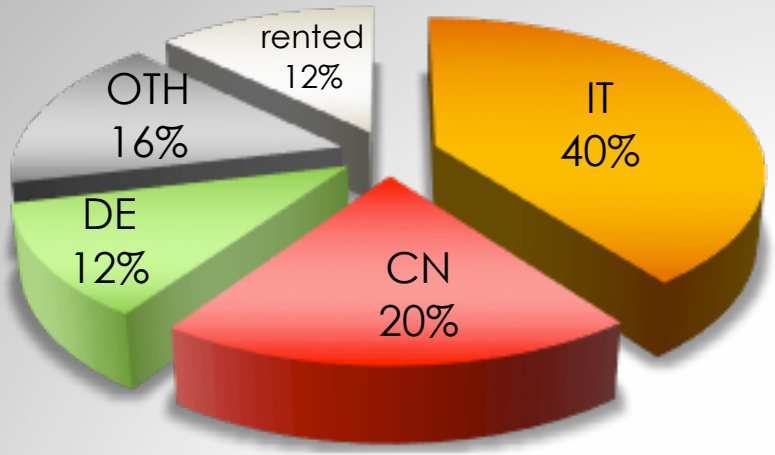
Plants in the world



- Owned 122,400 sqm
- Rented 17,800 sqm
- TOTAL ~ 140,000 sqm

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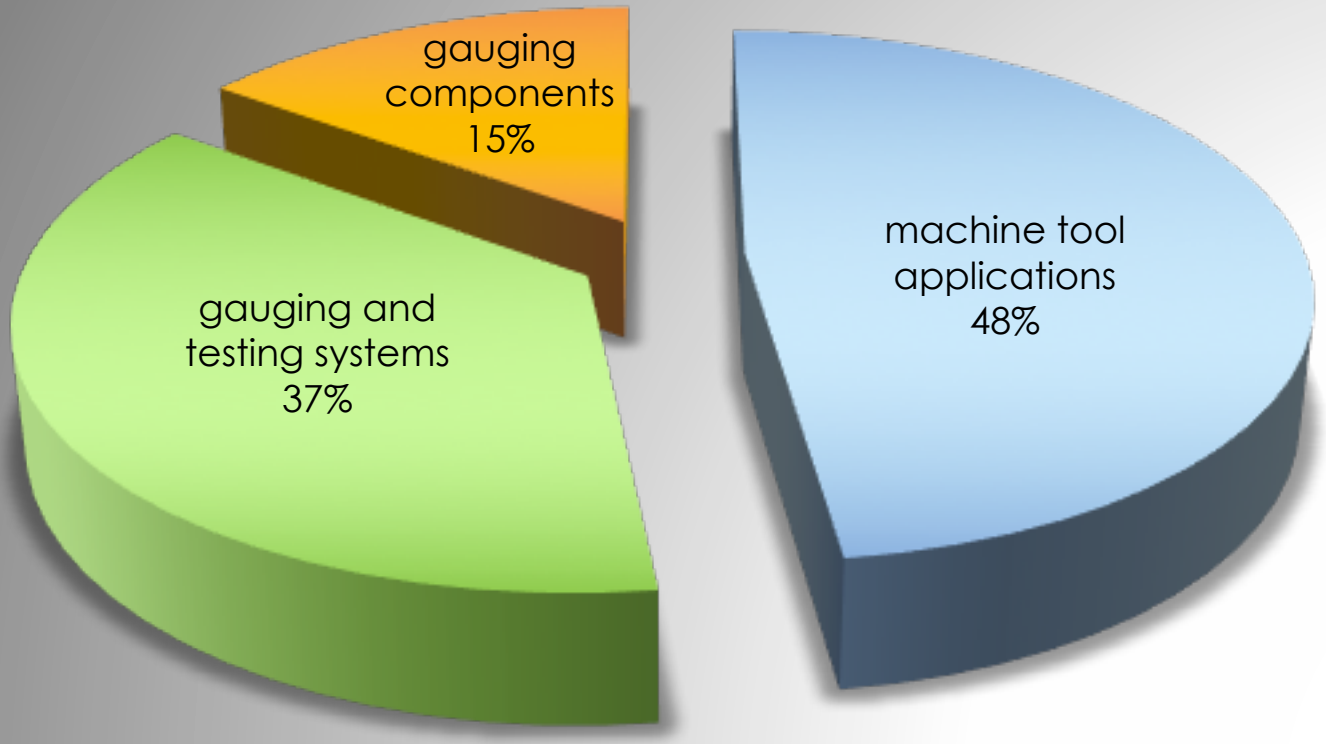
Widest product range



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Widest product range

Applications for machine tools
(grinding, cutting, forming and stamping machines)

 Part Measurement	In-process gauges and touch probes; post-process gauges and plugs for interoperational or final inspection
 Tool Control	Contact and non-contact (laser) systems for tool measurement monitoring and compensation
 Machine and Process Monitoring	Grinding wheel balancers; sensors to control force, power, vibration, noise, displacement; part, die and tool deformation

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Widest product range

Gauging and testing systems

 Inline gauging	Gauging machines and automatically loaded stations for 100% dimensional and geometric inspection
 Offline gauging	Manually loaded benches and hand-held gauges (variable and attribute types)
 Non Destructive Test (NDT)	Systems to detect hardness inconsistencies and material flaws (cracks, pores,…)
 Assembly and Test	Automatic solutions for assembly and leak test

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Widest product range

Gauging components
for end users, system integrators and gauge makers

 Standard Gauging Components	Pencil type probes, gauging components for fixtures, interface units for data acquisition
 Display units, Industrial computers	Indicators, column and microcolumn displays, embedded gauge computers
 SPC	SPC and quality control software

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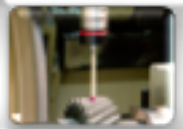
Widest technology range

The appropriate technology is used, depending on the application

 Conventional gauging	Contact electronic, air-to-electronic, hard gauging (go/no go, doghouses, fixtures)
 Non-contact gauging	Flexible optoelectronic measurement systems (1D/2D CCD cameras)
 Probes and Sensors	Touch probes, different types of sensors (position, force, vibration, material integrity,…)
 Leak test	Pressure decay, mass flow, mass spec-trometry (vacuum chamber, sniffer)

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Entire production chain

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Sales & employees

- **Year 2016**
  - Consolidated turnover: in excess of 430 M€
  - Employees: over 3000
  - 94% sales outside Italy

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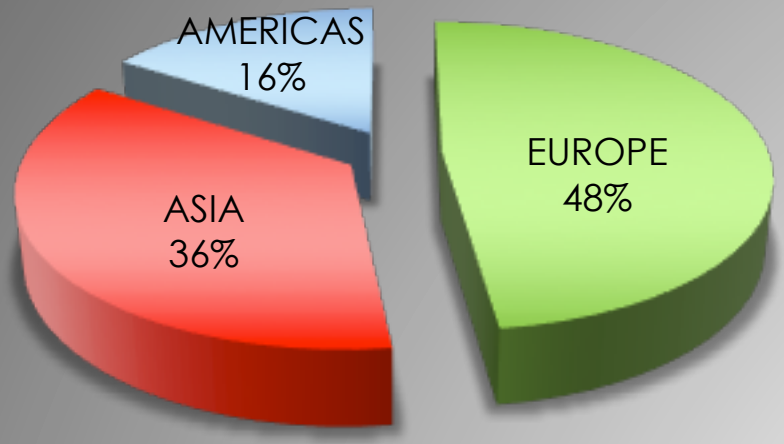
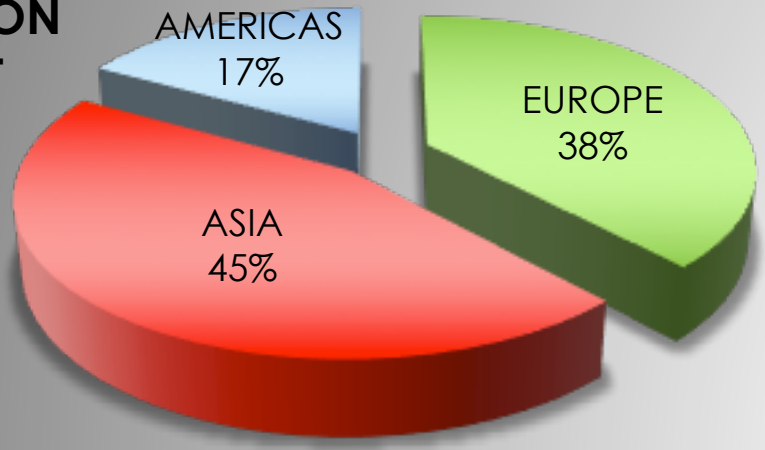
Sales

SALES



- **GERMANY** is the top country for sales

DESTINATION MARKET



- **CHINA** is the top country for destination

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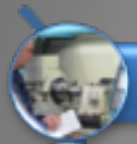
Market

OEM'S


Machine tool makers


Gauge & fixture makers

END USERS


Automotive and suppliers


Aerospace


Bearings, gears, electric motors, injection, compressors


Glass


Energy


Hi-tech


Biomedical

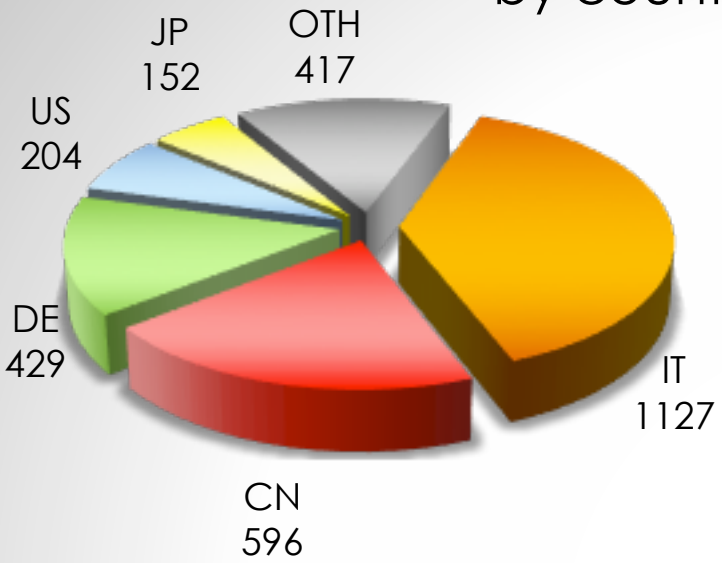
MARPOSS

Employees

2925 employees worldwide

Dec 2015

by country



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Complete control on your machining !

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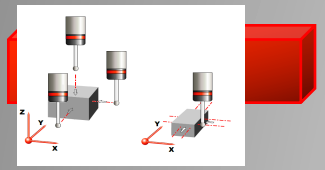
4 Steps to improve your **Production Quality …**

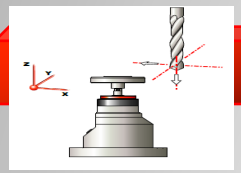
4. Part Inspection

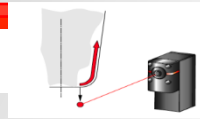
3. Tool & Process Verification

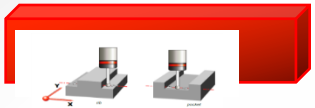
2. Tool Pre-setting

1. Work-piece Setup

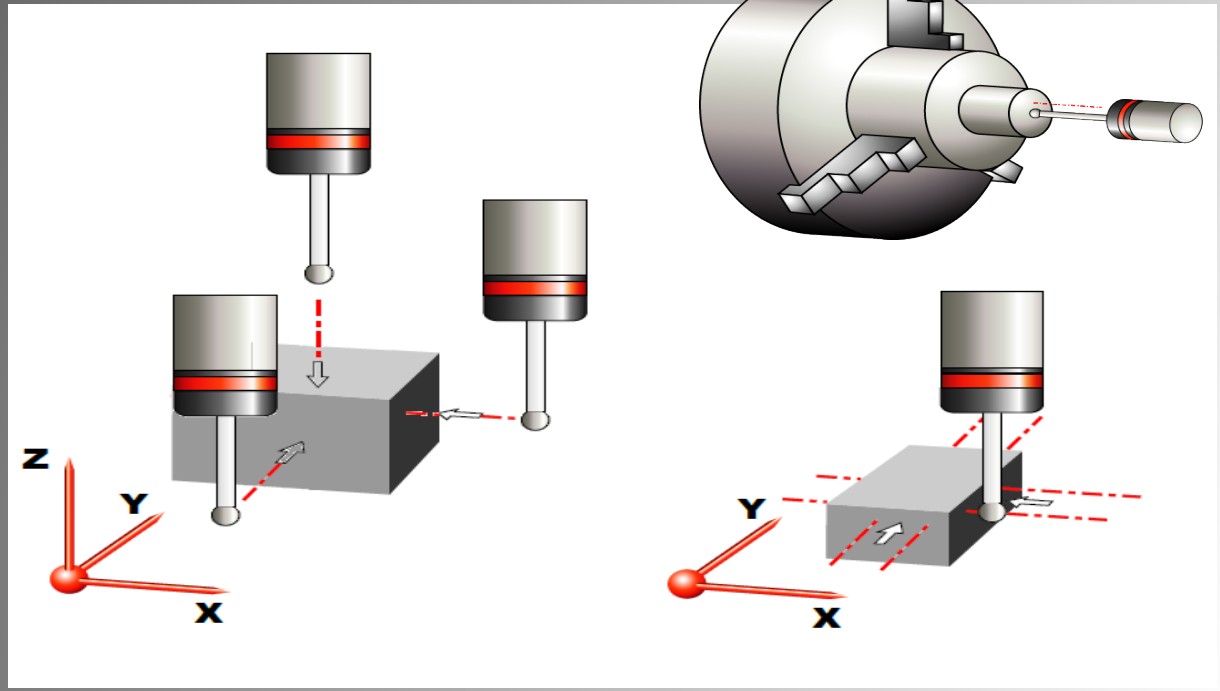






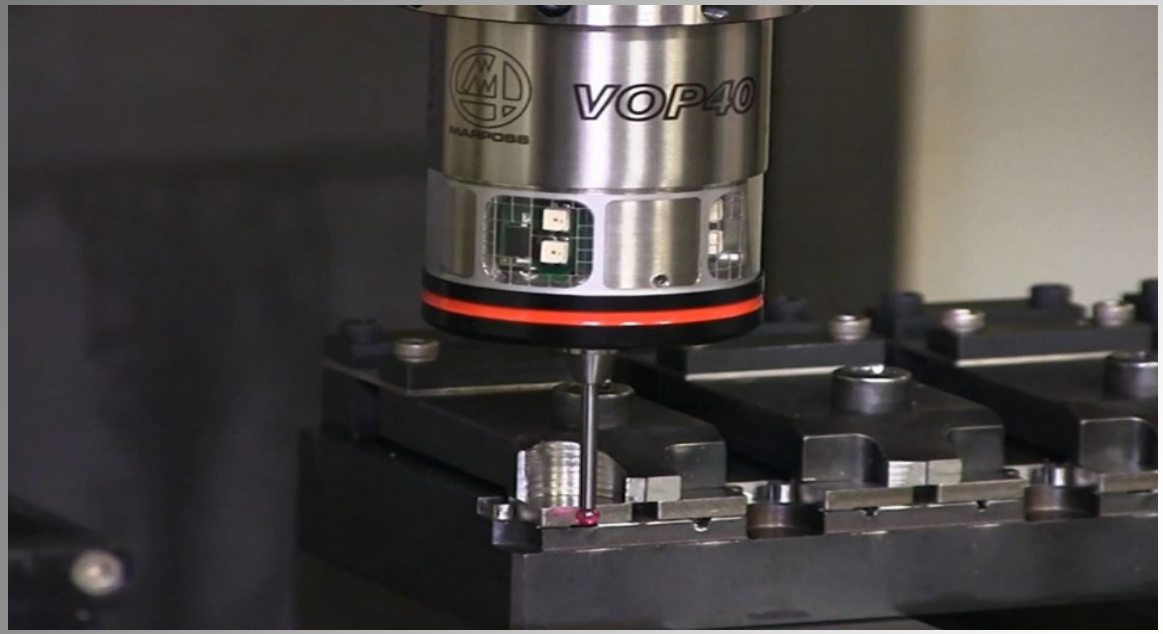


1. Work-piece Setup



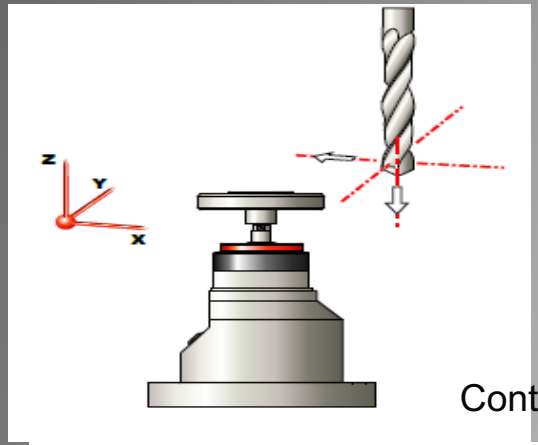
The first step towards good production is part positioning through work-piece orientation and origin identification. This operation is essential to keep the work-piece within tolerance.

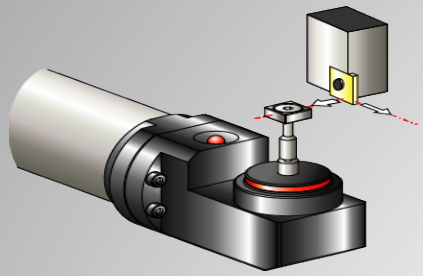
1. Work-piece Setup



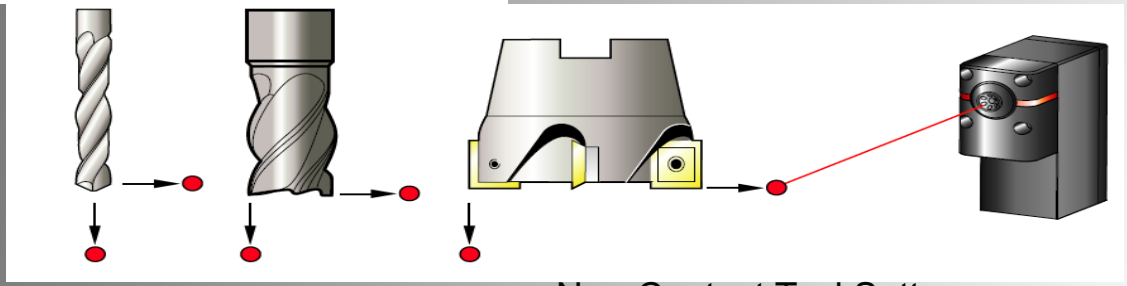
Marposs spindle probes give faster positioning than operator driven procedures and provides automatic compensation for misalignment.
This correct setup process decreases errors and scrap parts.

2. Tool Pre-setting





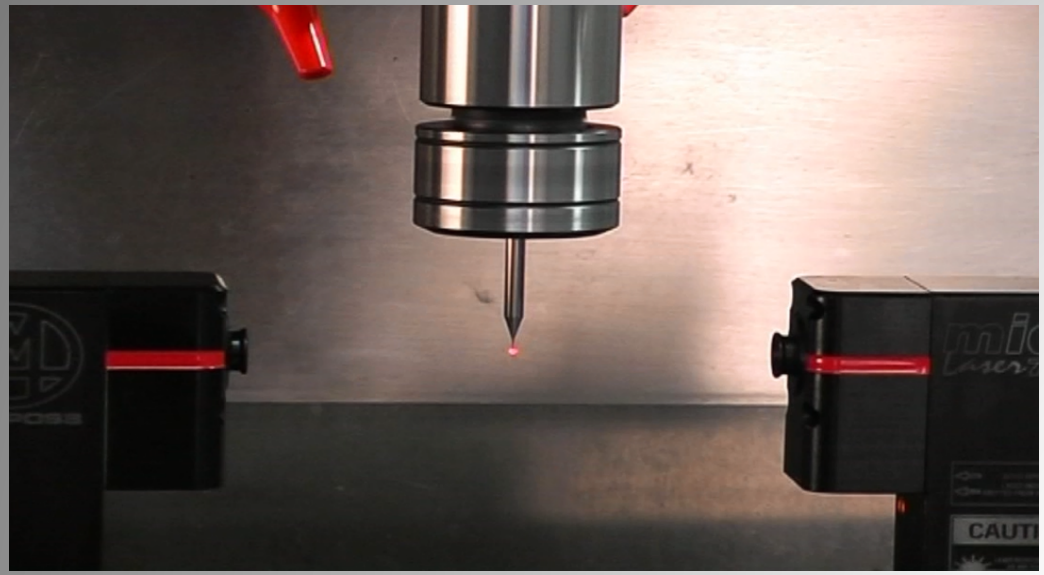
Contact Tool Setter



Non-Contact Tool Setter

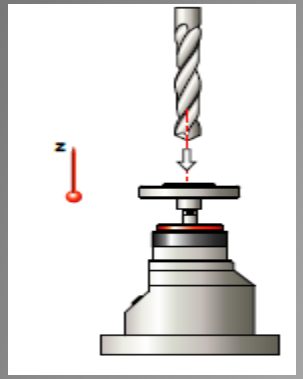
Marposs offers on machine contact and non-contact Tool Setters.
The choice of the relevant Tool Setter system depends on tool dimension and the type of measurement required.
Tool dimensions are automatically written into tool table,

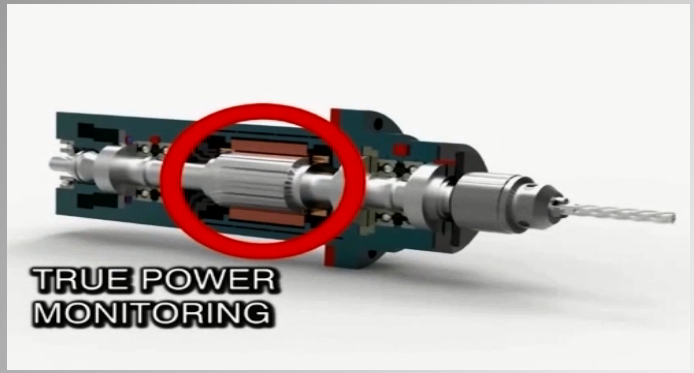
2. Tool Pre-setting

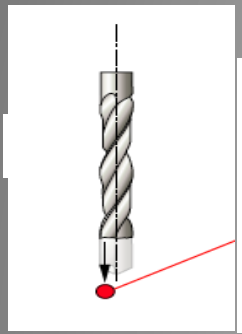


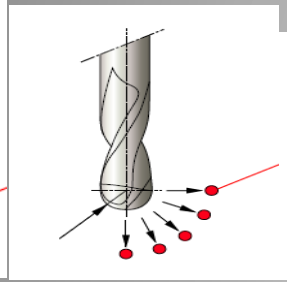
On machine tool pre-setting guarantees the highest cutting quality, as all measures are performed within the machine.
Tool clamping in the machine spindle can add RUN OUT to tools modifying the actual tool diameter.
Dynamic behaviour of the machine can also modify total tool length, using the onbaord tool setter ensures the correct tool information

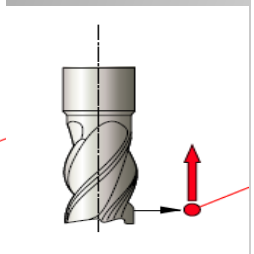
3. Tool & Process Verification

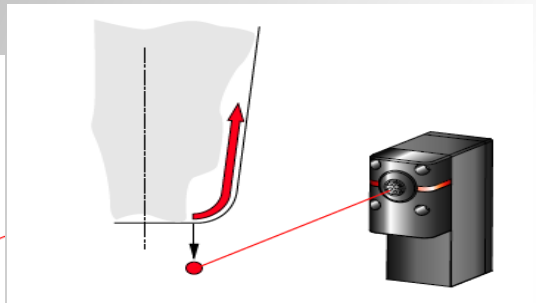






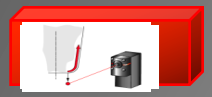




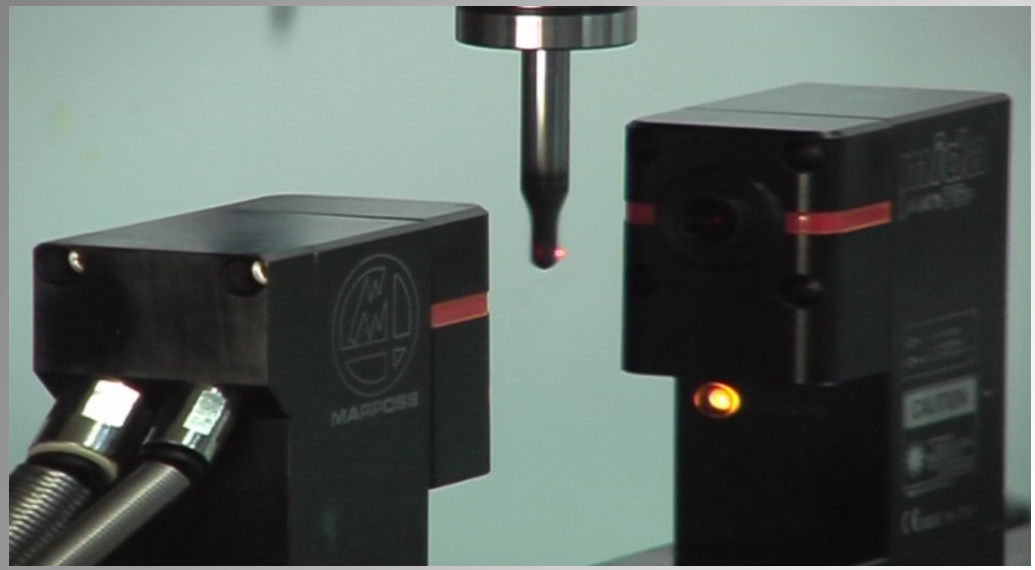


During machining Marposs tool setters and monitoring systems (MMS) verify:

- tool wear
- tool breakage
- cutter integrity
- tool run out
- axes thermal drift



3. Tool & Process Verification

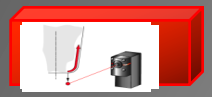


During the cutting process, onboard machine tool setters and MMS ensure the same level of quality throughout the production process. Thanks to those systems productivity will be improved and scrap reduced.

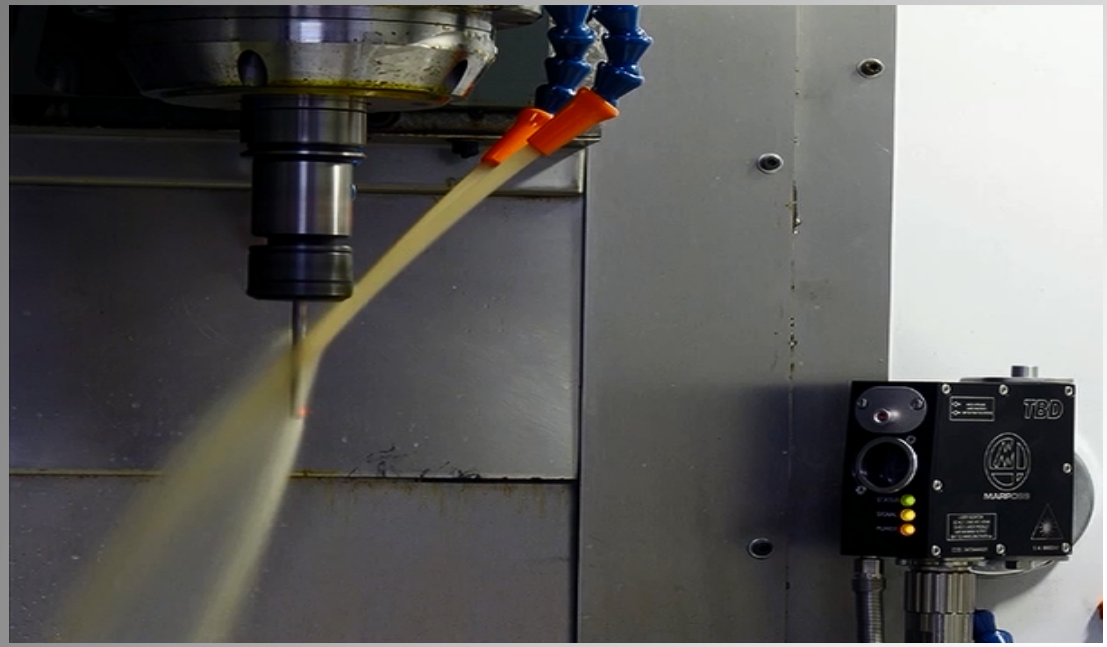
3. Tool & Process Verification

A fast tool breakage detection can be performed after machining, verifying the tool intergrity prior to machining the next part.

An undetected broken tool could result in lost prodution and part quality.

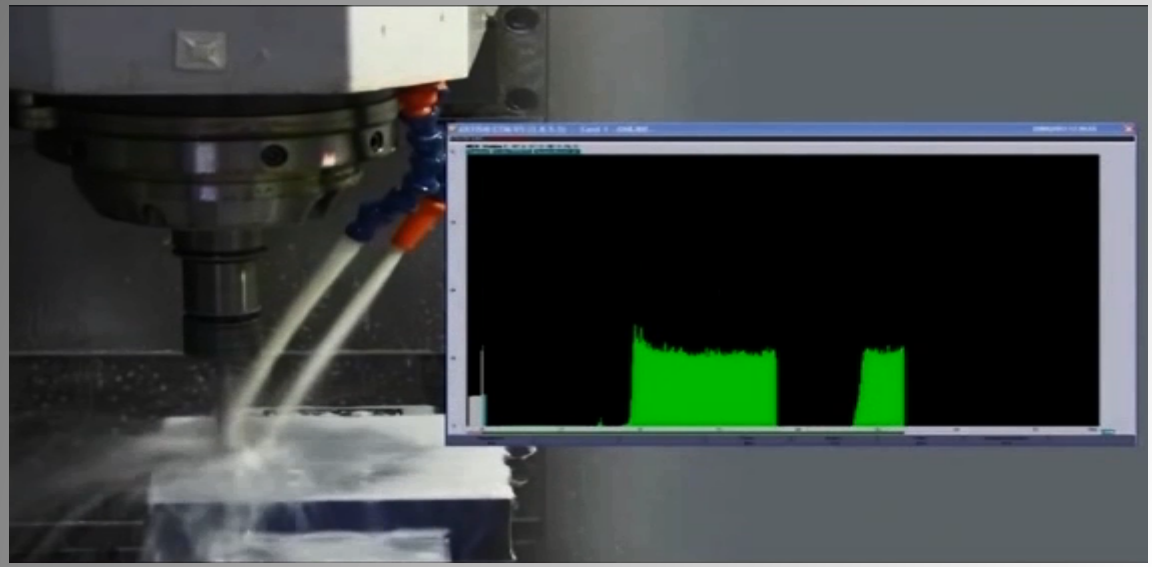


3. Tool & Process Verification



Fast and reliable breakage detection can be performed in less than 1 second. TBD is the right solution for mass production machining centers.

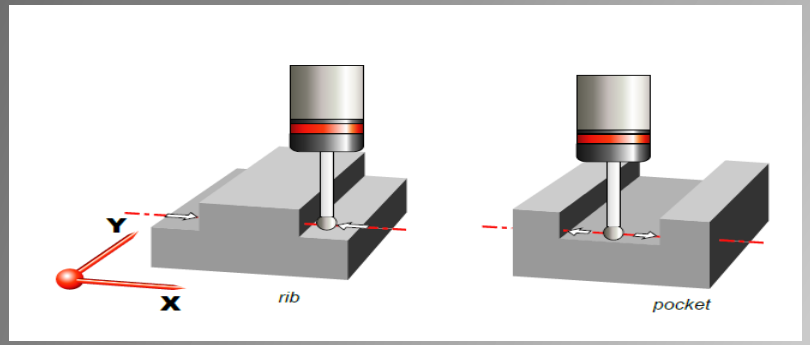
3. Tool & Process Verification

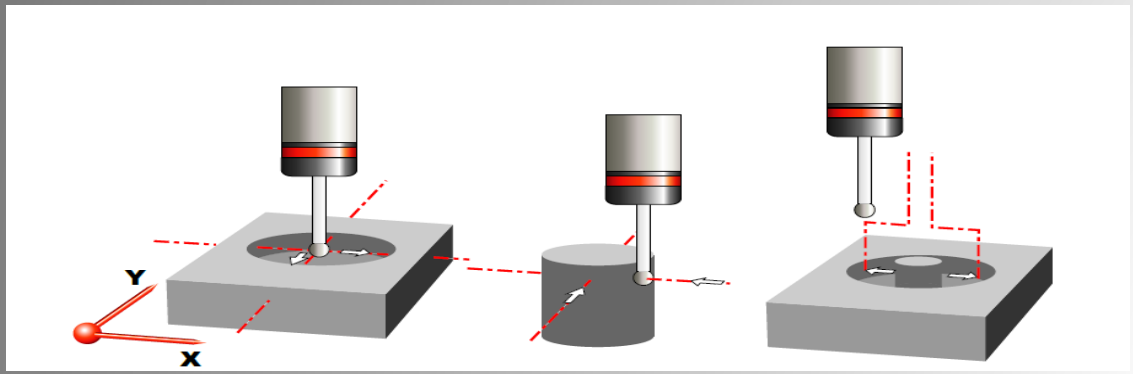


MMS offers solution and sensors for process monitoring on MT. Possible monitoring fields are:

- Power
  (tool breakage and wear)
- Force
  (cutting force optimization)
- Vibration
  (machine condition and tool unbalancing)
- Temperature
  (bearing overheating)

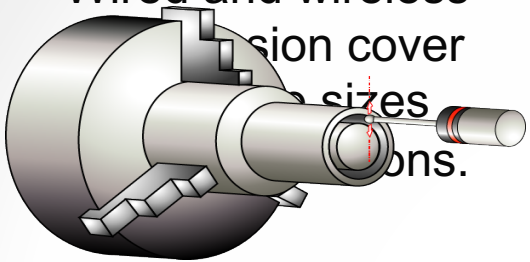
4. Part Inspection



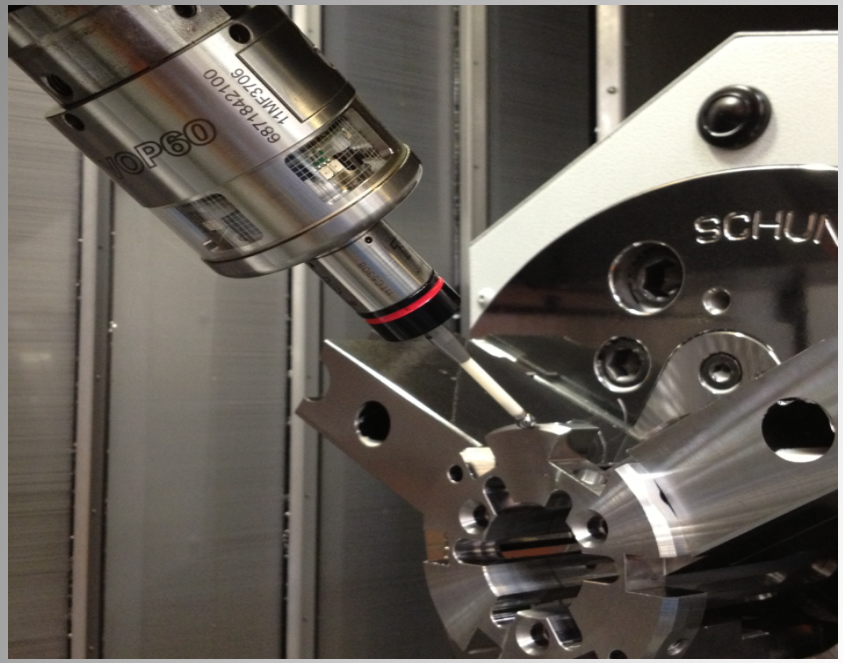


Marposs supply a full range of spindle probes to fit all machine tool types and work piece shapes.

Wired and wireless
sion cover
sizes
ons.



4. Part Inspection

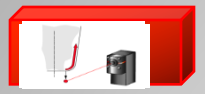


On machine part inspection saves time and permits part re-working without additional work-piece positioning.

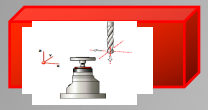
A complete **Product line**

for Machine Tools…

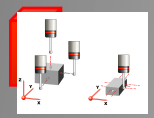
4. Part Inspection



3. Tool & Process Verification



2. Tool Pre-setting



1. Work-piece Setup

… to increase your

Production Quality & Productivity

MARPOSS

Boost the **heart-beat**

of your business !

www.marposs.com

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