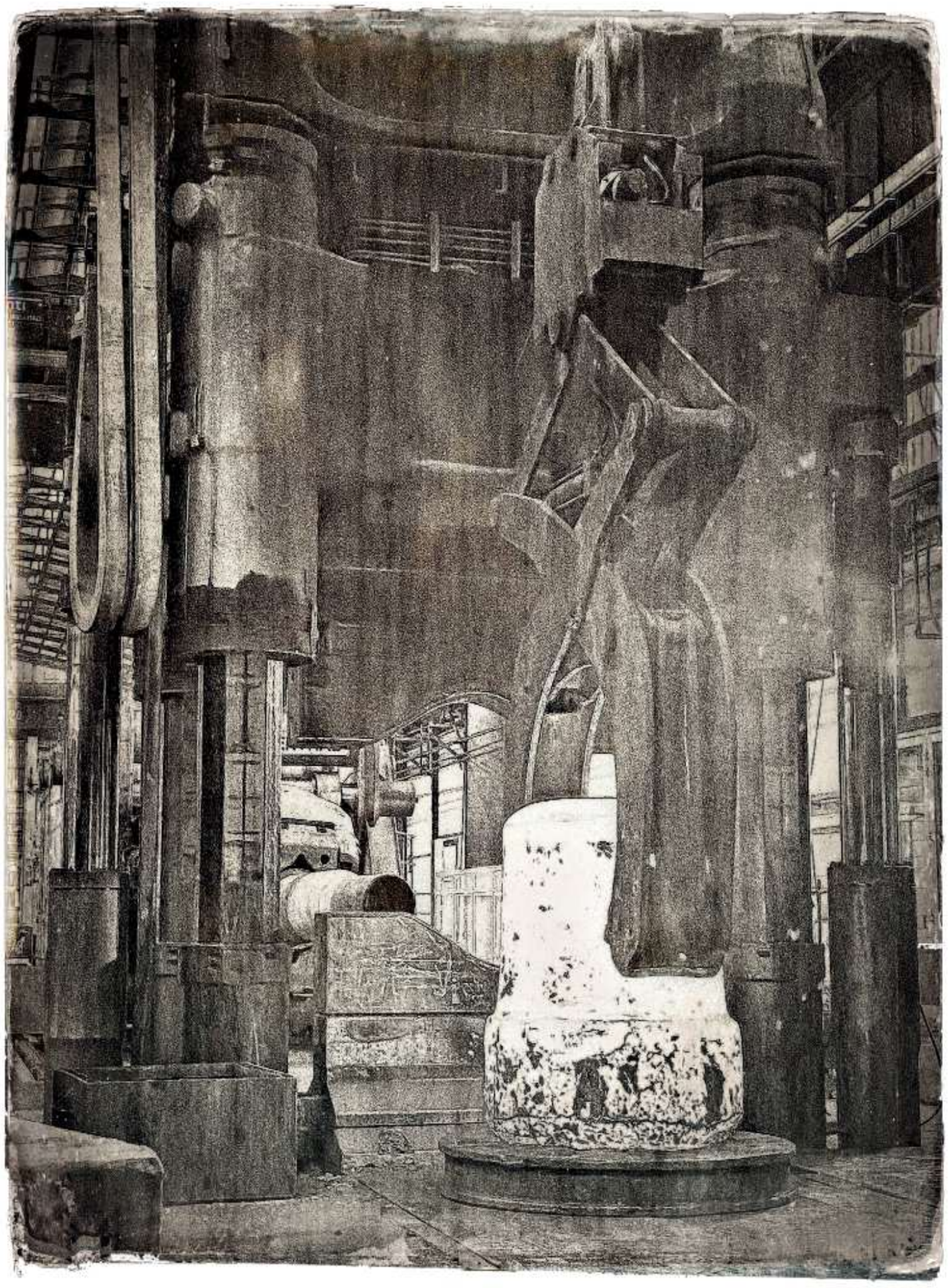
A HYSTORY OF VALUES,
A FUTURE OF INNOVATION

RINGMILL S.p.A.

World leader of open and
closed-die forgings
and rolled rings for more
than 45 years



A history of excellence

Ring Mill was founded in 1978. Since then the Company has supplied rolled rings, open and close-die forgings in all type of steel and non-ferrous alloys, becoming a leader on the international market.

The main plant, located in Dubino, in Nothern Italy, covers a production area of 120.000 square meter with a capacity of more than 55.000 tons of forgings per year.

Dedication and competence of all the skilled workers allowed Ring Mill to emerge as one of the most valid and qualified producers of forgings in every application where extremely high quality standards and reliability are required.

A highly professional staff enables Ring Mill to meet the demanding needs of today's markets, thereby ensuring further investment and expansion.

Four Companies, One goal

Ring Mill growth occurred following industrial investments and expansion through the aquisition of three leading companies in their sectors.

1978
Ring Mill establishment

2010

RT Pipe establishment

RT Pipe is specialized in rough and final machining processes such as turning, milling, boring and drilling.

2013

Rubiera Special Steel acquisition

The company is world leader of special high quality steel, with wide range of ESR and VAR products for the main technological applications.

Rubiera Special Steel was the first Italian steelmaker to introduce the vacuum degassing process and since then it has specialized in the production of high integrity steels with a production of 150.000 ton/year.

2015

Sesia Fucine acquisition

Sesia Fucine has been producing high quality forgings, according to customer specifications and drawings and/or international standards, for a wide range of application such as Oil&Gas, Nuclear, Power Generation, Aerospace, Boilers.

Melting, Refining, Remelting

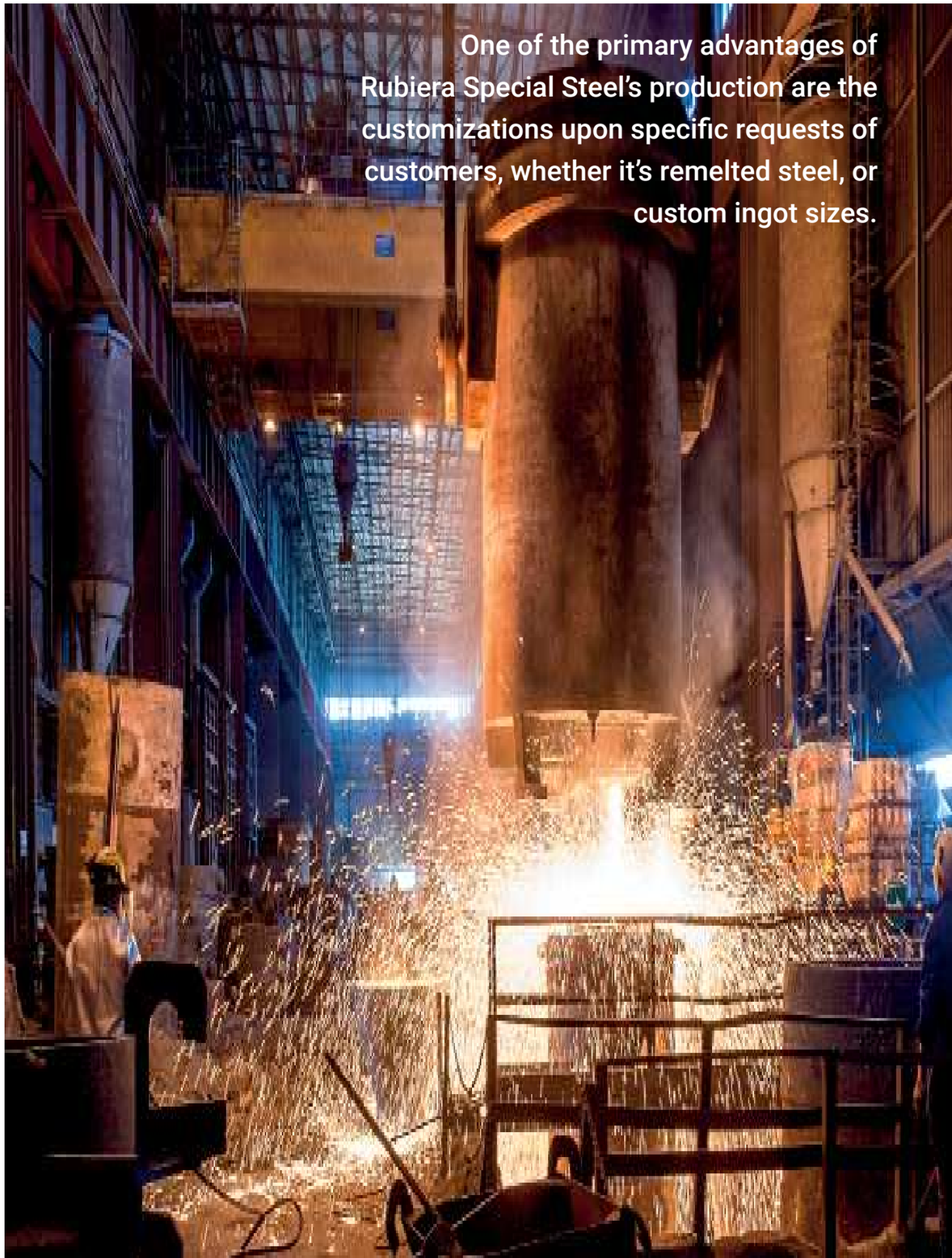
Located in the Province of Reggio Emilia, Rubiera Special Steel was founded in 1965 and was the first Italian steelmaker , whithout a forgeshop, to introduce the vacuum degassing process and since then it has specialized in the production of high integrity steels.

Today our products are used in all areas that demand the highest performance. Starting from selected scrap and using our improved facilities, we can produce vacuum degassed ingots weighing up to 145 tons, with a capacity of more than 150.000 tons per year.

In 2016 we started the production of Martensitic stainless steels.

Rubiera Special Steel facilities

1 Direct current Electric Arc Furnace (EAF)	Max 80 Tons
3 Ladle Furnace (LF)	35 tons - 75 tons
3 Vacuum Degasing Stations (VD)	35 tons - 75 tons
2 Bottom Pouring Area	plant n°1 40 tons max capacity plant n°2 145 tons max capacity
17 Annealing Furnaces	30 - 150 tons, max lenght 10,8mt
15 Slow cooling boxes	max lenght 12,5mt
2 Electro Slag Remelting plant (ESR)	plant n°1 from 8 to 35 tons capacity plant n°2 froms 20 to 100 ton capacity
1 Vacuum Arc Remelting Plant (VAR)	From 5 to 27 tons capacity



One of the primary advantages of Rubiera Special Steel's production are the customizations upon specific requests of customers, whether it's remelted steel, or custom ingot sizes.

Heating, Forging, Rolling

Over the years, the Company has acquired the know-how necessary to work with a vast array of steel alloys, from simple carbon steel to the most sophisticated alloys used in the offshore industry, in the production of both conventional and nuclear energy and in all high-technology applications.

Ring Mill uses the most modern equipment available, in a constant effort to obtain high-quality products that meet the customers' increasingly demanding requirements.

The availability of ring-rolling mills, hydraulic presses, manipulators, forging furnaces and a wide range of complementary equipment gives us the ability to obtain forgings with a shape very close to the finished product. This optimizes the material flow, enabling Ring Mill to obtain the best mechanical properties possible.

The Company is present in all fields where the reliability of high quality products is required to satisfy the ever-growing needs of a market that is in constant evolution.

Equipment Type	Description
Idraulic presses: 6.300 tons 3.500 tons 3.200 tons	 Max power capacity 4.550 mm vertical clearance 3.400 mm diameter capability
Rails Integrated Manipulators: 100 tons 25 tons	 Max bending moment 250 tons mt Max carrying capapcity 100 tons
Rolling Mill: radial 400 tons axial 300 tons	 Max outside diam. 4.400mm Max height 1.450 mm Max weight 20.000 kgs
Forging Furnaces: 12 forging furnaces with regenerative burners	 Max dimensions: 11.400 x 4.800 x 3.000 mm Max load 200 tons All with programmer device and temperature recording

ROLLED RINGS

- ID min. 380 mm - OD Max 4.400 mm
- 1.450 mm Height Max
- 750 mm Thickness Max
- Up to 20.000 Kg Forged Weight

FORGED RINGS

- All rings with ID smaller than 400 mm.
- All rings with more than 20.000 Kg
- Ø 3.350mm OD
- Up to 60.000 Kg Forged Weight

DISCS

- Ø 3.350 mm OD

- SLEEVES
(1.000 mm ID Max forged over the mandrel)
- Up to 60.000 Kg Forged Weight
- 12.000 mm Length

- SLEEVES
(more than 1.000 ID mm i.e. enlarged over the mandrel)
- Up to 60.000 Kg Forged Weight
- 4.300 mm Length
- Ø 3.350mm OD

SHAFTS / BARS / HOLLOW FORGINGS
(not forged over the madrel)

- Up to 60.000 Kg Forged Weight
- 21.000 mm Length

Annealing, Quenching, Tempering

Heat treatment department is equipped with state-of-the-art furnaces. We posses the expertise to heat treat a various range of alloys, including everything from basic carbon steel to the most advanced and complex alloys available in the industry.

With the latest investment, we can heat treat forgings up to 22 meters in lenght

ALL FURNACES ARE EQUIPPED WITH:

- A minimum of 6 recording thermocouples
- Time/temperature recording
- Electronic controller for heating, soaking and cooling control

ALL TANKS ARE EQUIPPED WITH:

- A minimum of 16 engines to ensure water circulation
- Liquid temperature cooling system

Equipment Type	Description
25 Gas Truck-hearth furnaces	Max internal dimensions 27.000 x 3.300 x 2.600 mm 13.000 x 4.000 x 4.000 mm
2 Electric Truck-hearth furnaces	Max internal dimensions: 5.000 x 3.000 x 2.200 mm
4 Water quenching tanks	Max dimensions 22.000 x 4.400 x 5.000 mm
1 Polymer quenching tank	Max dimensions 9.900 x 4.380 x 2.850 mm

Heat treatment area equipped with state-of-the-art furnaces.
Very high efficiency of the quenching tanks secures consistent through-thickness properties

Machining

The capacity to perform 150.000 hours of machining annually guarantees flexibility and the ability to satisfy our Customers' requirements.

The machining process includes the use of:

- Honing machines
- Deep hole boring machines
- Horizontal lathes
- Vertical lathes
- Machining centers

Equipment Type	Description
8 Vertical lathes	Max Ø on mandrel 4.500 mm Max height 2.750 mm Max weight 50 tons All CNC controlled
8 Horizontal lathes	Max Ø on mandrel 2.800 mm Max length 27.000 mm Max weight 70 tons All CNC controlled
3 Machining centers	Max table dimensions 2.000 x 2.500 mm Max weight 40 tons All CNC controlled
1 Deep hole boring machine	Max Ø 1.700 mm Max boring length 17.000 mm All CNC controlled
1 Honing machine	Max Ø 1.400 mm Max honing length 10.000 mm

Cutting-edge expertise is essential when tight tolerances on dimensions and finishes are required

Testing

All forgings will be supplied with certification attesting the technological properties of the materials used , manufacturing process and controls carried out to assure conformity to required specifications.

TESTS PERFORMED BY THE RING MILL LABORATORY

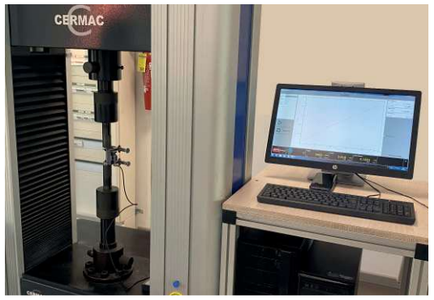
- Tensile test at room temperature
- Tensile test at hot temperatures up to 900°C
- Charpy test at temperatures from -196°C to +150°C
- PWHT
- Step cooling test
- Bend test
- Stress rupture / creep test
- Microstructure examination for intermetallic phases and precipitates checking
- Micrographic examination
- Macrographic examination
- Inclusion content
- Ferrite and austenite content
- Grain size determination
- Positive material identification
- Product analysis
- Hardness test HB - HV - HRC
- Baumann test
- Strain testing

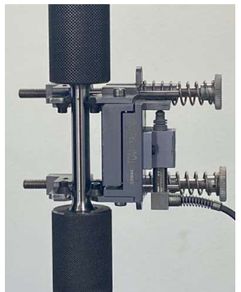
NDT TESTS PERFORMED BY THE RING MILL QUALIFIED PERSONNEL

- Dimensional Inspection with portable CMM
- Ultrasonic testing
- Magnetic particle testing
- Liquid penetrant testing
- Hardness testing
- Heat stability test
- Residual stress measurement

NDT personnel is qualified according to Recommended Practice SNT-TC-1A and ISO 9712 Standard, in the following methods:

Ultrasonic Testing	1 Level III 10 Level II
Magnetic Particle Testing	1 Level III 5 Level II
Liquid Penetrant Testing	1 Level III 5 Level II
Visual Testing	1 Level II
Strain Testing (ISO 9712)	2 Level II





TESTS PERFORMED BY QUALIFIED EXTERNAL LABORATORIES

- Drop-weight test (DWT)
- CTOD
- Corrosion test: HIC test - SSCC test / Corrosion test ASTM G48-A262 Method “E”
- Fatigue test
- Compression test
- DCB test
- K1C
- Cracking test

HEAT STABILITY TEST

Equipment Type	Description
Heat Stability Rotating Furnace	Max capacity (shaft weight) 60.000 kg Max shaft diam. in the furnace 1.800 mm Max heated length of shaft in the furnace 4.900 mm

Quality & Sustainability

Ring Mill's primary target is to consolidate its position as a global leader in the production of forgings.

In order to reach this important goal, Ring Mill's policy is to meet and satisfy both internal and customer requirements, while sustaining a continuous effort to guarantee:

- the level of quality performance while minimizing costs;
- continuous quality improvement in order to satisfy increasingly demanding customer requirements.

Certificates:

Ring Mill is certified by the the most important and prestigious international institutions in specific sectors:

ISO 9001:2015 • ISO 14001:2015 • ISO 45001:2018 • DNV GL • Lloyd's Register • A B S • TÜV (PED) • TÜV AD 2000-Merkblatt W0 / TRD 100 • ARAMCO 9COM materials • RINA • Bureau Veritas • Material Organization ASME Sect. III-Subsect. NCA 3800/4200 • HAF604 China's Nuclear Certification. • EN 9100:2018 • ISO 50001:2018

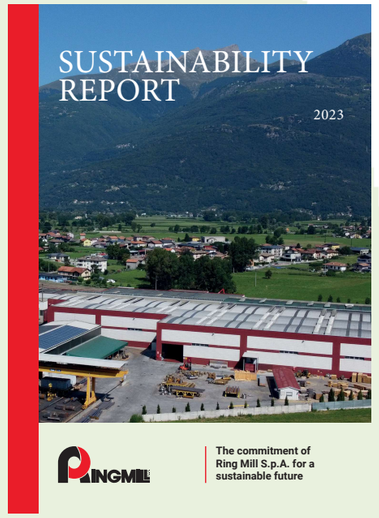
These certificates testify the company's ability to manufacture high-quality products for specific applications

Sustainability:

A choice that started in 2016 with important investments in photovoltaic plants and sustainable infrastructure. An environmentally approach that represents a constant vision of the future by reducing C02 emissions, recycling water and reducing waste.

Ring Mill supports sustainability standards in the implementation of its projects, assuring high quality standards and promoting welfare treatment for all its employees. It has been and will continue to be socially active, with donations and a focus on the local community, always respecting and protecting human rights.

Ring Mill proudly published its First Sustainability report for the year 2023, marking a significant milestone in its ongoing commitment to environmental responsability. This comprehensive document outlines the company's strategies, achievements, and future goals in promoting sustainability across its operations. Sustainability Report is available on our website.



"Comparing the year 2024 to 2023, Ring Mill reduced its CO2 emissions, gas methane consumption, and electricity usage while maintaining the same production volumes. Additionally, the company generated 251,705 kWh of energy from its own photovoltaic plant."

-10%
Use of electricity

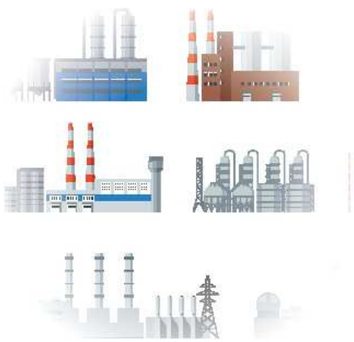
-5%
Use of natural Gas

-10% CO2

Main Applications

Ring Mill is a reference partner for all major global players in various industries where high quality of Rolled Rings and forgings in any type of steels and non ferrous alloys are required, offering all of its professional ability to satisfy the needs of its Customers.

Markets



General Industries

We produce parts and materials for heat exchangers, pressure vessels, stripper columns and any other equipment for OEM.

- Petrolchemical & Hydrogen
- Mining & Cement
- Naval
- Gear Boxes & Bearings
- Pump & Compressors
- Metal Working
- Pipe Moulds
- High Pressure Hydraulic Cylinder

Power Generation & Renewables

Ring Mill is ready for the new technologies required in thermal and nuclear power stations, wind farms, hydropower plants and coal-fired power stations with USC technology.
Main products in Power Generation fields:

- Gas turbine rotor shafts, compressor wheels, turbine wheels, couplings
- Hydraulic shafts, Steam turbine rotors, Generator shafts
- Rings for wind towers
- Pressure-seal valve bodies
- Manifolds
- High pressure forged fittings and pressure vessels

Nuclear

From I to IV generation Primary/Secondary Circuits, Ring Mill has their quality system program verified for supplyng forgings in accordance with the most sofisticated Nuclear Codes.
In the Nuclear fields Ring Mill produces:

- Feedwater nozzles
- Main tubesheets
- Primary Feedwater pumps components
- Nuclear waste casks
- Valves
- Main steam safety blocks and covers

Oil & Gas - Valves

Exploration, drilling, production, transportation. Always better, more high-performance materials are required to meet the demands of ultra-deepwater exploration or where there is a corrosive environment with very high or very low temperatures. Turnkey products including weld-overlay, assembled and coated parts ready for use.
Main products in Oil & Gas fields:

- Riser pipes, stress joints, tension joints and keel joints up to 65 ft.
- Bops, christmas trees, wellheads and valve blocks to API 6A Standard
- Ball valves, extruded check and gate valves, flanges and riser flanges
- Buckle arrestors - J-Lay collars - choc pieces - forged ends
- Piggable wyes and subsea components
- Bulkhead systems and riser tower components
- Top, bottom and merlin connectors for tendon systems
- Pump & Compressor

Aerospace - Defence

We produce parts in high performance steels and different aluminium grades
In the Aerospace - Defence fields Ring Mill produces:

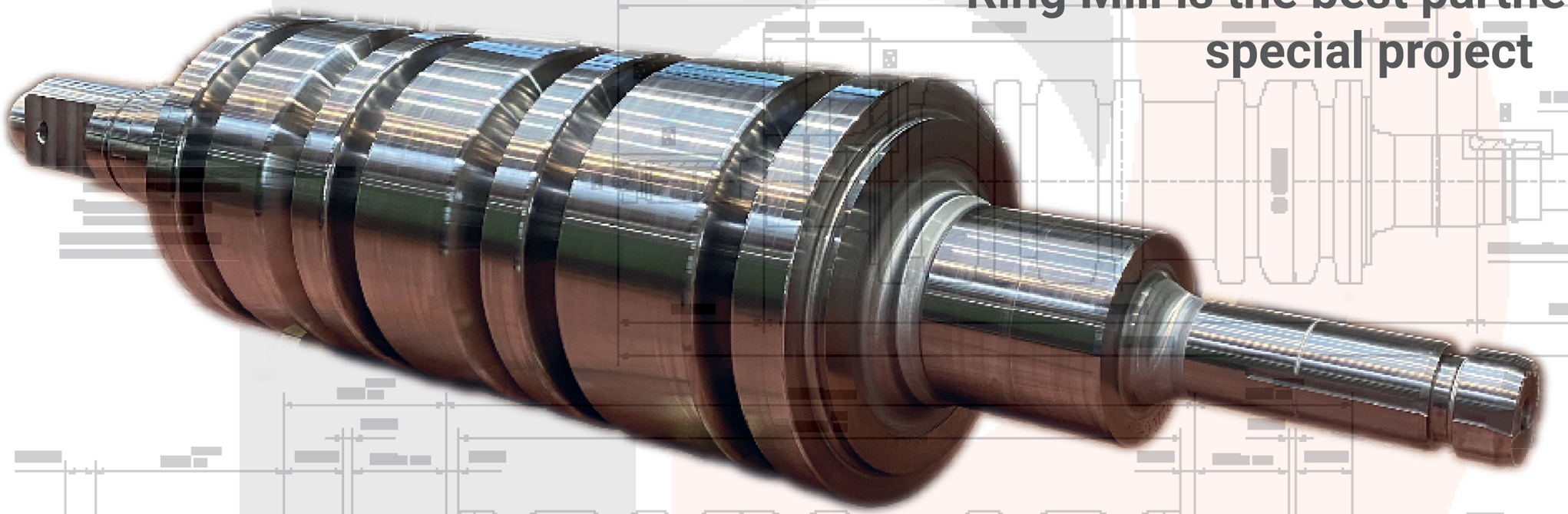
- Rings for boosters
- Rings for satellites
- Transmission forgings,transmission ring gears
- Forged components for artillery systems
- Forged components for marine and submarine applications
- Forged components for lightweight underwater training systems

Tool Steel

We produce high-performance and high-quality tool steel grades grades for the tooling industry using the same production processes and quality controls used in highly demanding application sectors such as the Aerospace, Power generation and Nuclear industries.
Main products:

- tool steel grades for die casting
- tool steel grades for hot forging
- tool steel grades for injection plastic moulding

Ring Mill is the best partner for your special project



SHAPE ROLLS for Steel Industry

We can forge your idea from raw material to your drawing

WORLDWIDE SUPPLIER OF OPEN AND CLOSED-DIE FORGINGS AND ROLLED RINGS

The best of forged steel - everything from a single source and from a family owned business

Ring Mill S.p.A.
Via Valeriana, 103 | 23015 Dubino (SO) - Italy
P.IVA IT00122100142 | Tel. +39 0342 688111
info@ringmill.it | www.ringmill.it