



Vertical Lathes

PIETRO CARNAGHI
Machine Tools



Financial Stability

PIETRO CARNAGHI SPA obtained the D&B Rating 1, the max level of reliability in a business relation BtoB.



Top quality

Recognized since 1922 Pietro Carnaghi obtained the UNI EN ISO 9001:2000 for design, production, installation and service after sale of vertical lathes, grinders Vertical CNC machines, milling machines, mobile gantry and mobile banking.



Made in Europe

100% italian private property corporation, with the support of one of the highest technological district in Europe, North Italian Style. Cooperation with UNIVERSITY Milano – Politecnico Aachen University - Germany



Global Service

24 hours service available, 4 branches worldwide, commitment to customer support.



Italian Design

100% italian private property corporation, with the support of one of the highest technological district in Europe, North Italian Style.

Villa Cortese (MILAN) – Italy



Founded in 1922

PIETRO CARNAGHI is an 1922 established company with young ideas and a dynamic approach in the field of vertical turning centres, FMS installations, and GANTRY milling machines, that has enabled it to achieve success and recognition with the most important international companies.

This publication is just an example of our achievements and quality.

Pietro Carnaghi invites you to come and visit our plant to examine your production requirements.

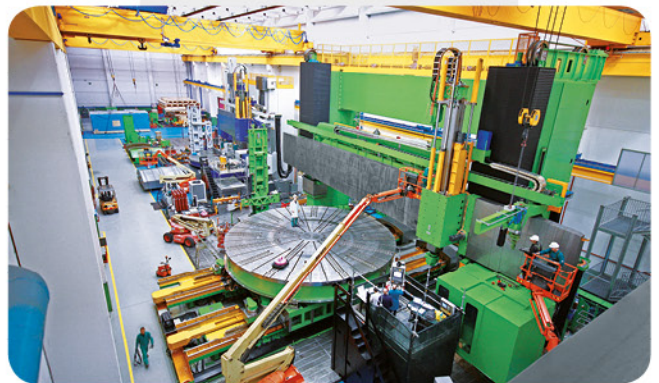
PIETRO CARNAGHI è una azienda di antica fondazione (1922), giovane nelle tecnologie e nelle idee che opera oggi nel settore dei torni verticali, delle fresatrici a portale mobile (tipo Gantry) e delle celle flessibili di produzione (FMS), con notevole dinamismo, premiata da lusinghieri successi internazionali. Significative installazioni sono collocate nelle più prestigiose aziende in tutto il mondo.

Questa pubblicazione è solo un esempio delle nostre realizzazioni e della nostra qualità.

Pietro Carnaghi Vi invita a visitare la nostra sede, ad esaminare assieme e risolvere le Vostre esigenze produttive.

Marisa Carnaghi
President

Since 1922



Plant Assembling Area



Milling Machines



Vertical Lathes



Today



Almost one hundred years of industrial applications experience and more than 1000 installations made on the market, bring the best application technology of turning, milling and grinding of almost every mechanical component.

Pietro Carnaghi machines excel in precision, efficiency and reliability characteristics.

Top Class Solutions in terms of precision and performance. Significant increase of reliability in production.





- 50.000 sqm headquarter with temperature controlled internal machining department
- All structures completely machined in-house at Pietro Carnaghi plant to maintain the highest precision and quality.
- Machined structures (crossrails, gantry beds, guideways) achieve linearity <math>< 0,04\text{ mm}</math> on the complete lenght (22 mt)

All machine components are of high quality "Made in Europe", guarantee high productivity and minimized life-cycle cost.



Almost 100 years of machining successful cases gives the best optimized table bearing technology for each application.



Structural components are made of high-quality material and are machined in-house at the highest precision.



Direct Drive*

* Available for ATT, ATF, AC Mono series

Direct Drive System for running the turning spindle without mechanical reduction, by means of built-in motor with high torque with liquid cooling. undoubted advantages in terms of rigidity of the system and of the kinematic performance, with cancellation of the phenomena of wear and heating of the mechanical organs and the resulting optimization of accuracies. It excels in terms of energy efficiency and ease of maintenance.

over **1.000**
worldwide installations



Low Maintenance cost (cost of machine+10 years maintenance costs ~ 20% lower cost rather than any commodity machine on the market). Massive high-quality structures, with customized geometry.

20% lower
mainteinance cost



Machine
price

+



10 years
service cost

<

traditional
machine cost
including service



PCIAERTRAGHI

AP

AC

AP

Highest heavy duty cutting dynamic stiffness



Machine Dynamics

The fully hydrostatic main axes of the machine ensure maximum static and dynamic stiffness, superior damping characteristics, zero backlash and lifetime guideways.

Movement of all axes fully Hydrostatic (W axis continuous vertical movement of crossrail with innovative clamping system for heavy turning rigidity) to grant ultimate cutting performance and accuracy.

Hydrostatically guided rotary table for heavy table loads (up to 500 ton).





Self-Tuning: Active Hydraulic/mechanic System for compensation of the geometries of main structures.

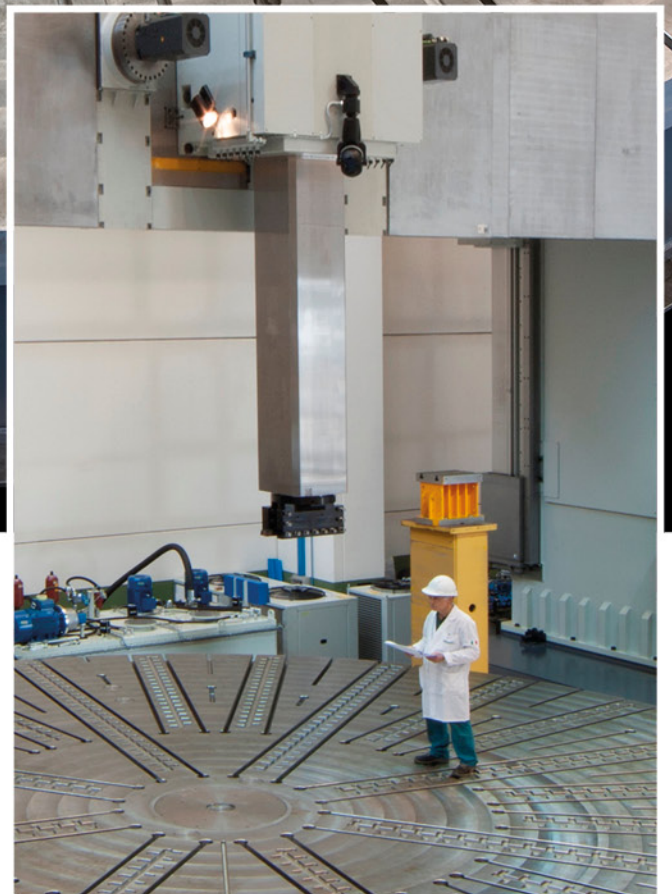
The thermal deviation control is managed by the stabilization of the heating areas, by means of the most sophisticated thermo-symmetrical models. This feature ensure to follow the temperature variations of the components in an harmonic way, with no impact on machining.



Rotary Table

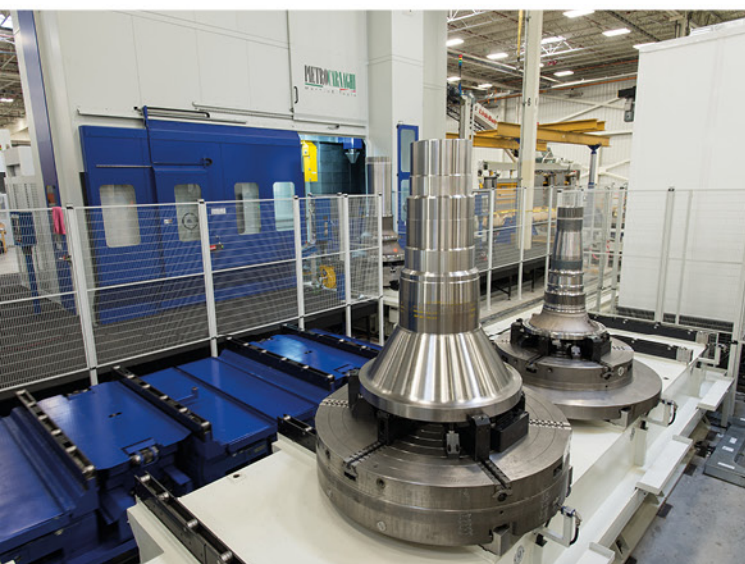
Excellent static and dynamic properties, extremely high driving torque and superior positioning accuracy during milling operations (C axis precision up to 1,5 arcs).

- Adjustable hydrostatic pads to control different loads on table
- Active preloading system



Forged Hydrostatic RAM

- Fully rigid forged structure
- High rigidity of the RAM interface, long lifetime of drive shaft bearings
- Hirth Coupling connection





Performance Data

- Turning diameter: up to 16,000 mm
- Turning height: up to 10,000 mm
- Ram travel: up to 4,000 mm
- Ram cross section: up to 600 x 600 mm
- High-performance main drive integrated into the ram for milling, boring and grinding operations
- Rotary table power: up to 300 kW
- Rotary table torque: up to 800,000 Nm
- Table load: up to 500 t



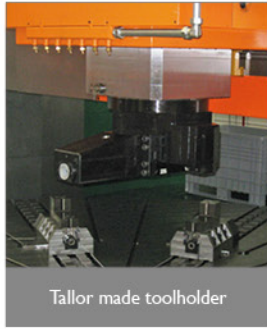
TURNING

Tornitura

ACCESSORIES



Standard toolholder



Tailor made toolholder



Double modular toolholder for turning and milling



Modular toolholder



Modular boring bar



Automatic positioning toolholder (full axis)



Double modular toolholder



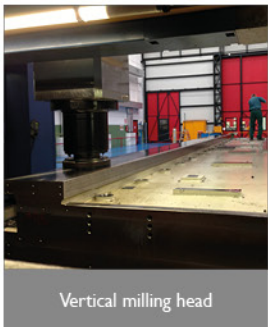
Indexing double toolholder



Standard boring bar

LIVE SPINDLE

Fresatura



Vertical milling head



Vertical long milling head



High speed vertical head



Horizontal milling head



Universal positioning head



Universal head 2 continuous axes



High speed universal head



Angle heads



Special milling head offset reverse



Multiple drilling head



Facing and Boring head



Offset heads

Wide range of optional attachments for turning, milling, boring and grinding applications. All units feature a balanced speed/torque ratio. Based on the many years of experience in manufacturing machines, Pietro Carnaghi offers several attachments with special design, tailor-made to individual machining tasks of the customer:

- maximum precision
- long service life
- Interfaces for all common tool systems
- high pressure coolant available (up to 350 bar)



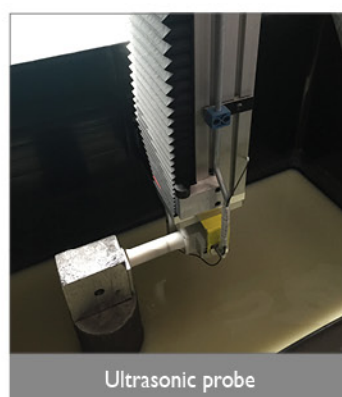
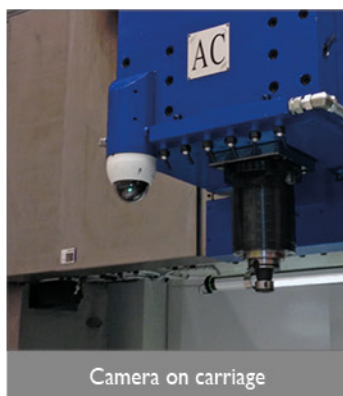
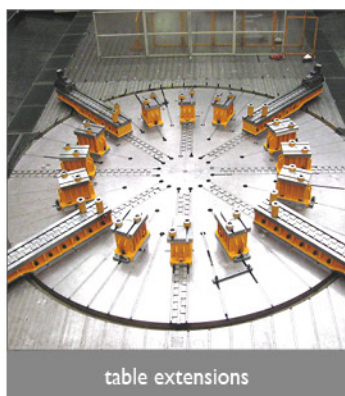
GRINDING

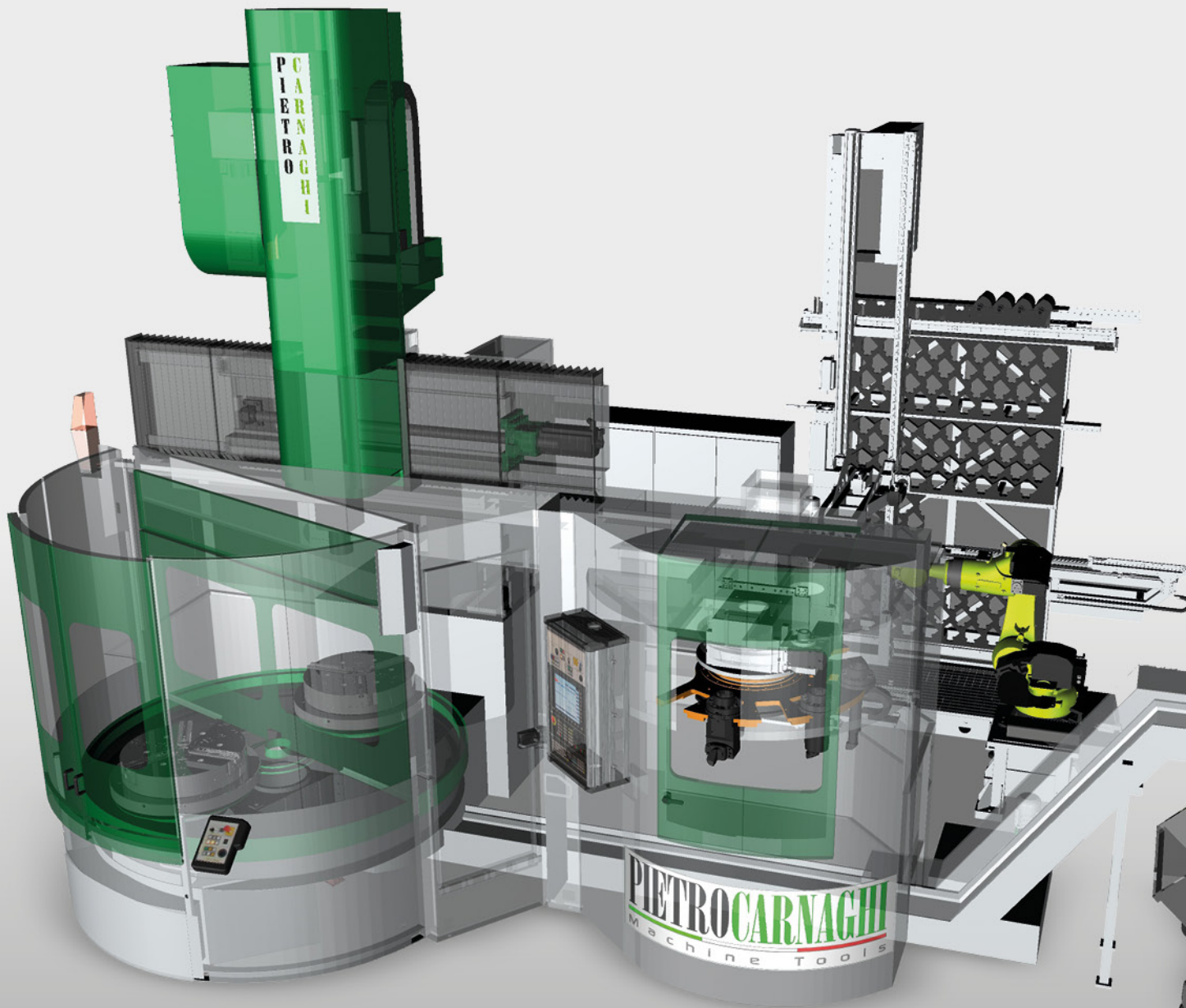
Rettifica



PROBES

Sonde di misura

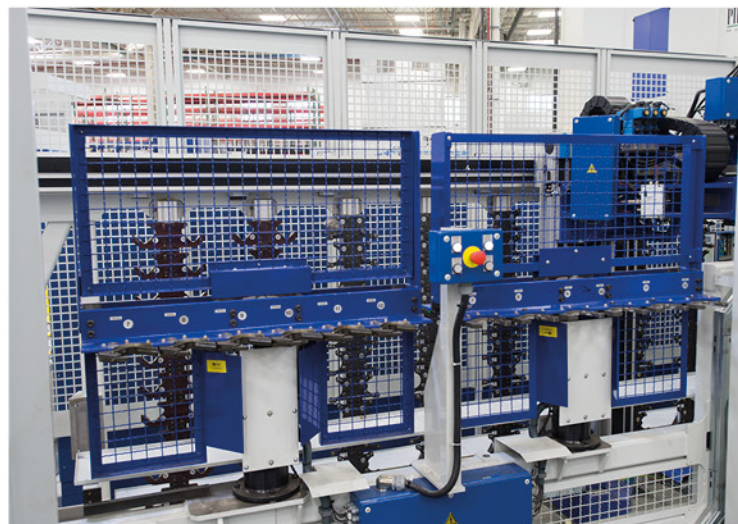


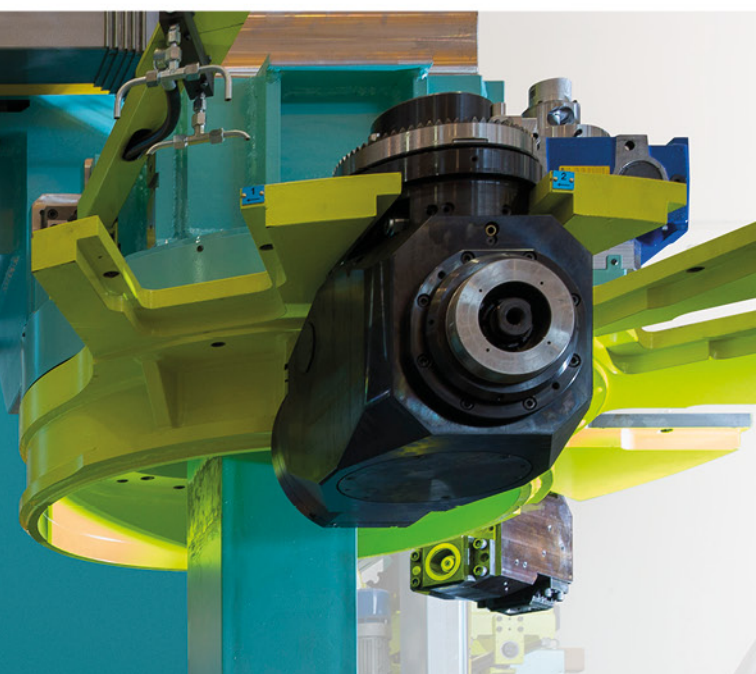
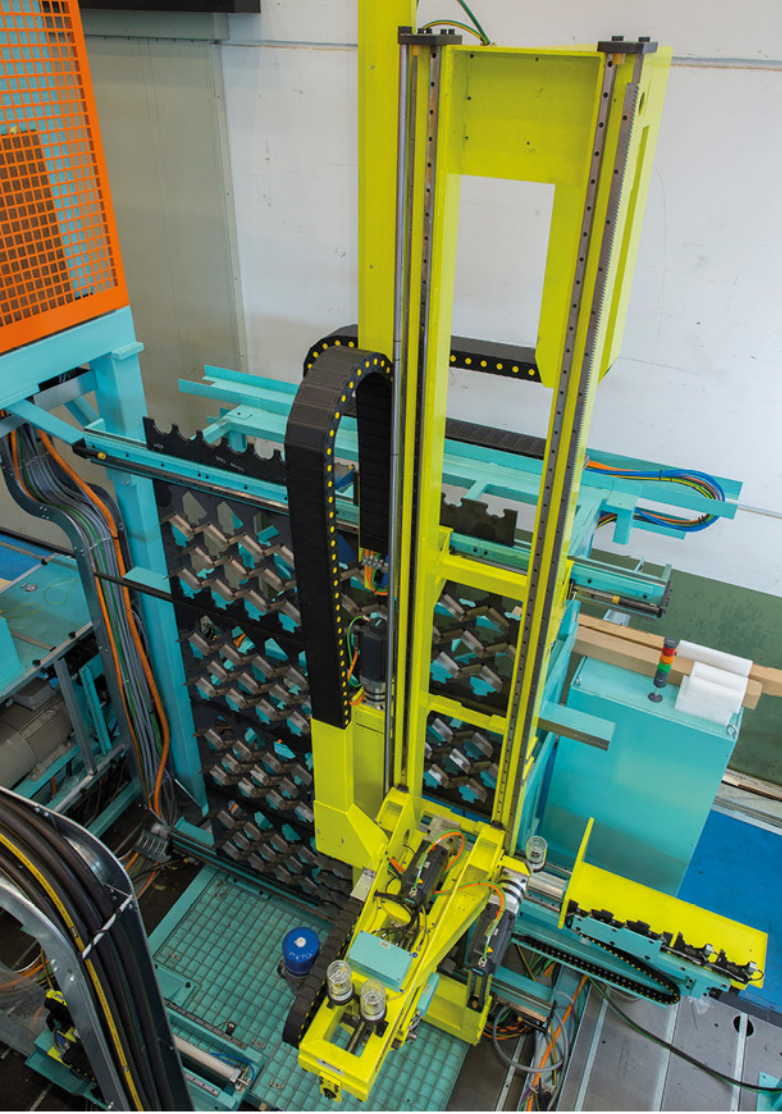


Accessories & tools changer

The wide range of attachments are automatically exchanged. The attachments are accessible for inspection and maintenance during machine operation. Storage systems with the most advanced technology: disk towers, robot and trolleys.

Tool changers. Fast and reliable exchange of a variety of different turning, milling, grinding and boring tools is a key factor for the efficient machining.

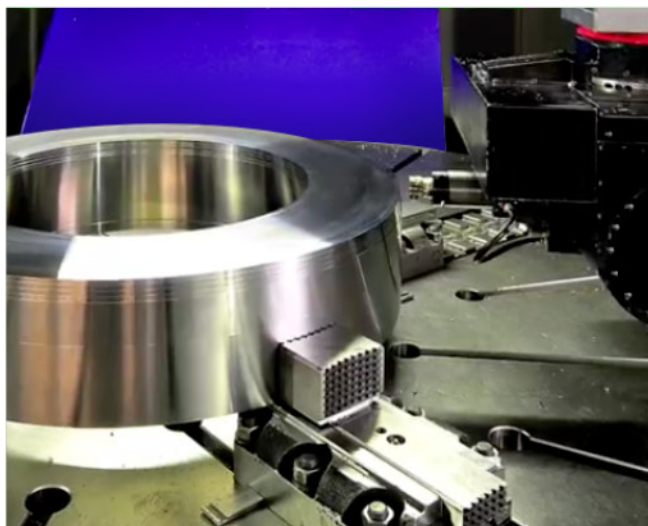




Different tool changing systems which guarantee minimum chip-to-chip times. Optimal tool changer for every number of required tools from 12 to 600 pockets. Disks -Rack type-Towers-robot tool changers. Tool presetting, washing and chip data management system.

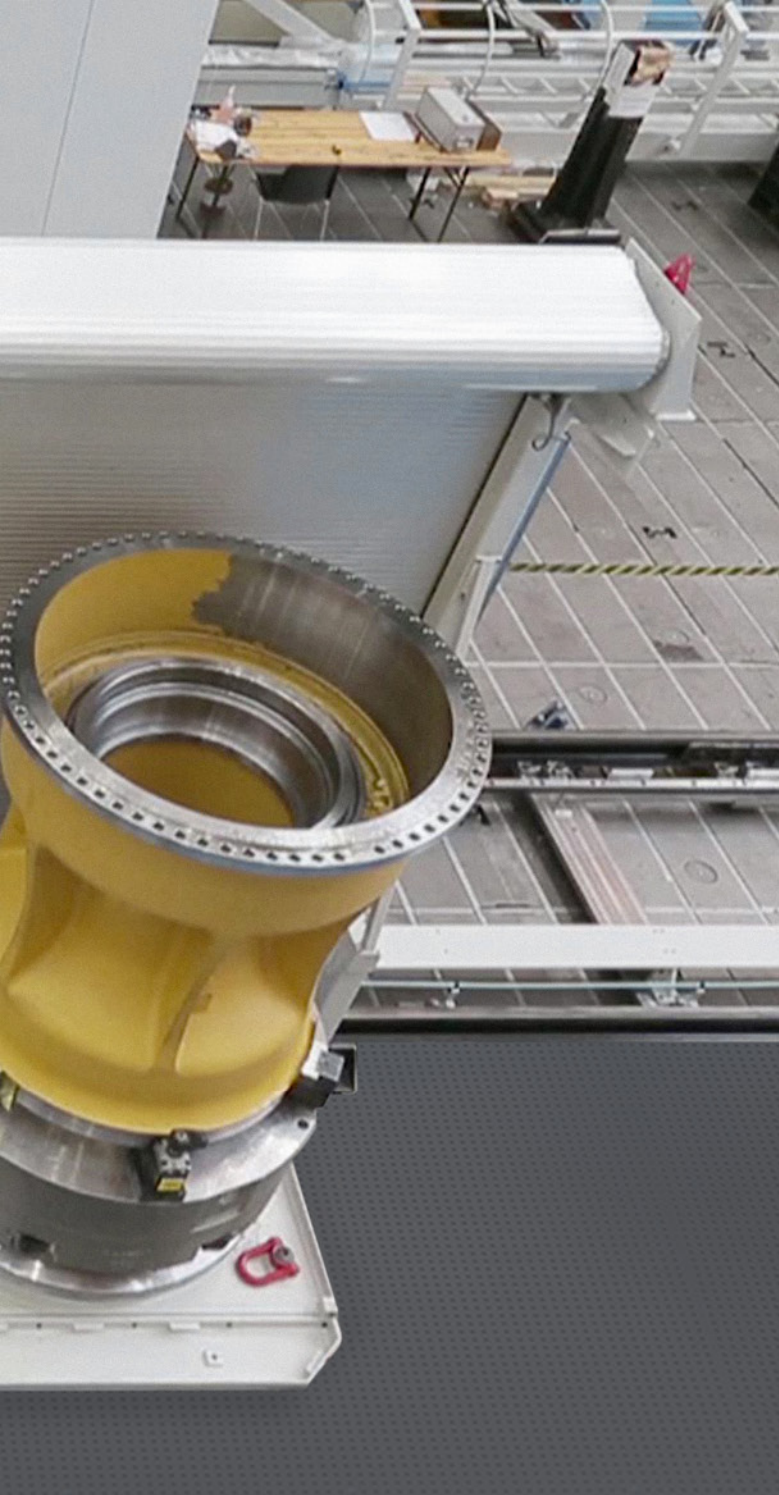


Production and Tool Management



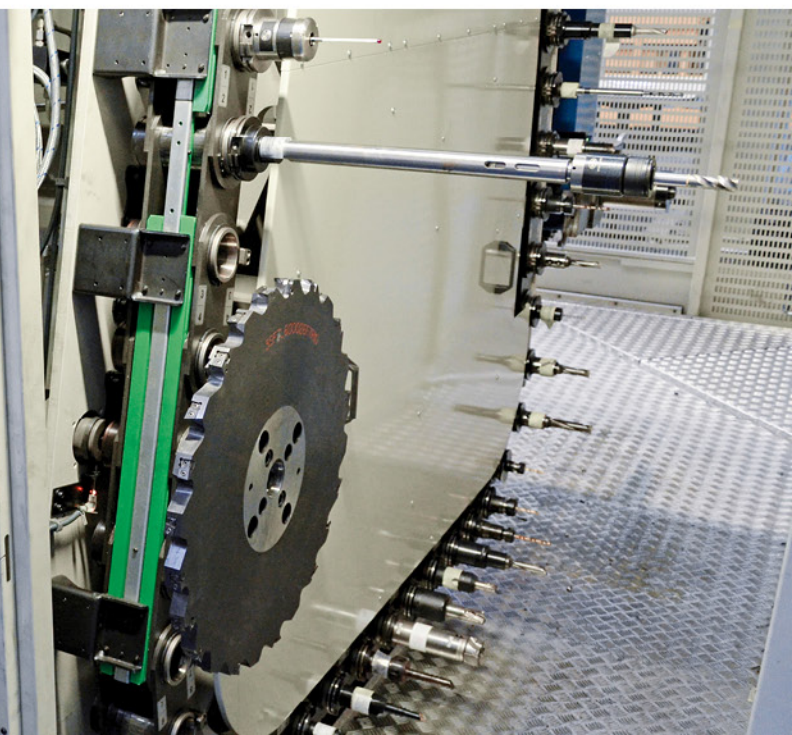
Pietro Carnaghi machines are equipped with a production software that is studied to optimize the scheduling of part programs, tool management, part probing, calibrations and feeding in the workpieces.

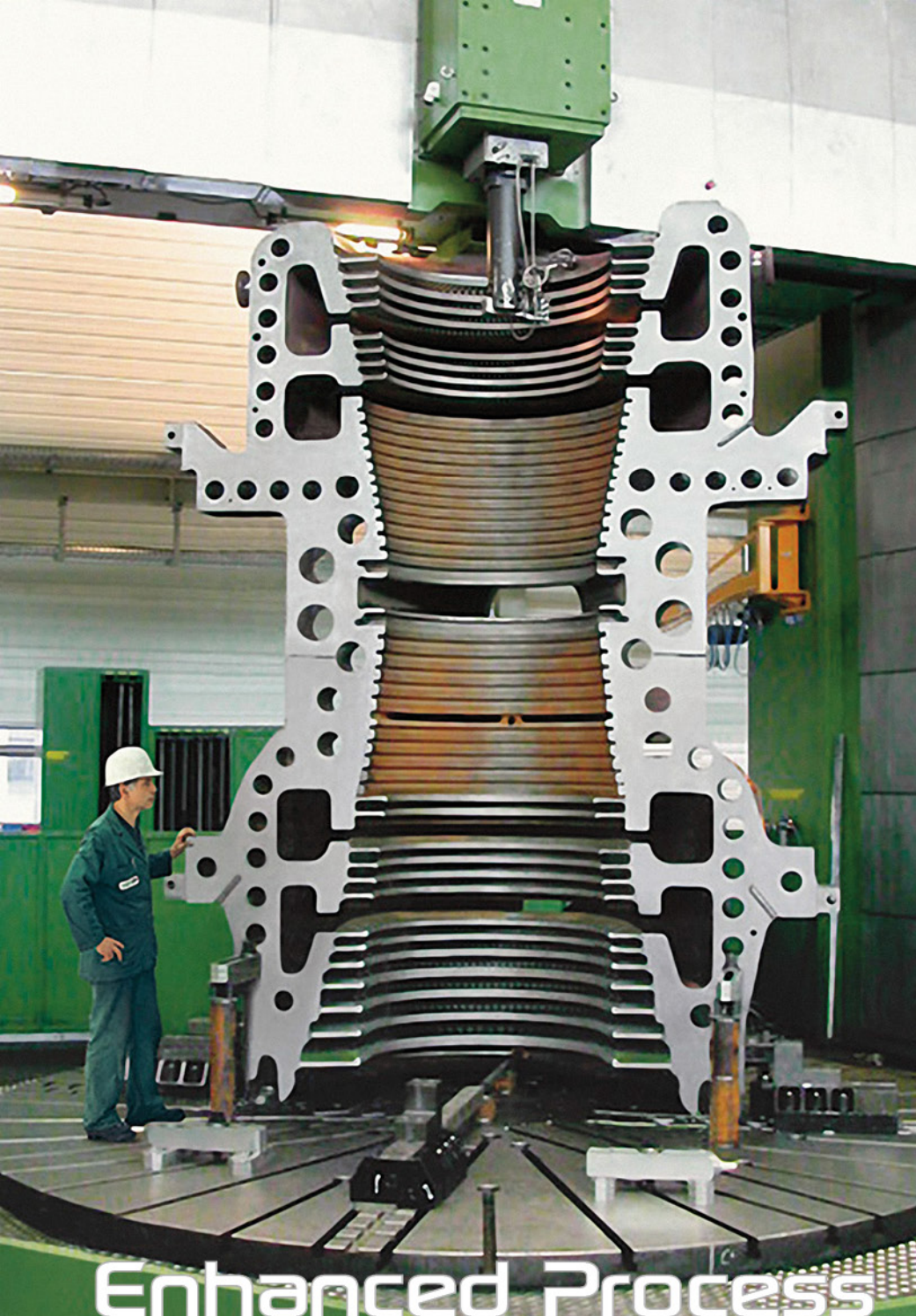
- Optimized utilization of storage space including collision check for tools
- Monitoring of tool storage capacity
- Tool life time control
- Additional data interfaces to external devices (e.g. CAM system, tool presetting, machine control via Ethernet)
- Optional data input devices: barcode scanner or identification chip, serial interface
- The system can be interfaced with a company's production planning system and into the overall production process.



In a FMS, the whole software is conceived to have several levels of customization, upto a fully automatic production scheduler system with input data forms to setup the production needs for every day/week

Any event can be managed by the system, having stations dedicated to store pallets with tool breakage parts, missing tools in the process, etc. Pietro Carnaghi Software is also connectable to Customer Plant Management Systems.





Enhanced Process

Machine's customized geometry and structure
Reduction and optimization of the time of manufacturing the workpieces

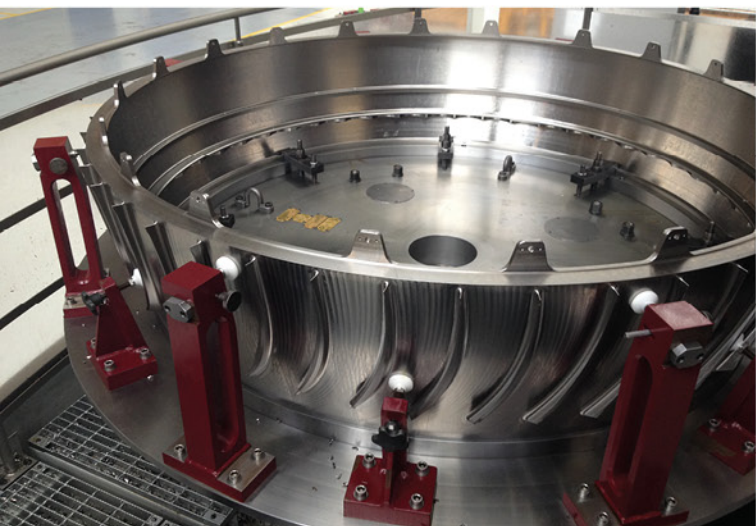
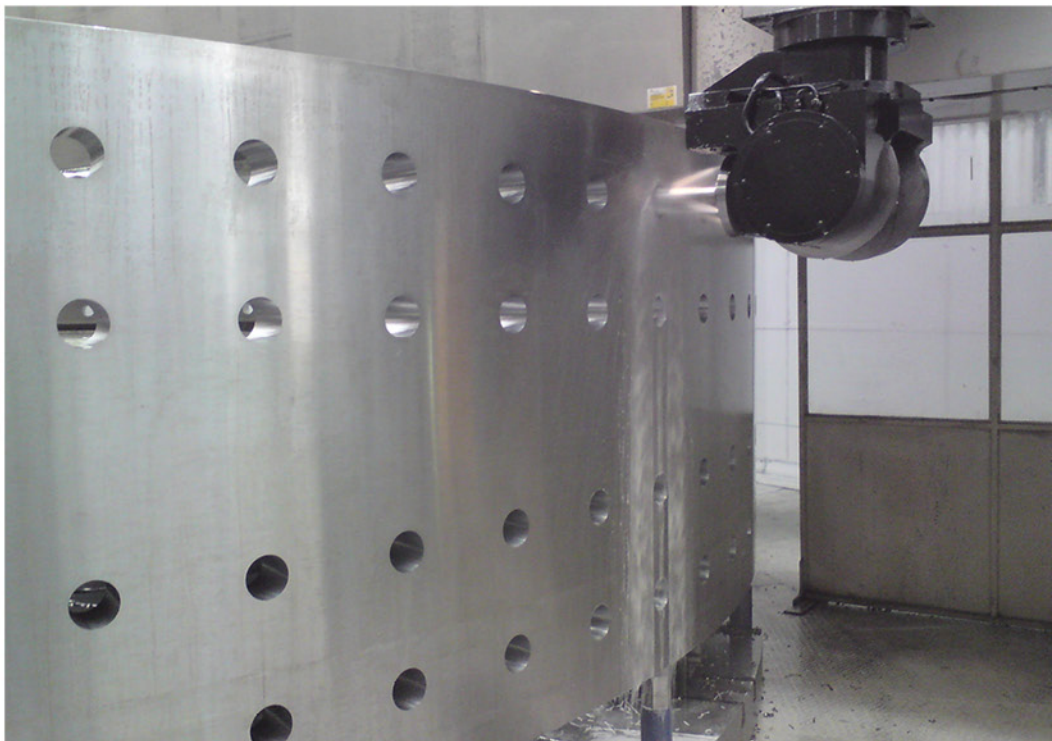
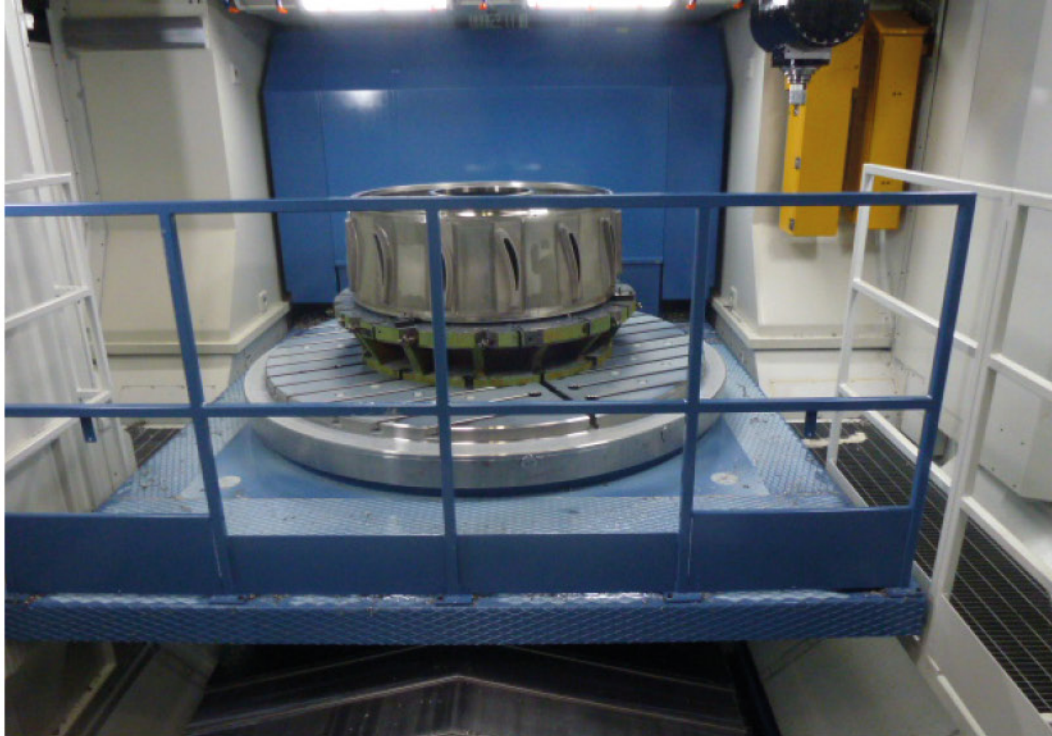
- Optimization of the machine dynamics
- Optimal use of the last technology in tools and inserts

Check of the in process machining

- Tuning of power absorption
- Tool duration
- Optimization of management of vibrations
- Chip evacuation

Study for optimal operator accessibility

Very compact design of accessories



MISSION

“Keep the customer operative extending the machine life cycle”

Focused on customers through a partnership approach, we are aimed by the provision of a quick response to requests with high skilled competence governed by the aim of short production break downs.

VISION

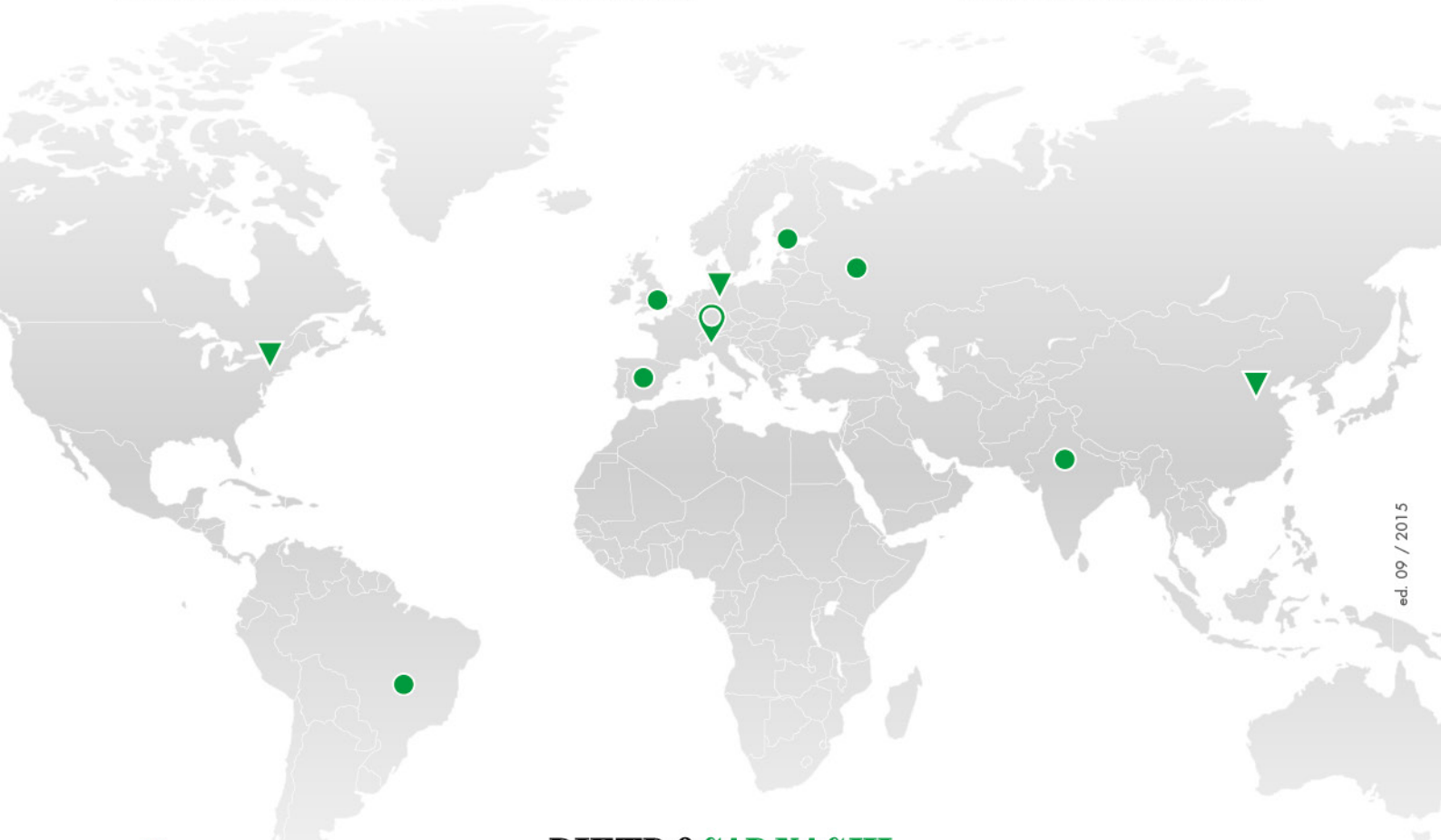
“A global coordination providing a local service”

Provide local services to customers coordinating each branch office by a global strategy to have a qualitative common and unique result wherever Pietro Carnaghi is operating.

- Installation Project Management;
- Interventions and repair services;
- Teleservices through remote connection;

- Spare parts;
- Preventive maintenance programs;
- Inspection & audit;

- Retrofit and modification;
- Machine relocation;
- Training and technological support;



- Headquarters
- Branch
- Service - Sales Dept.

PIETROCARNAGHI
Machine Tools

SINCE 1922



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COMPANY WITH
QUALITY SYSTEM
CERTIFIED BY DNV GL
= ISO 9001 =

