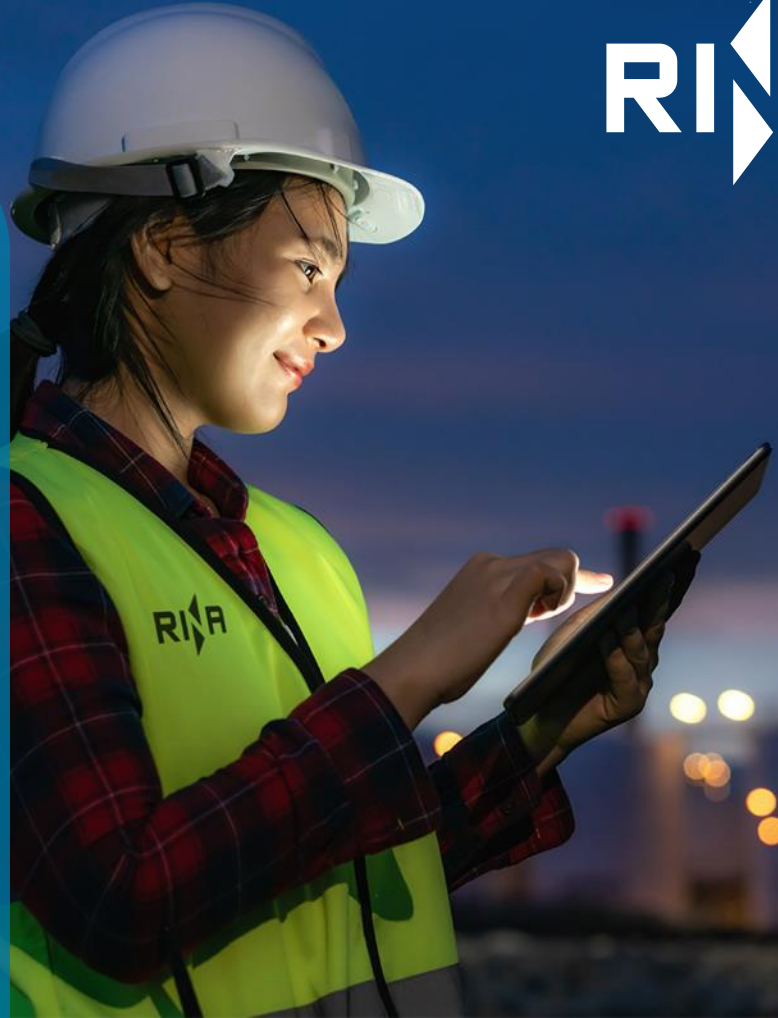




# RINA at a glance



@RINA1861



@rina



@weatrina



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# RINA today



**5300**  
colleagues



**200**  
offices



**70**  
countries



## Our people



More than **90**  
**nationalities**



**80%+**  
educated to **degree level**



**42**  
average **age**

# Who we are



## Energy

Energy solutions from O&G to renewables, taking care of sustainability and environmental impacts



## Marine

Rules, technologies and innovative services to manage transport and pleasure vessels



## Certification

Solutions to support products, people and processes on their way to excellence



## Infrastructure & Mobility

The path to the next generation of infrastructure and buildings by ensuring their safety and efficiency



## Industry

Accelerating clients' success with technology-driven strategies and solutions



## Real Estate

Innovative value proposition of integrated services: Rina Prime Value Services is able to cover all the real estate lifecycle

# Business Areas & Main Services



Key Services

## Space & Defence

- System and Integration Engineering
- Software Engineering & Prototyping
- Specialist Studies (Safety, EMC, Simulations, ILS)
- Cyber Security
- Decision Support
- Training & Learning Solutions

Key Services

## Materials, Technology & Innovation

- Strategy, Innovation and Sustainability
- Product and process design, development & improvement
- Material selection and assessment
- Full Lab-scale Material and Product Testing
- Failure Analyses & Root Cause Analysis
- Smart solution I4.0 (Smart sensors Modelling)



**RINA Consulting**  
**Centro Sviluppo Materiali**

# Rina Consulting - Centro Sviluppo Materiali



- Centro Sviluppo Materiali (CSM) was founded in 1963 by Italy's major steel manufacturers and end-users with the mission of developing steel technologies and applications
- Since 2014 CSM is 100% part of RINA
- Bringing CSM into RINA has been part of the long term growth strategy of developing and widening of RINA competencies portfolio



# RINA CSM at a glance

- More than 230 people full time devoted to R&D; 75% degree (includ. PhD)
- 25-30 MEuro annual turnover, 80 % coming from industrial projects
- More than 25 labs and pilot plant
- 10% of revenues are re-invested in internal R&D projects and equipment



# Our Units in Italy

- Headquarters in **Rome**
- Terni Unit **inside Acciai Speciali Terni** devoted to Stainless Steel and Electrical Steel
- Dalmine Units, **inside TENARIS**, dedicated to Seamless pipe process and products support and Combustion testing
- Lamezia Terme unit dedicated to **renewables**
- Napoli Unit dedicated to **Smart Factory Solutions**
- Perdasdefogu site for **full scale tests** (burst tests, bending.....)
- .....Up to 1996, Taranto and Novi Ligure **inside ILVA**



The title 'Manufacturing Process Improvement' is displayed on a dark blue rounded rectangular background. 'Manufacturing' and 'Improvement' are in white, while 'Process' is in yellow. The background of the entire slide is a close-up, high-contrast image of a metallic surface, possibly a turbine or engine part, with a bright yellow and white center and orange and red outer edges.

# Manufacturing Process Improvement



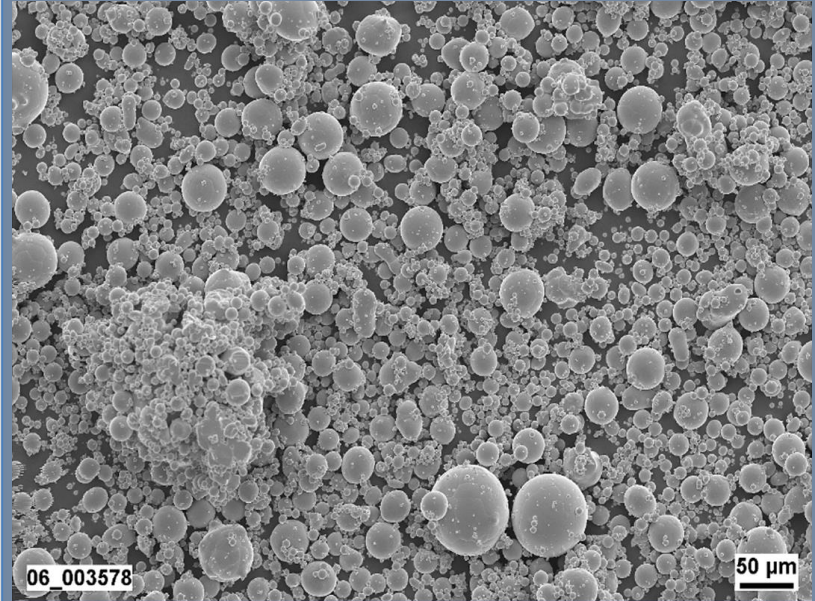
# Manufacturing Process Improvement - IMTMT



## Steel & Alloy Manufacturing



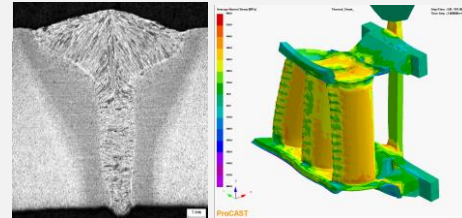
## Surface Engineering & Additive Manufacturing



# Surface Engineering & Prototyping



- Process definition & optimization
  - Melting & Casting
  - Metal powder manufacturing solutions
  - Near Net Shape Manufacturing
  - Investment & Sand Casting
  - Additive Manufacturing
  - Surface engineering
  - Welding solutions, WPS, NDT
- Feasibility study
- Manufacturing process setup by pilot plant
- Expert on site



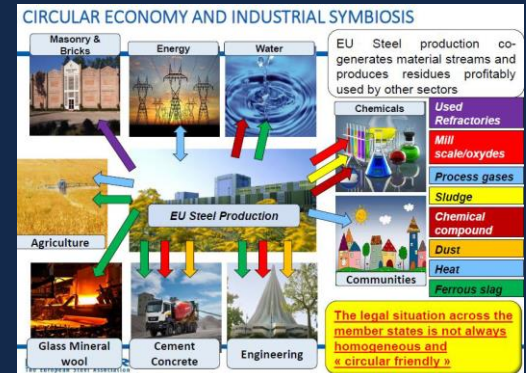
# Steel & Alloy Manufacturing



## Through process approach on Steelmaking market



- Process definition & optimization
  - Melting & Casting – Liquid metal behaviour and interactions - Combustions
  - Treatment line (finishing, descaling, pickling)
- High temperature materials
- Expert on site
- Environment, Waste valorization
- Circular Economy – Industrial symbiosis
- Decarbonization
- Hydrogen application

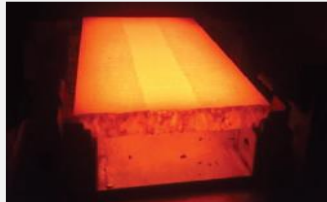
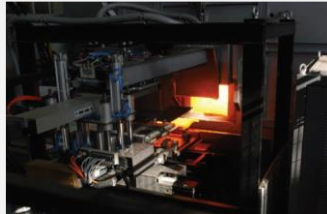


# Steel & Alloy Manufacturing



## Melting Plant

- Ingots manufacturing Up to 100 kg (VIM)
- Ingots manufacturing Up to 250 kg (ESR/VAR)
- Metal powder manufacturing
  - AM, Coatings, HIP, MIM
- Near net Shape Production by Investment Casting
- Rapid Prototyping
  - Stereolithography
  - Vacuum casting
- Corrosion test
- Special melting test



## Combustion Station

- Modular Furnace: burners above 1 MW to 2.5 MW
- Roof burners Furnace: 1 MW
- Combustion chamber: small burners below 150 kW
- Descaling pilot plant for surface conditioning
- Nozzle characterization

