

SIMIC

since 1977

A PASSION FOR CHALLENGES

www.Simic.it



SIMIC GROUP AT A GLANCE



Since 1977, Simic is an Italian diversified company with a solid experience in engineering, high-quality manufacturing of critical process equipment, assembly and maintenance of industrial plants.



Simic can reliably provide clients with a whole range of high-pressure products: from heavy wall **Pressure Vessels, Reactors, Heat Exchangers, Vacuum Vessels, Cryogenic equipment to mechanical components with very strict tolerances.**



Main sectors:

Oil & Gas - Chemical and Petrochemical - Fertilizers - Nuclear Energy & Decommissioning - Fusion Energy - Power Generation - Aerospace
Scientific Research - Renewable Energy



Business size of the Group (2023):

340 M € year turnover
48 M € EBIT
1070 manpower units



Industrial sites in Italy:

- **Camerana** (Cuneo) Workshops and Headquarters
- **Marghera** (Venice) High-capacity Workshops, direct dock access
- **Schio** (Vicenza) Workshops



Present in several countries with Offices and Facilities: **Italy, France, Germany, Belgium, Romania, U.K., Turkey, Saudi Arabia, U.S.A., Canada, Mexico, Brazil and Chile.**



WORKSHOPS

Workshops: 5,000 sqm
Office: 1,000 sqm
Outdoor area: 6,000 sqm

SCHIO • Vicenza
Workshops



Capacity: Up to 100 Tons
Workshops: 18,000 sqm
Office: 1,500 sqm
Outdoor area: 45,500 sqm

CAMERANA • Cuneo
Workshops and Headquarters



MARGHERA • Venice
High-capacity Workshops, direct dock access

Capacity: Up to 3,000 Tons
Building height: 30 meters (22 m below hook of the cranes)
Lifting capacity: 400 tons each crane
Workshops: 6,000 sqm - Office: 500 sqm
NEW INDUSTRIAL AREA UNDER DEVELOPMENT
Buildings: 8,000 sqm
Outdoor area: 25,000 sqm





FINANCIAL AND OPERATING HIGHLIGHTS 2019-2023





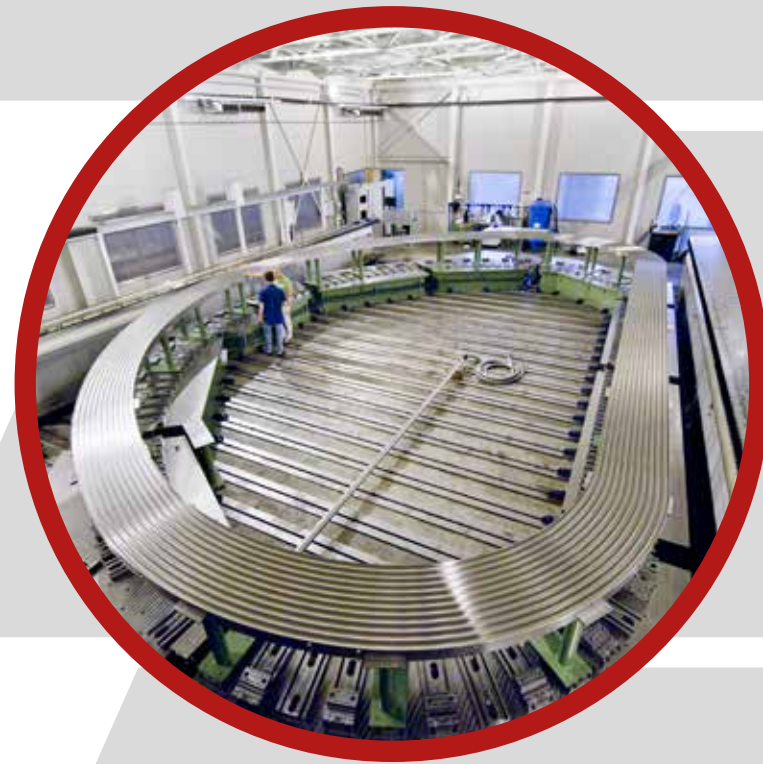
SIMIC GROUP BUSINESS UNITS



CRITICAL PROCESS EQUIPMENT

Design & Manufacturing of Process Equipment for:

- Oil & Gas
- Chemical & Petrochemical
- Fertilizer
- Power Generation
- Nuclear Energy



HIGH TECHNOLOGY COMPONENTS

Design & Manufacturing for:

- Fusion Energy
- Scientific Research
- Aerospace

Products:

- Cryostats
- High Vacuum Equipment
- Mechanical components



HIGH TECHNOLOGY PRODUCTS

For scientific research & industry:

- RF Cavities
- Cryomodules
- Ultra High Vacuum Vessels
- Special parts



SITE ERECTIONS & MAINTENANCE

Turn key projects for the following industrial sectors:

- Pharmaceutical
- Food
- Power Generation
- Tobacco
- Naval
- Renewable Energy
- Chemical & Petrochemical





CERTIFICATIONS AND DESIGN CAPACITY

CERTIFICATIONS

ASME Certification Mark with:

- U Designator (Section VIII - 1 Vessels)
- U2 Designator (Section VIII - 2 Vessels)
- S Designator (Section I Power Boilers)



National Board Authorization to Register



National Board «R» Stamp (Repair and alteration of pressure vessels)



ISO 9001:2015

EN 1090/1 & EN 1090/2

EN ISO 3834-2

ISO 14001: 2015

ISO 45001: 2018



DESIGN CODES

ASME BPV CODE

ASME B31

EN 13445

EN 13480

EN 13458

VSR - VSG

AD 2000 MERKBLATTER

BS PD 5500

CODAP

GOST

IBR

RCC-M & RCC-MR

INDUSTRIAL STANDARDS

ISO

TEMA

API

HEI

EEMUA

WRC

ASCE / UBC / IBC / AISC

INTERNATIONAL DIRECTIVES / LAWS

PED DIRECTIVE 2014/68/UE

ATEX DIRECTIVE 2014/34/UE

MACHINERY DIRECTIVE 2006/42/UE

UKCA (United Kingdom)

TR-CU 032 (Russia and Eurasian Economic Union)

NR-13 (Brasil)

CSA (Canada)

DESIGN & CAD SOFTWARE

ASPEN EDR

CODEWARE COMPRESS

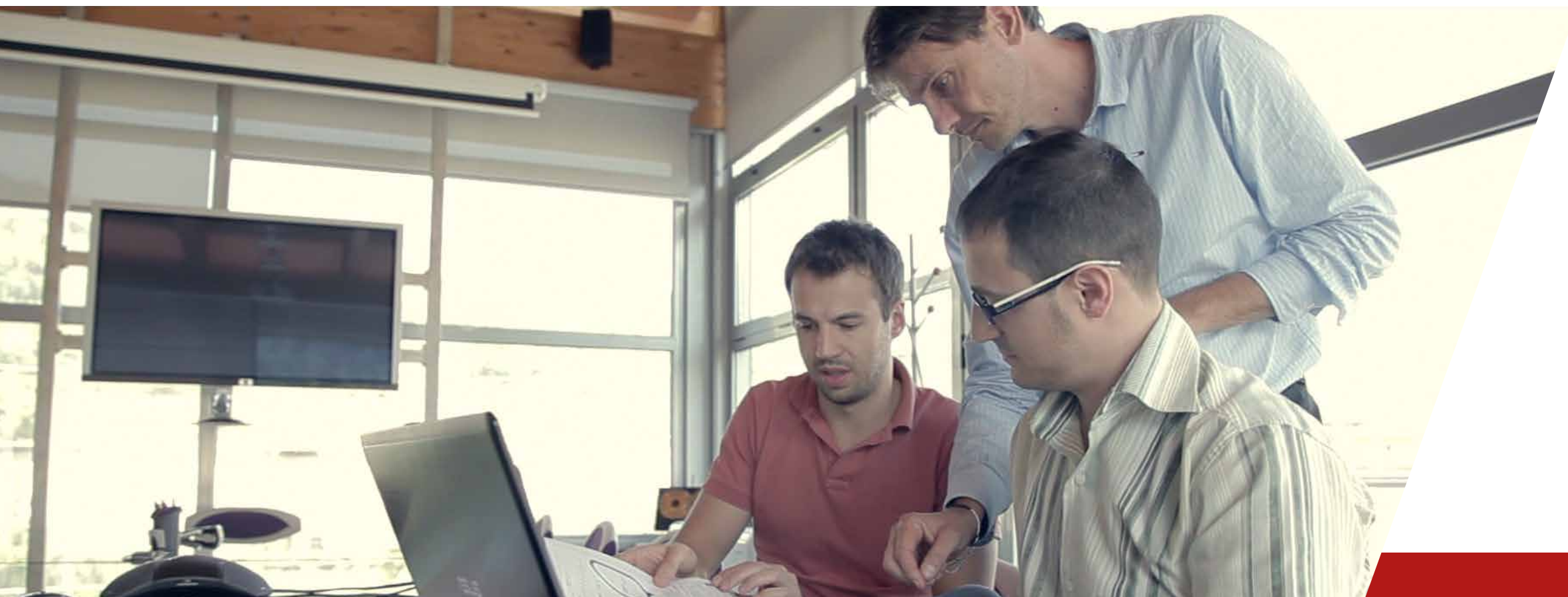
BENTLEY AUTOPIPE VESSEL

ANSYS

SOLIDWORKS

CATIA

AUTOCAD



SUSTAINABILITY

We strive everyday to strengthen our sustainable values through an integrated approach that takes into account environmental, social and economical aspects.

DECARBONIZATION:

- Reduction of the daily gas and electricity consumption, implementing latest generation machinery and equipment
- Investing in renewable energy: solar and wind plants fully owned developed and built by SIMIC.
- Support sustainable projects and carbon free sectors (nuclear and fusion)
- Research and development of innovative and low emissions solutions (Simlab)



SOCIAL VALUES AND CARE FOR OUR TERRITORY:

We support local initiatives to bring welfare and benefit to our personnel and our community, such as local nurseries, sport initiatives, health care and cultural initiatives.



WELDING EQUIPMENT

Simic is fully equipped with the most advanced welding systems.

- Weld thickness up to 300 mm
- Submerged Arc Welding
- MIG-MAG semi-automatic welding
- TIG welding equipment
- TIG orbital welding machines
- Narrow Gap TIG welding machines/robots
- Cladding by Electro-slag welding machine

Fully equipped for:

- **3D MEASUREMENTS**
- **LEAK & PRESSURE TEST**
- **NON DESTRUCTIVE EXAMINATION**
- **CLEAN AREAS FOR ASSEMBLY AND FINAL TESTS**





MACHINING EQUIPMENT

Simic is fully equipped with the most advanced machining systems with 5 axis and CNC control

- PAMA milling PORTAL machine VERTIRAM model
X: 18,000 mm
Y: 10,100 mm
Z: 5,500 mm
Temperature controlled environment ($20\pm 1^{\circ}\text{C}$)
- PAMA milling & boring machine SPEEDRAM model
X: 15,000 mm
Y: 14,000 mm
Z: 2,500 mm
- PAMA milling machine SPEEDRAM 1000 HP model
X: 23,000 mm
Y: 4,000 mm
Z: 1,600 mm
- PAMA milling machine VERTIRAM 2000 GT model
X: 8,000 mm
Y: 6,100 mm
Z: 1,600 mm





Zanon R&I (a Simic Company) is fully equipped with the most advanced facilities and equipment for the manufacturing of high-vacuum systems:

ISO7 & ISO4 CLEAN ROOMS

For clean assembly, final surface treatments, final assembly for the RF cold test. High Pressure rinsing, Ultra pure water rinsing.

- Total surface 450 sqm
- ISO7 working area 230 sqm
- ISO4 working area 220 sqm

NR. 2 EB WELDING STATIONS

EB welding plant:

- S.S. Chamber, size 3.4 x 2 x 2 m,
- Oil-free pumping group with cryogenic pump (3×10^{-5} mbar),
- nitrogen venting, RGA, 150 kV beam 30KW.

30 years experience in EB welding

THERMAL TREATMENTS

- Vacuum oven up to 1200°C annealing Molybdenum hot-chamber 0.6 x 0.6 x 1.5 m (4 units per batch), cryogenic pumps, RGA analyzer
- Inert gas oven for final treatment (120°C, 1×10^{-5} mbar)

3D METROLOGY





REFERENCES FOR OIL&GAS AND FERTILIZERS SECTORS

**Reactors
& Pressure Vessels**

Simic
designs and manufactures
critical process equipment for fertilizers,
methanol and oil & gas sectors.

**Methanol, Ammonia
& Urea equipment**

**Shell & Tube Heat
Exchangers,
Feed Water Heaters**

Main manufacturing skills

- High technology welding
- High precision machining
 - NDE techniques
 - Heavy lifting

**Steam Surface
Condensers**





REFERENCES FOR OIL&GAS AND FERTILIZERS SECTORS

METHANOL REACTOR

MATERIAL
1 ¼ Cr. 0.5 Mo

DESIGN CODE
ASME VIII Div. 2

SIZE
thk/dia/length
218 x 6,500 x 38,000 mm
weight 1,250 Tons



ATR – Auto Thermal Reformer

MATERIAL
1 ¼ Cr. 0.5 Mo

DESIGN CODE
ASME VIII Div. 2

SIZE
thk/dia/length
85 x 7,000 x 27,000 mm
weight 400 Tons



WHB – Waste Heat Boiler

MATERIAL
1 ¼ Cr. 0.5 Mo
2 ¼ Cr. 1 Mo

DESIGN CODE
ASME VIII Div. 2

SIZE
height 19 meters
weight 1,300 Tons
in single unit



AMMONIA SYNTHESIS CONVERTER

MATERIAL
SA 336 Gr. F11

DESIGN CODE
ASME VIII Div. 2

SIZE
thk/dia/length
220 x 3,500 x 26,000 mm
weight 750 Tons





OTHER REFERENCES FOR CRITICAL PROCESS EQUIPMENT

TITANIUM CLAD STEAM CONDENSERS

DESIGN by Simic
Strong reliability & flexibility
with automatic welding tech

TYPE
Shell & Tube water cooled

CAPACITY
Steam flow: 87 kg/h

SIZE
10,500 mm length,
weight 21 Tons

MATERIALS
Stainless Steel, Titanium,
Alloy Ni-Cr, Duplex



HIGH PRESSURE HEAT EXCHANGERS

DESIGN by Simic
Strong reliability & flexibility
Anti-corrosion Overlay Welding

TYPE
Shell & Tubes -TEMA standard

MATERIALS
CS, SS, Alloy, Clad, Inconel

COLUMN

SIZE
Shell diam. 6,550 mm
length 48,750 mm
weight 360 Tons

MATERIALS
SA 387 22 CL2+4105





REFERENCES IN FUSION ENERGY & SCIENTIFIC RESEARCH

Cryostats

Vacuum Vessels

Simic designs and manufactures complex products for Fusion Energy & Scientific Research.

Cold Boxes

Complex mechanical parts

Main manufacturing skills

- High technology welding
- High precision machining
 - NDE techniques
 - 3D metrology
 - Heavy lifting





Simic has been working with **CERN** & many other Research Institutes for more than 20 years. Simic is among the main contributors of **LHC Project** at **CERN**, Switzerland, the European Council for Nuclear Research.

ENDCAP CRYOSTAT FOR ATLAS

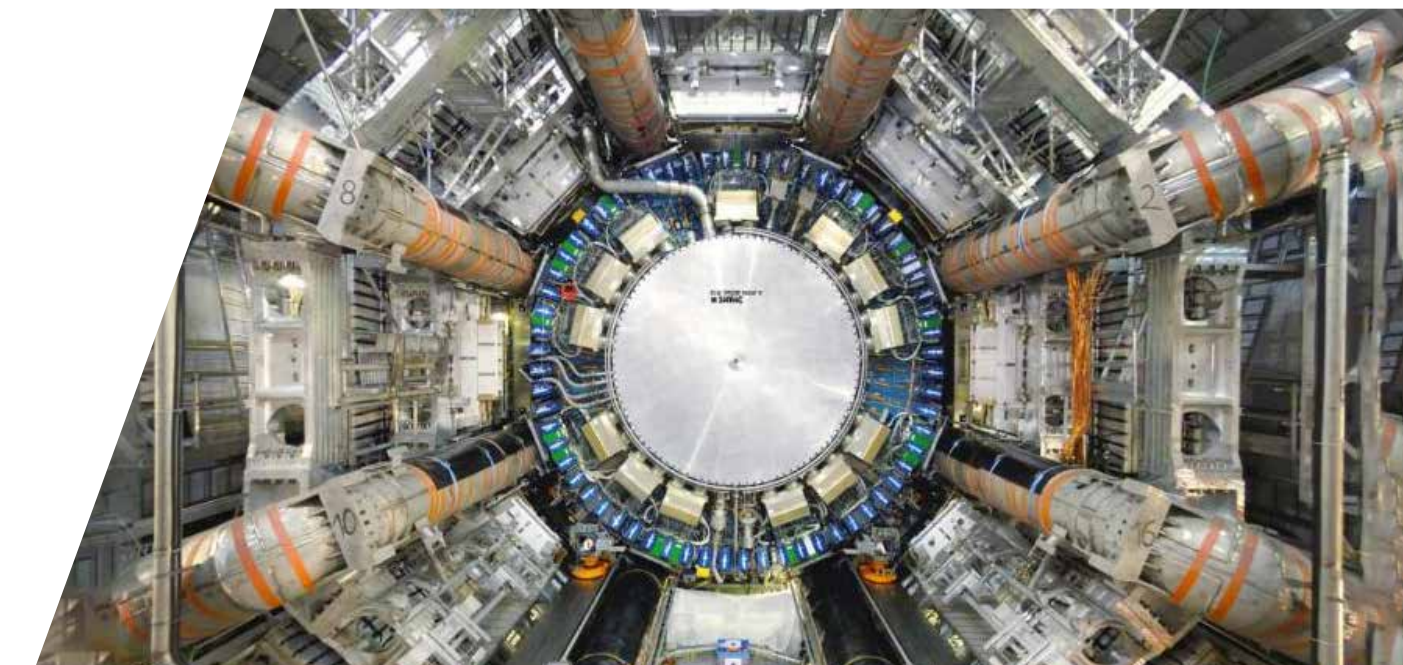
Material: AL 5083
 Diam: 5,500 mm
 Thk: 160 mm
 Weight: 40,000 kg
 Cryogenic Tests at 90K
 Super Insulation Leak Test < 1×10^{-8} mbar·l/s

250 CRYOMODULES FOR LHC

Material: AISI 304 L, Aluminium, Cu-Ni
 Weight: 2,000 Kg
 Length: 6,650 mm
 Pressure test up to 25 bar;
 He Leak test < 1×10^{-8} mbar·l/s
 3D Dimensional inspection, Instrumentation test

937 VACUUM VESSELS LHC Project - CERN

TESTS: He LEAK TEST < 1×10^{-8} mbar·l/s
 On each vacuum vessel three-dimensional computerized check of each vacuum vessel





ITER Project for FUSION ENERGY - France

International Thermonuclear Experimental Reactor

ITER objective is to demonstrate the scientific and technological feasibility of Fusion Energy for creating an alternative energy source.

VACUUM VESSEL prototype (PSM)

The large stainless steel vacuum vessel provides an enclosed, vacuum environment for the fusion reaction.

The Prototype consists of a Vacuum Vessel Sector of the ITER reactor.

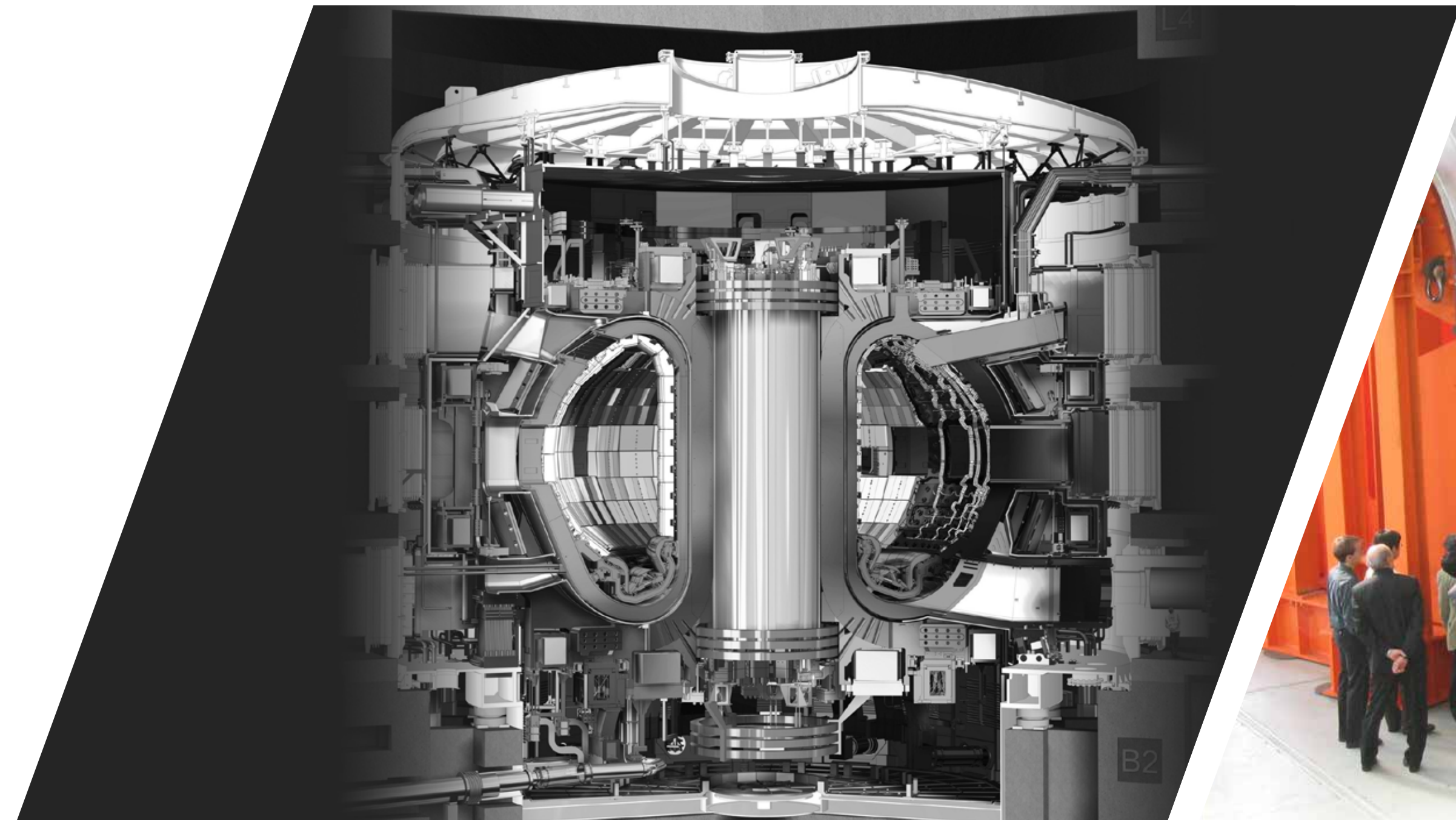
Material: AISI 316 LN IG (ITER Grade)

PSM weight: 23 Tons

Structure Weight: 70 Tons

Narrow Gap Tig Welding Process

Thickness 60 mm



DIVERTOR COMPONENTS

Simic has manufactured the **prototypes** for the ITER Divertor Project, such as:

- Cassette Body
- Dome Liner
- Inner Vertical Target
- Outer Vertical Target





RADIAL PLATE SERIES PRODUCTION

Fusion for Energy (F4E) awarded to the consortium Simic - CNIM the contract to manufacture **70 radial plates** for ITER. The contract lasted 4.5 years and is among the biggest industrial contributions of Europe's share to the ITER toroidal field magnet system.

In May 2017 the last Radial Plate has been successfully delivered to ITER.

The radial plates are «D» shaped mechanical structures measuring **13.8 m x 8.7 m x 112 mm**.

They are made from **316LN stainless steel** and they will form the 'backbone' of the 18 field magnets needed to keep the plasma confined within the ITER vacuum chamber.

The radial plates have on each side spiral round-shaped grooves which are closed by cover plates.



WP COLD TEST & INSERTION INTO TF COIL CASES (10 TF COILS)

Simic has been selected to perform the Cold Test of 10 TF Winding Packs (Magnets) and to supply the **10 European Toroidal Field Coils of ITER.**

The ITER machine will use 18 TF coils in total.

The production is split between Europe and Japan:

- 10 TF coils manufactured in Europe by Simic
- 8+1 spare TF coils manufactured in Japan

The most critical aspects:

- Impressive **size & weight** 14 m (L) x 9 m (W); over 300 Tons each TF
- **variable thickness** along the perimeter, thicknesses ranging from 40 mm up to 130 mm
- weld **difficult to inspect** due to combination of large thickness and limited accessibility
- **tight tolerances**
- control of **deformations** during welding of the case
- **production rate** very demanding





TOKAMAK ASSEMBLY MACHINE (TAC-2)

As part of DYNAMIC consortium, composed by ANSALDO NUCLEARE, ANSALDO ENERGIA, Simic, ENDEL, ORYS and LEADING METAL SOLUTIONS, Simic is working for the Assembly of the Tokamak machine at ITER site, Cadarache (France).



SECTOR MODULES SUB-ASSEMBLY (SMSA) PROJECT

Thanks to the technical experience of SIMIC at ITER Site, SIMIC has been selected by CNPE as Subcontractor to support in the SMSA mechanical installation works.



PRODUCTION CAPACITY IN FUSION ENERGY

ITER Project

CRYOGENIC PLANTS AND DISTRIBUTION BOXES

Simic takes part, with Linde Kryotechnik, to the manufacturing of 5 large Distribution Boxes for the ITER Cryodistribution plant.

The units are complete of internal piping and super-insulation suitable to achieve cryogenic temperatures.

The Vacuum Vessel will be leak tested, while the piping will be pressure tested.



PRODUCTION CAPACITY IN FUSION ENERGY

ITER Project

VACUUM VESSEL BEVEL REPAIR

Simic has been selected, as main contractor, to perform the on-site repair activities of the ITER Vacuum Vessel sectors 6, 7, 8 and 1.

Simic takes care of this very challenging job, according to the most stringent technical and quality requirements dictated by ITER and by ESPN and RCC-MR codes and standards.

SIMIC scope includes the engineering studies and qualifications required for the on-site operations, including metrology, reverse engineering, high technology weld build up and local machining necessary to bring the sectors to the required tolerances.

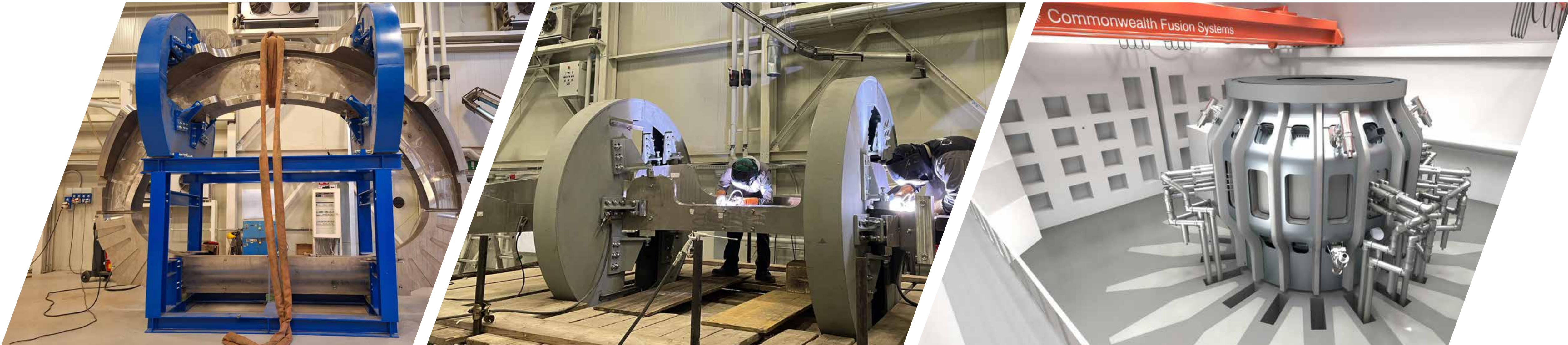




Simic is very proud to have been chosen by CFS to fabricate the TF Coil cases for SPARC Project. A challenging project, that requires very intensive work to meet the schedule and high level of precision.

For this project SIMIC has put in place:

- **High Technology Manufacturing: To accelerate the welding and machining activities**
- **AD-HOC Tooling**
- **Final Quality Testing: As per customer technical specifications**





TURBO-BRAYTON SUBCOOLER / *Air Liquide*

As part of the framework contract, SIMIC is manufacturing in series the Air Liquide Turbo-Brayton cooling systems.

This is an optimal solution for **natural gas reliquefaction**. It can be integrated on **small or large LNG carriers** to re-liquefy boil-off gases, but also on **bunker barges or vessels and LNG fuelled vessels**.





Simic is working with Thales Alenia Space for the machining and treatment of 6 large aluminum cylinders that will be part of the first commercial pressurized module, commissioned by Axiom Space.

Module size and material:

Diameter: 4,270 mm

Material: Al 2219

Axiom Space's Axiom Mission 1 (Ax-1) will be the first all-private astronaut mission to the International Space Station (ISS).





INSTALLATION & MAINTENANCE OF INDUSTRIAL PLANTS

Mechanical

Electrical

Simic offers
a complete Installation
and Maintenance service

Instrumental

Pneumatic

Turn key projects
for the following industrial sectors:

- Pharmaceutical
 - Food
- Power Generation
 - Tobacco
 - Naval
- Renewable Energy
- Chemical & Petrochemical





INSTALLATION & MAINTENANCE OF INDUSTRIAL PLANTS



FERRERO

FOOD INDUSTRY - FERRERO do Brasil

Project Name: FERRERO BRAZIL PRODUCTION PLANT - POCOS DE CALDAS - MG - BRAZIL

Customer: Ferrero do Brasil LTDA

Description: Complete utilities, HAVAC and Sprinkler system for new Product Warehouse - G3
Utilities for production buildings G1 - G2
Product piping and Mixing units manufacturing and installation



FERRERO

FOOD INDUSTRY - FERRERO de MEXICO

Project Name: FERRERO NEW MEXICO FACTORY - San Josè Iturbide - MEXICO

Client: Ferrero S.p.a.

Description: Turn Key Material Storage and Product Preparation Lines
Mechanic and Electric





INSTALLATION & MAINTENANCE OF INDUSTRIAL PLANTS



PHARMACEUTICAL PLANT - GNOSIS BIORESERCH S.r.l.

Project Name: NEW PHARMACEUTICAL PLANT - PISTICCI SCALO (MT) - ITALY

Client: Gnosis Bioresearch S.r.l.

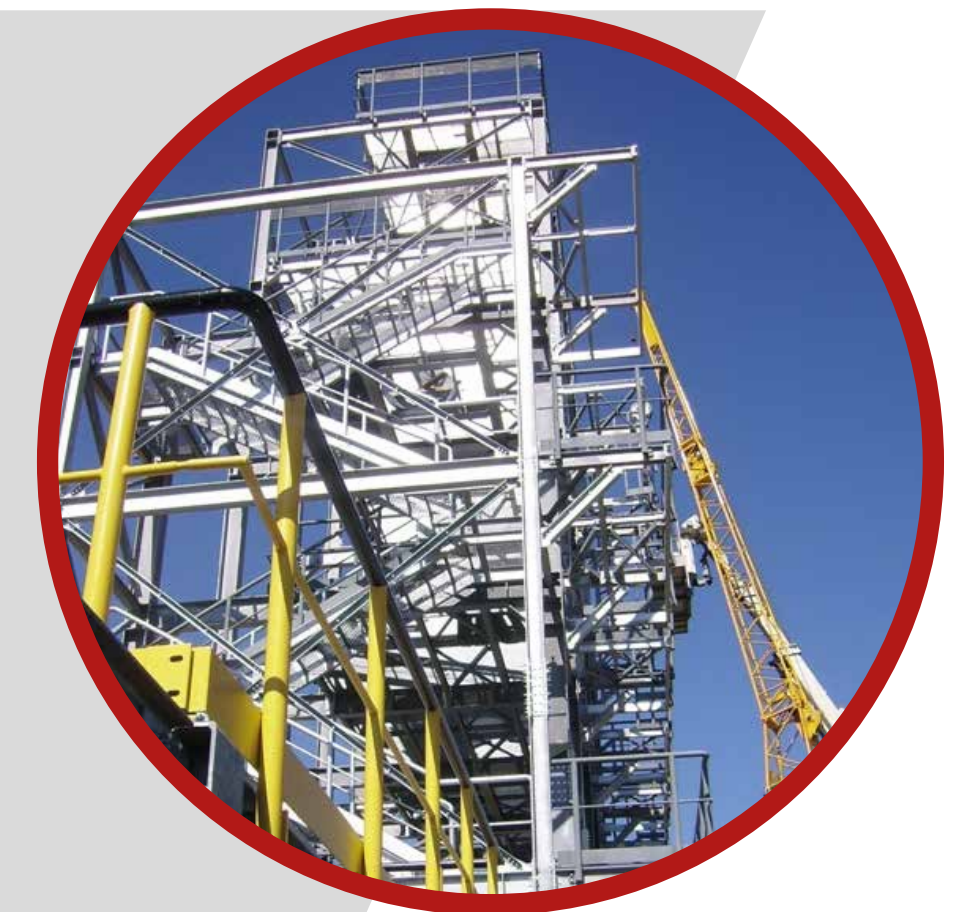
Description: Complete installation of the new plant: Mechanical, Electrical and Instrumental part
Simic is carrying out the ordinary Maintenance of the plant in Global Service.



CHEMICAL PLANT - SOLVAY Specialty Polymers

Complete Mechanical Installation of a new HF Plant (Hydrofluoric Acid recovery & production)

Complete Mechanical Installation of a new PFP Plant





Simic is engaged in renewable power generation since 2010, with solar and wind plants fully owned, developed and built.

Mission

Making a contribution to green energy transition for a secure and sustainable future

Vision & Roadmap

To increase the portfolio of renewables plants within the next 5 years.

- 60 MW installed capacity
- 120 MW in construction
- 250 MW in development

Current figure

- 25 MW solar plants + 35 MW wind plants
- 100 GWh of energy produced per year
- Equal to 17 times the internal energy intake, enough to power more than 40,000 houses
- ~30,000 tons of avoided CO₂ emissions per year
- Equivalent to the CO₂ absorption of ~1,200,000 trees

On-going projects

- 120 MW wind plants under construction
- 300 GWh of energy produced per year
- Enough to power more than 120,000 houses
- ~90,000 tons of avoided CO₂ emissions per year
- Equivalent to the CO₂ absorption of ~3,500,000 trees





In 2022, with the 30 MW “Fiume Santo” wind plant in Sardinia (Italy), Simic took a leading role in energy transition and evolution of wind turbines by installing **the first 6 MW wind turbine in Italy**.

Wind turbine model: V162-6.0 MW

Number of turbines: 5

Rotor diameter: 162 m

Hub height: 119 m

Tip height: 200 m

The project featured the largest and most powerful wind turbine ever installed in Italy until then.



Thank you for your attention

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