

STEEL PASSIONATE STEEL MINING



WHY EURORICAMBI?



45 YEARS OF MAKING HISTORY

Since 1979, Euroricambi has become a leading icon in gear manufacturing, driven by an unwavering pursuit of excellence.



QUALITY TO STEEL THE SHOW

Euroricambi products offer consistent quality and perfect interchangeability with OEM originals.



GEARED TOWARD INNOVATION

Our state-of-the-art production processes, high quality materials, and ongoing tech investments drive our leadership in innovation toward a brighter future.



YOU SAY EXCELLENCE, WE SAY MADE IN ITALY



Our in-house production management ensures meticulous control with specialized staff offering deep expertise in processes and products.



TRUE AS STEEL

Customer satisfaction is our utmost priority in every aspect of the process, from product quality to after-sales efficiency, handled with care and competence.

OUR STRENGTHS

Euroricambi's commitment to excellence is unparalleled when it comes to its impressive production cycle and metallurgical laboratory. These two assets make the company what it is and speak to the advanced level of innovation that every department, including the mining one, has to offer.

When it comes to the mining business specifically, there is a lot going on – drilling and digging, loading and hauling, grading and dozing – with machines being used to the maximum. Regardless of the type or complexity of the operation, replacement parts play a fundamental role in ensuring continuity of work, reducing any kind of replacing cost per hour. Euroricambi makes sure that the highest standards are met and leads the departments with an innovative and forward-looking vision.

OUR LINES (suitable to)

CATERPILLAR, KESSLER, KOMATSU, JOHN DEERE, VOLVO CE

OUR NUMBERS SPEAK FOR THEMSELVES:

200+
CNC Machines

13
Types of manufacturing

70
24/7 Active robots

105
Countries reached

1000 mm



A COMPLETE CYCLE

Turning

up to 1000 mm diameter

01

Broaching

up to 210 mm diameter

02

Conical Toothing

Gleason cutting technology
up to 1000 mm diameter
and two cutting types:
FACE HOBGING and
FACE MILLING

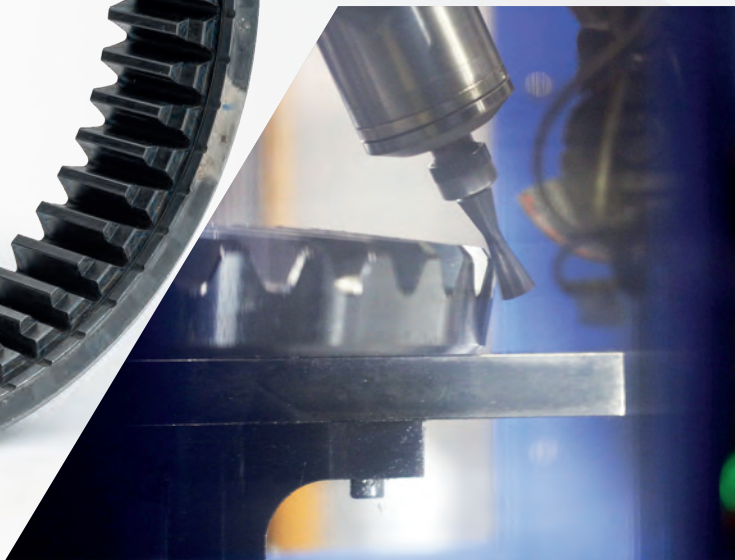
03

Press
quenching
up to
1000 mm
diameter

09

Diametral Grinding

10



A COMPLETE CYCLE

Cylindrical Tothing (external and internal)

04

Shaper Cutter
tothing machines
up to 800 mm diameter
up to module 16

CNC 5-axis Machining Center

05

with Power Skiving
technology and
**Renishaw
Presetter**

Automated deburring machines

06

Conical and Cylindrical Teeth Grinding + Teeth polishing

11

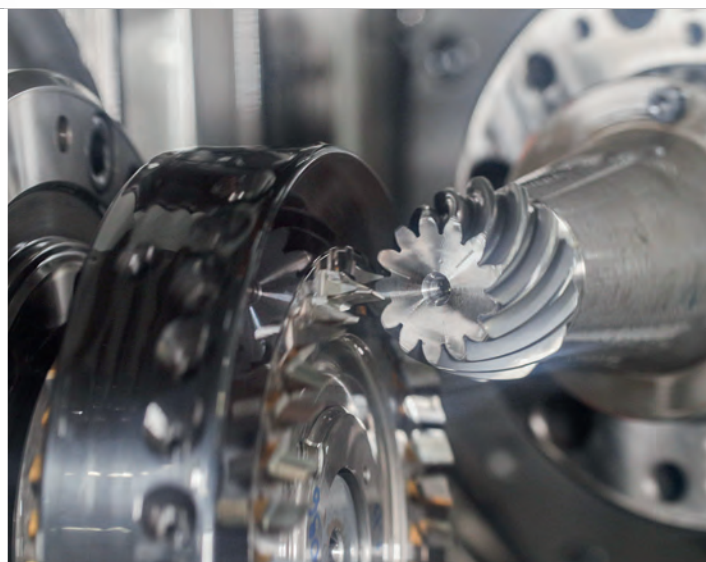
Shot Peening

12

up to 500 mm diameter
increased fatigue
resistance
up to 20-30% compared
to same untreated parts

Isotropic Finishing

13



A COMPLETE CYCLE

Intermediate Quality Control

inspections through all the processes, step by step, from raw to finished parts Klingelnberg P100 machine, capable up to 1000 mm diameter

07

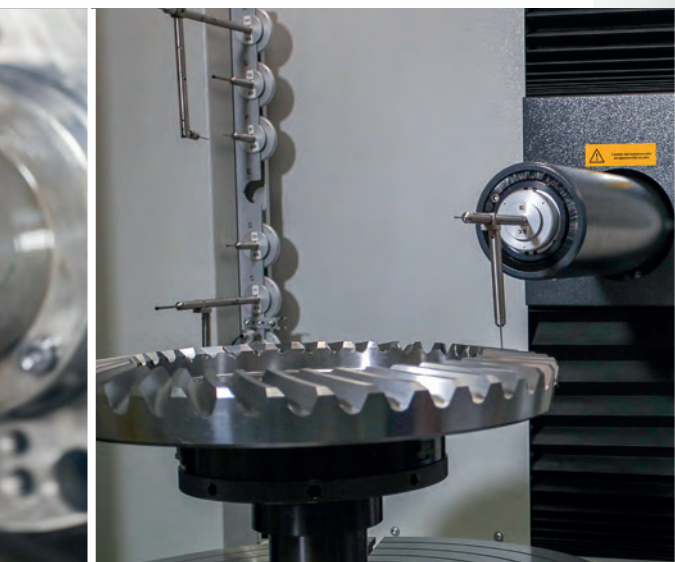
Heat Treatment

8 carburizing low pressure electric ovens, hardening in oil bath or in gas quenching chamber, inductive heating and hardening process in quenching fixture

08

Final Quality Control

14



METALLURGICAL LABORATORY

Euroricambi's Metallurgical Laboratory comes with a highly advanced set of instruments and a staff with high expertise capable of certifying the product from raw material to final finishing. When it comes to the production cycle, the laboratory is able to verify every production step leading to the obtaining of the finished component through targeted analyses. Here a comprehensive list of the operations carried out:



ANALYSIS ON INCOMING MATERIAL THROUGH EMISSION SPECTROMETER and JOMINY BAND

In addition to the procurement of certified steels from qualified steel mills with 3.1 type certificates according to UNI EN 10204, the laboratory performs the following additional checks:

- a) Verification of the chemical composition using an optical emission spectrometer for simultaneous quantitative elemental analysis of samples of solid metals, iron-based alloys, copper, and aluminum. The spectrometer allows for precise and accurate chemical analysis in just a few seconds.
- b) Verification of hardenability using a furnace with a hardening system: this analysis is essential for targeted management of the thermal treatment phases aimed at achieving the desired result.

ANALYSIS ON THE RAW MATERIAL THROUGH OPTICAL MICROSCOPE and UNIVERSAL DUROMETER ZWICK ROELL

The molding phase presents characteristics and critical issues that are evaluated by the laboratory using the following analytical techniques:

- a) Metallographic examination to verify the microstructure obtained after molding in order to detect any anomalies, using an OPTICAL MICROSCOPE and a Nikon STEREOMICROSCOPE with dedicated software for image evaluation. To achieve optimal qualitative performance, the laboratory is equipped with a series of automatic presses and lapping machines, allowing for microstructural observations at high magnifications (up to 1000X).
- b) Hardness test to verify the workability of the raw material using the ZWICK ROELL UNIVERSAL HARDNESS TESTER. This instrument allows for hardness tests using the Brinell, Rockwell, and Vickers scales with a load of up to 3000 kg.
- c) Check of non-metallic inclusions.
- d) Check of the size of the austenitic grain indicating the quality of the steel.
- e) Check of banding in case hardening steels.



ANALYSIS AFTER HEAT TREATMENT THROUGH AUTOMATIC MICROHARDNESS TESTER

The instrument that combines a Vickers microhardness tester with microscope optics allows for the verification of effective and total depths of surface thermal and thermochemical treatments through the following analyses:

- a) Metallographic examination to verify the microstructure obtained after the heat treatment in order to evaluate the quality and conformity of the treatment.
- b) Hardness test to verify compliance with specifications.

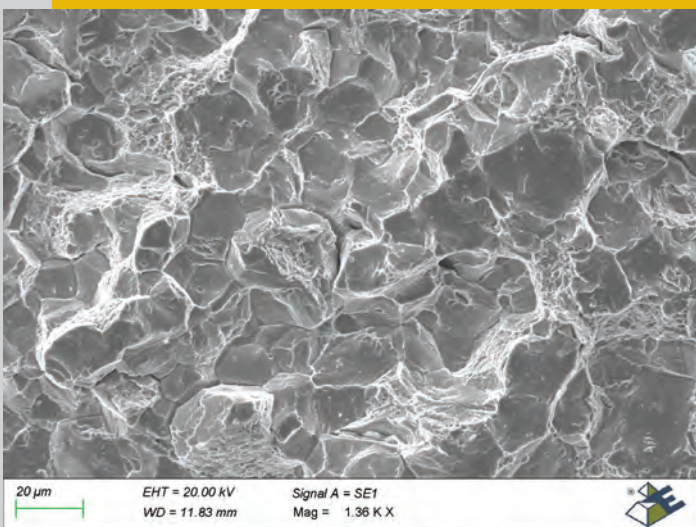
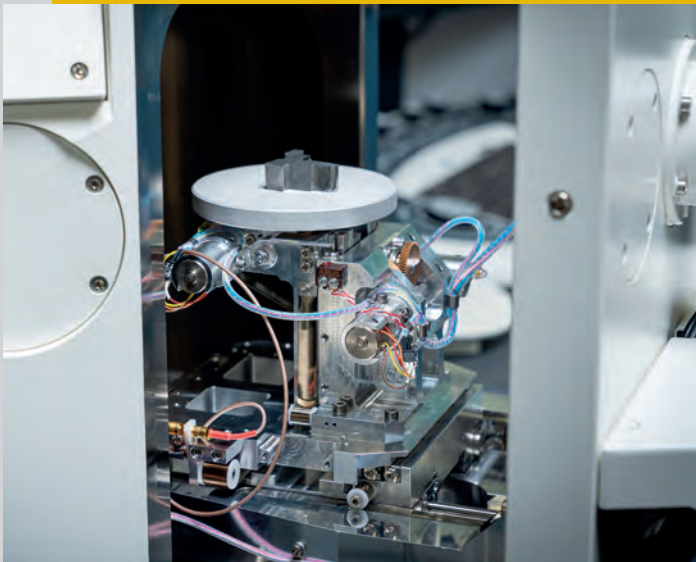


ANALYSIS USING ELECTRON MICROSCOPY

The crown jewel of the laboratory is the **Scanning Electron Microscope (SEM)** with EDS probe.

Featuring a dual source in lanthanum hexaboride and tungsten carbide, an assisted navigation system, a camera for observing inside the chamber during handling operations, and an **Oxford Instruments X-ray microanalysis system**, it allows for analyses at very high magnifications, up to over 10,000 times. The combined microanalysis performs precise chemical analyses of the parts observed under the SEM. Thanks to its **versatility**, the instrument carries out an in-depth evaluation of microstructures, morphologies, coatings, surface finishes, and thermochemical treatments.

Its use in various phases of the production process **leads to the identification of the origin of any anomalies**, facilitating their resolution from the early stages of production to ensure high and consistent quality standards throughout all processing phases.



Example of SEM magnification:

the intergranular brittle fracture (grain-boundary separation) is characterized by a rock candy or faceted appearance.



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