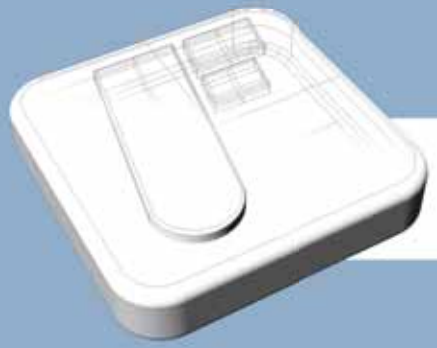
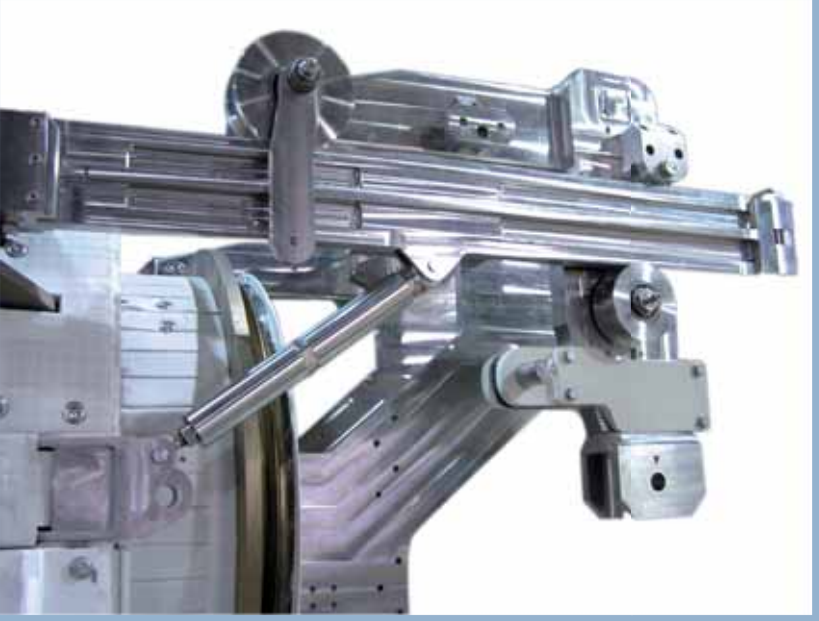
fantini

fantini

Worldwide leader

in the production of chain saw machines for the extraction of marble.
Company specialized in the design and production of experimental plants and equipment for the scientific research.





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“ Corporate mission ”

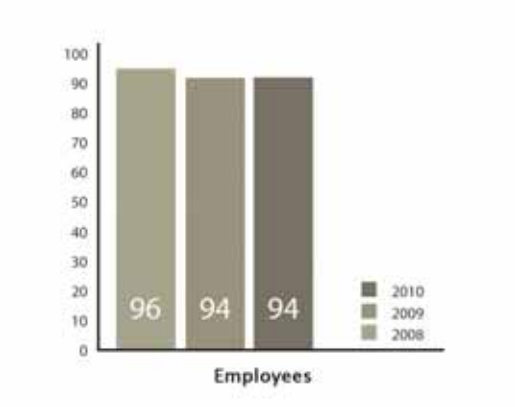
For Fantini Group pursuing the mission means to believe in the following values:

- Professionalism in the production, sales and customer care services
- Always pursuing the main goal of producing new products able to anticipate and satisfy
- Particular attention to the customer, by offering modern and efficient services in the supply of a product
- Creativity in proposing suitable solutions to the customer
- Punctuality and respect for the agreement

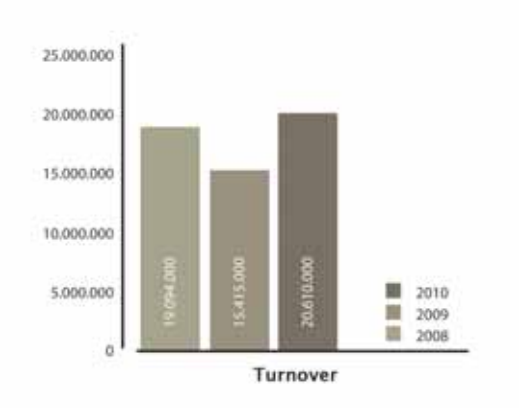
This company is grown in any branch combining the right balance of internal expertise and innovative technologies always in tune with the times and introduced by the partners most reliable and most prestigious in the world of mechanics. The main aim of the business policy has always been the customer satisfaction. Today Fantini group continues a constant process of technological and organizational improvement thanks to the experience improved in the cooperation with italian and international customers in the years.
In thanking our customers for the preference in our products during the years, we are glad to introduce our company and our industrial competences.

HE GROUP

“ Corporate and financial information ”



Fantini Sud S.p.a. corporate data
(2008 - 2011)



Fantini Sud S.p.a. corporate data
(2008 - 2011)

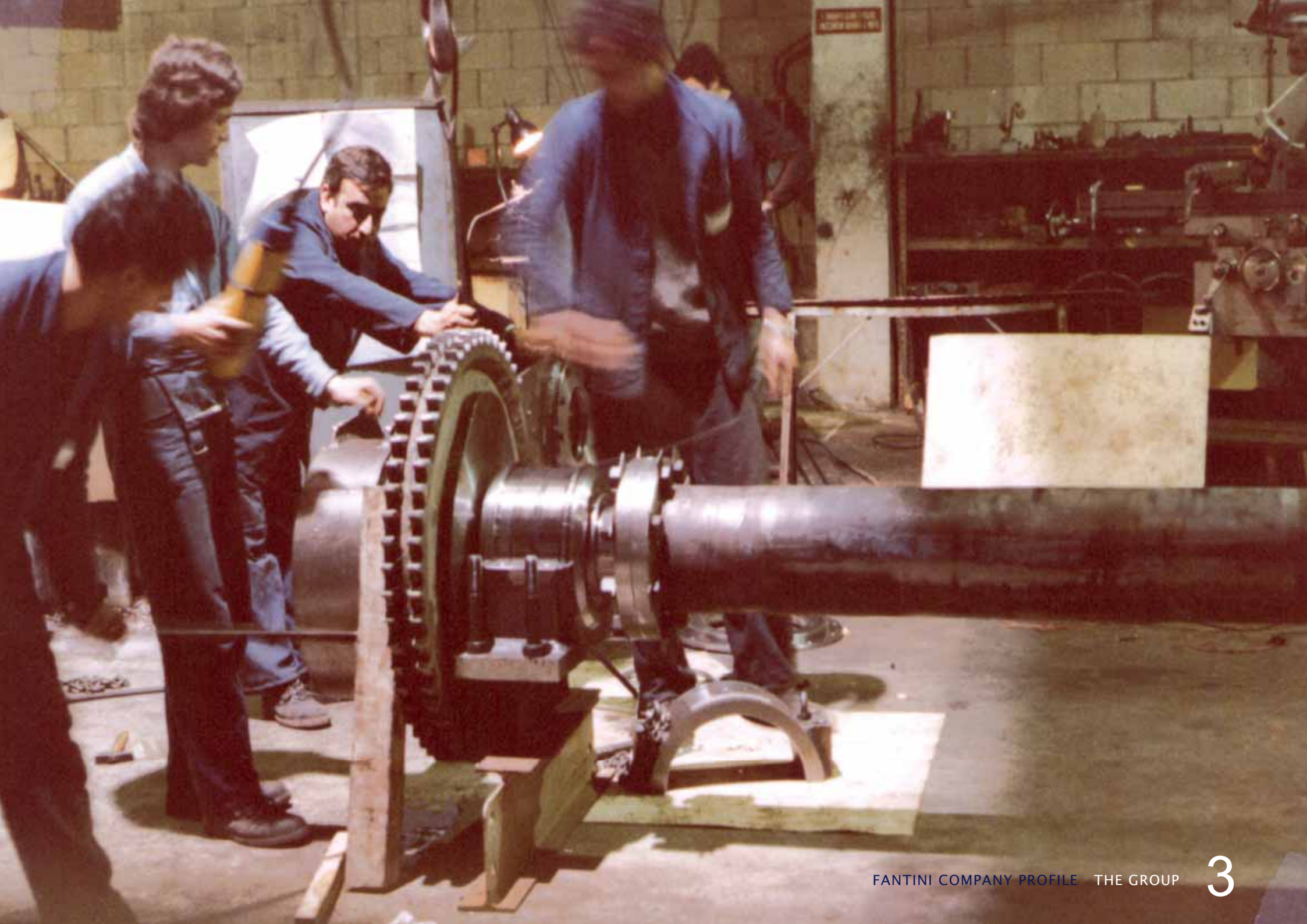
Competitive advantage:

Product diversification and technological transfer between departments

The aim of FANTINI SUD company is offering to its customers special machines and plants. During the years Fantini company always paid great attention to the research, the continuous improvement and to the technological innovation and developed competences and experience in different fields of high technology.
Fantini group is always present in a diversified market in the following business areas:

- **Industry automation**
- **Mechanics division for the research field- experimental and aerospace department**
- **Chain saw machines for the extraction of ornamental stone from marble quarries**

Fantini Group manufactures its products in three different establishments for a total surface of 15.000 mq.



History

The presence of Fantini in the mechanics' field starts in 1914 when Luigi Fantini opens an artisanal workshop for metals working in Tivoli (RM). The activity continues until the second world war and later stops because of it.
In 1947 Luigi's sons, Alfeo and Mario, start their father's activity again improving the old artisanal workshop and specializing in the production of parts for industrial machinery for the local manufacturing companies (paper, tyre, cement).

In 1979 the company starts the production of chain saw machines for the extraction of the ornamental stone by taking advantage of the closeness to many travertine quarries (the famous (lapis tiburtinum). The first chain saw machine starts working in the quarry of "Bruno Poggi e figli" and today over 1700 chain saw machines are working in the quarries worldwide and currently the chain saw machine is usually identified as "La Fantini".
In 1989 two factories have been built in Anagni (Fr) where now the "automation", "chain saw" and "mechanics" divisions are based.
In 1998 a new establishment of 3000 mq has been built near the factory in Anagni in order to increase the department for big working. This new factory is equipped with a heavy carpentry department and suitable machine tools for mechanical working.
In 2001 Fantini company starts working for the National Institute of Nuclear Physics (INFN) in a prestigious experiment such as the Opera experiment and it is the first work for a reasearch institute. It is the beginning of the newest business field the Fantini company is involved in. As per the continuous evolution of the chain saw models produced, the complex plants and equipments for the experimental projects of big dimensions a new establishment of 3000 mq has been built near the factory in Anagni in 2007.

1914 Year of foundation

1947 Resumption of activities after the war (second world war)

1979 Birth of first chain saw machine

1989 Building of the first factory focused on the manufacture of chain saw machines and industrial plants

1998 Building of a second plant for production expansion

2001 The Fantini Sud begins the first work with a research institution

2007 Building of a third plant for production expansion

“ Strategy and target markets ”

Ready to explore new opportunities

It’s with great pleasure that the management of our company presents a report regarding the first ten years of working in the field of scientific research.

During these years Fantini company faced a series of challanges with great competence and professionalism that allowed our company to improve and to adapt itself to a varied market always in continuous evolution thanks to the innovation and flexibility of the resources.
The development of mechanical division, the newest division of the company has been possible thanks to the synergy of the human and technological resources of the company. Being always involved in new project Fantini company is always ready to start new cooperations with national and international partners.The mechanical planning and the construction of products are studied inside the factory in order to have a total technological control.
A staff of high specialized technicians guarantee the continuous research and development of products as well as the product engineering linked to the application’s results in some of our customers’ place.
In the field of chain saw Fantini has the goal to consolidate its leadership worldwi-

de, to improve the after sale service and the distribution of its products by presenting some innovative solutions for the improvement of quarries' exploitation.
The great experience in the automation field allowed the realisation of special plants in every single production phase. Fantini company takes part also to some research projects even in the aerospace field since over a decade.

The particular attention to the customer is one of the main pecularity of our company.

Luigi and Luciano Fantini

" The chain saw worldwide is called Fantini "

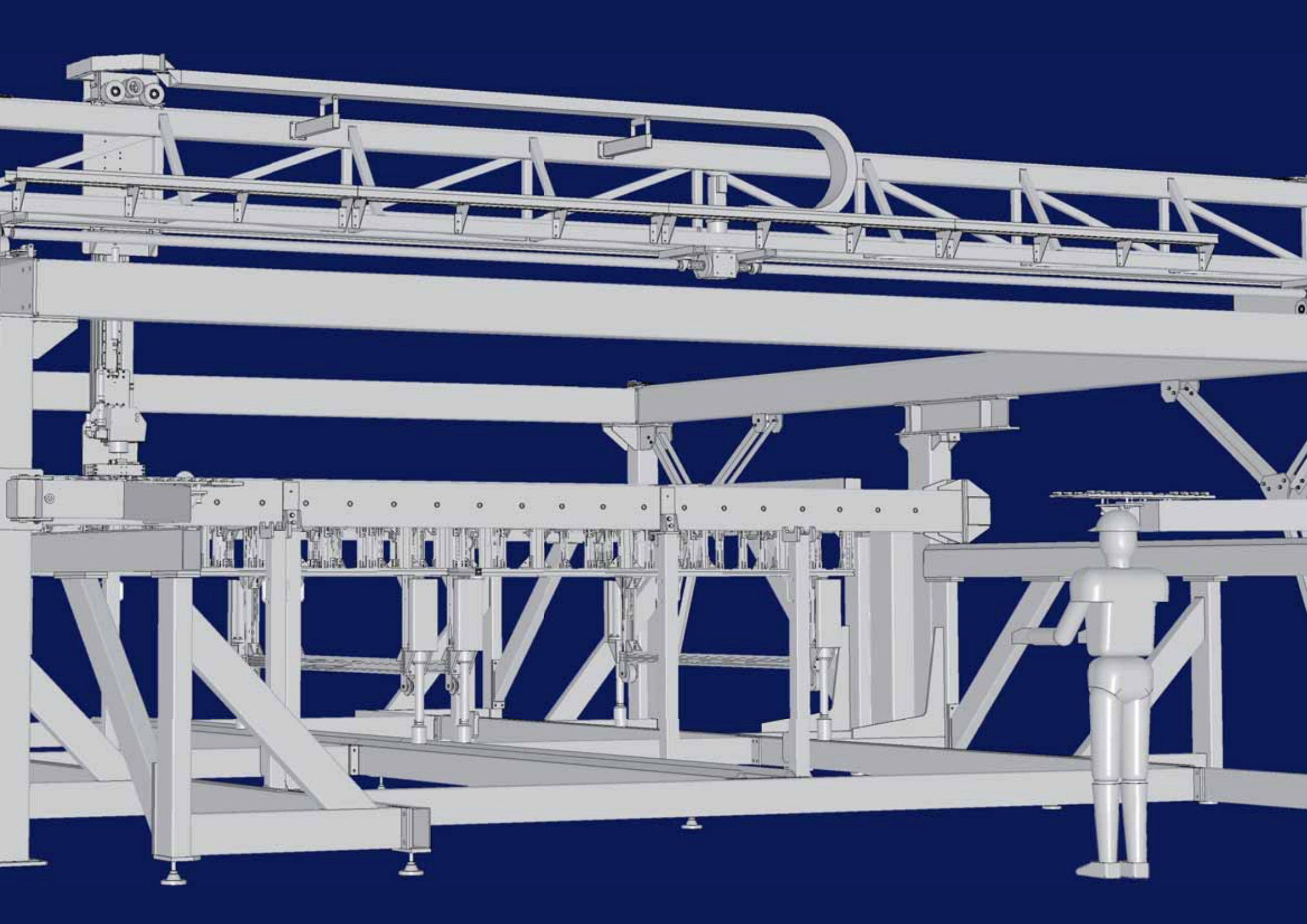
" Special machines and equipments for the research...another challenge for the italian invention "

" The know how acquired in the years at disposal of the automation division "

MECHANICAL DIVISION

Successful solutions to the challanges that the scientific research face every day.

Exp. Opera – Plant for the production of the wall (photo on the right)



Projects with INFN

NA62

The experiment NA62 is being prepared in cooperation with INFN, CERN, Mainz, Triumf, Sofia, Mexico, JINR Dubna, IHEP Protvino, INR Moscow, Bern, Birmingham, Fairfax, SLAC and Merced. The main goal of the experiment is measuring the decay ratio of channel $K^+ \rightarrow \pi^+ \nu \nu$ for a test determining the Standard Model, with the determination of the 10% of the parameter |Vtd| of matrix CKM. One of the main contribution to the fund comes from the decay $K^+ \rightarrow \pi^+ \pi^\circ$ with the two photons of the π° decay which are no relevant. It has been for seen an hermetic photon system until 50 mrad composed of the existing calorimeter, small angle counters and a system of 12 rings of counters (Anti) placed along the decay tube distant 6 mt one from the other.

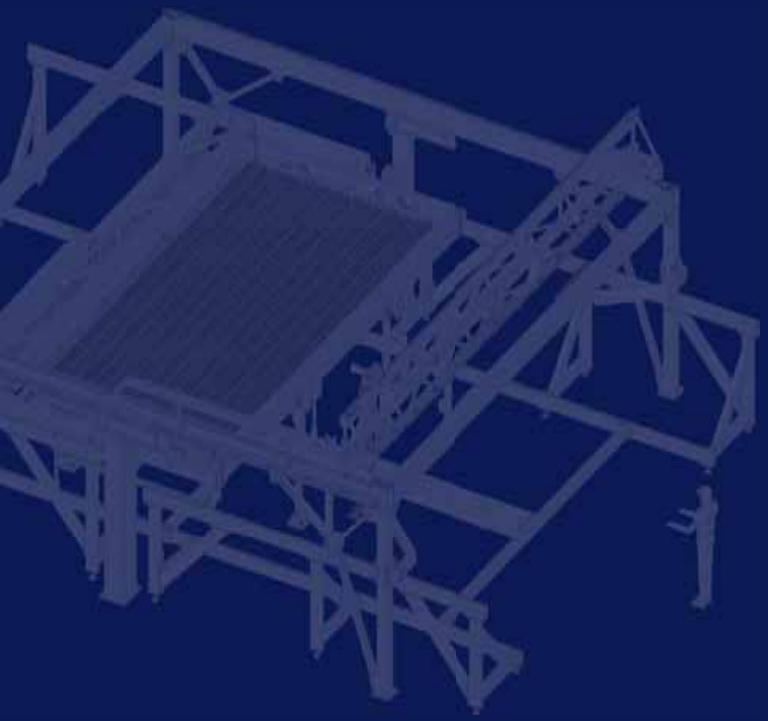
Projects with INFN

Each ring contains lead glass blocks supplied by photomultiplier (from 160 to 256 depending on the ring's diameter) which have to operate under vacuum. Some flanges with passing connectors for vacuum allow the passing of high voltage for the phototubes, the exit signal from the phototube and the calibration light.

The Fantini company supplied the first 5 Vacuum lines (inside instrumentation not included) equipped with the lifting tools and rotation equipments. The supply of additional 4 Vacuum lines of larger diameter housing a larger number of lead glass blocks equipped with photomultiplier is in progress. The Anti's structure of the experiment NA62 is composed of vacuum lines which have to guarantee the crystal's position by keeping their geometric position.
In each one of the vacuum lines is guaranteed a low loss level of the object. This goal is reachable thanks to a control of high technological level in the whole production, particular attention is paid to the material's choice, to the welding and to the high quality of the mechanical workings.

OPERA

The OPERA experiment has been designed to perform the most straightforward test of the phenomenon of neutrino oscillations. This experiment exploits the CNGS high-intensity and high-energy beam of muon neutrinos produced at the CERN SPS in Geneva pointing towards the LNGS underground laboratory at Gran Sasso, 730 km away in central Italy. OPERA is located in the Hall C of LNGS and it is aimed at detecting for the first time the appearance of tau-neutrinos from the transmutation (oscillation) of muon-neutrinos during their 3 millisecond travel from Geneva to Gran Sasso.



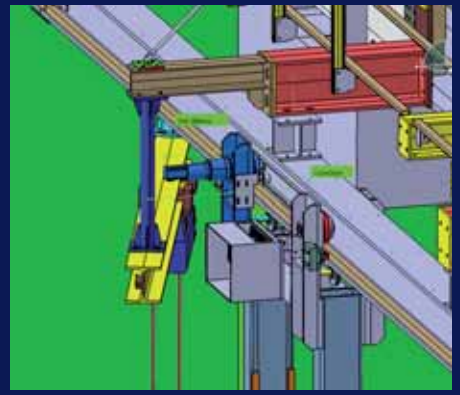
Projects with INFN

In OPERA, tau-leptons resulting from the interaction of tau-neutrinos will be observed in “bricks” of photographic emulsion films interleaved with lead plates. The apparatus contains about 150000 of such bricks for a total mass of 1300 tons and is complemented by electronic detectors (trackers and spectrometers) and ancillary infrastructure. Its construction has been completed in spring 2008 and the experiment is currently in data taking.

For the italian National Institute of Nuclear Phisics (INFN) have been realized a series of equipments and components to be used for the OPERA Experiment at Gran Sasso underground laboratories. In particular the following elements have been supplied:

- machined plates for spectrometers
- spectrometers assembly structures
- copper bars for spectrometers lower and upper coils
- lower and upper heat excharger for copper coils cooling
- spectrometers alignment and stiffening beams
- n° 124 semi-wall to locate neutrinos detectors (“bricks”)
- semi-wall lower supports and upper suspension elements

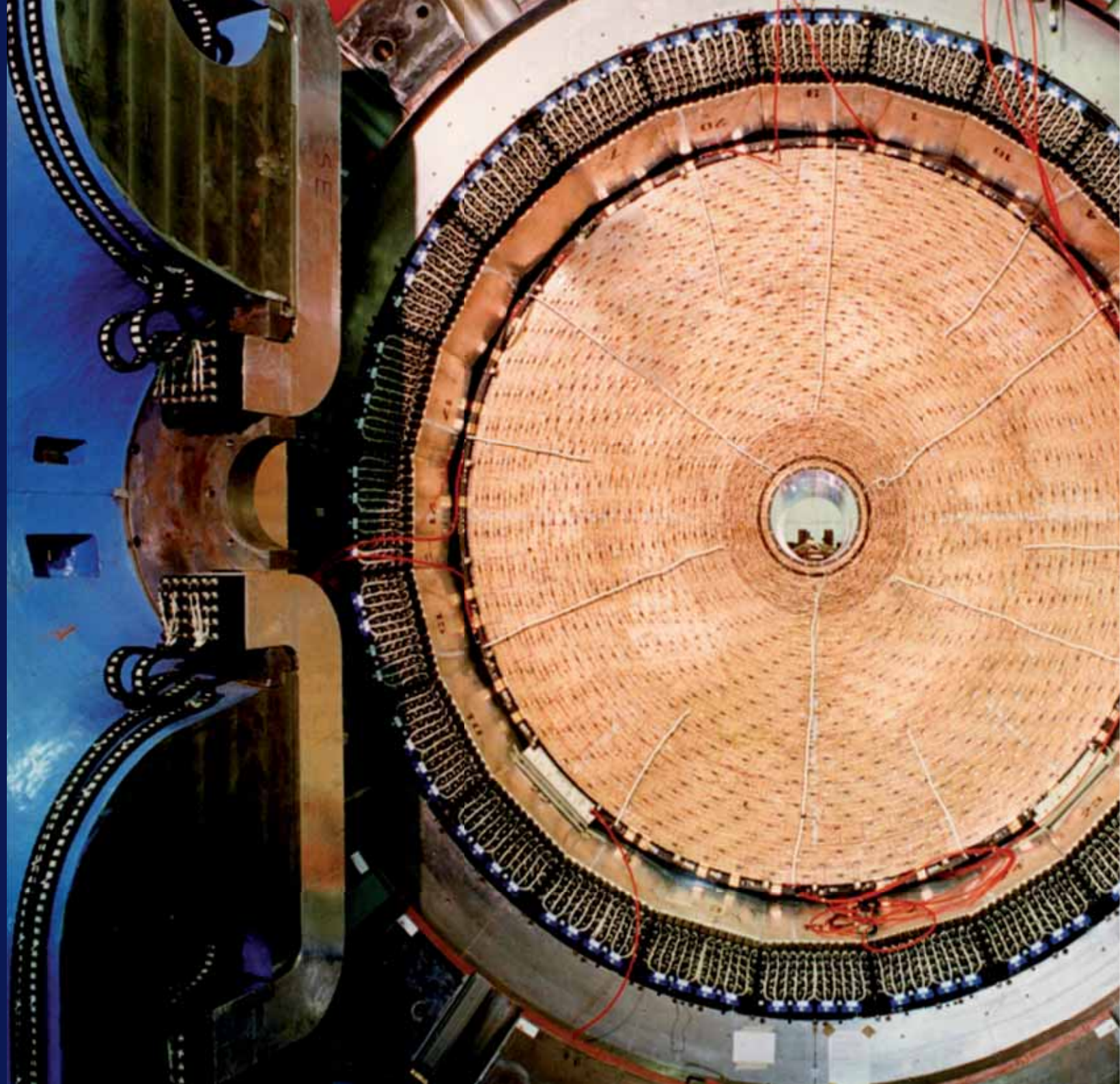


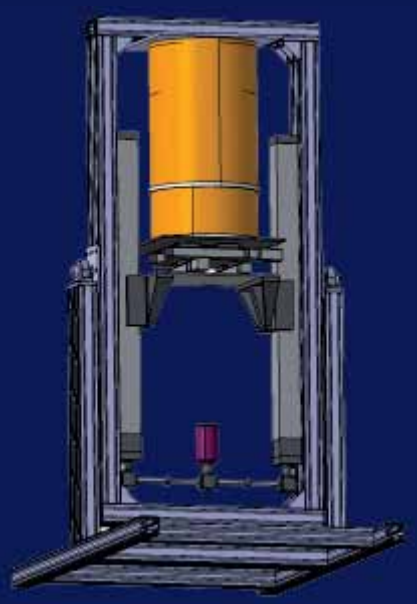




Projects with INFN

KLOE 2

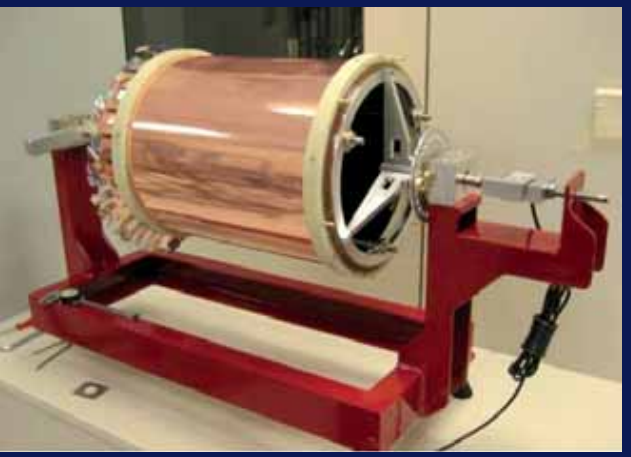
The idea of cylindral GEM detector was tested for the first time with a small prototype (7 cm radius and 24 cm length) (22). The very positive results obtained with the prototype paved the road for the construction of a full-scale prototype for the first layer of the IT. Since then, the R&D activity for the final detector has been focused on three main items: the realization and test of a full-scale cylindrical GEM prototype, the detailed study of the XV readout, performed on dedicated small planar chambers for simplicity and economical reasons, and the realization of very large GEM foils based on the new single-mask technology.

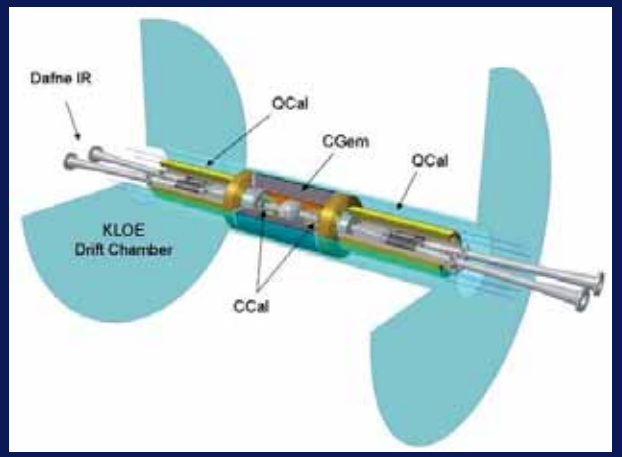




Projects with INFN

Fantini contributed to the final assembling of a CGEM layer which is performed by means of the Vertical Insertion System (VIS), a tool that allows a smooth and safe insertion of the cylindrical electrodes one after the other. The system is designed to permit a very precise alignement of the cylindrical electrodes along their vertical axis. The bottom electrode is fixed, while the top one is slowly moved downwards by a manually controlled step-motor, coupled with a reduction gear system. The operation is performed with the help of three small web-cameras, placed at 120 degrees one to each other around the top cylindrical electrode, thus allowing the monitoring of the radial distance between the electrodes (2-3 mm typically).
The up-down rotation of the assembly tool allows an easy sealing of the detector on both sides.





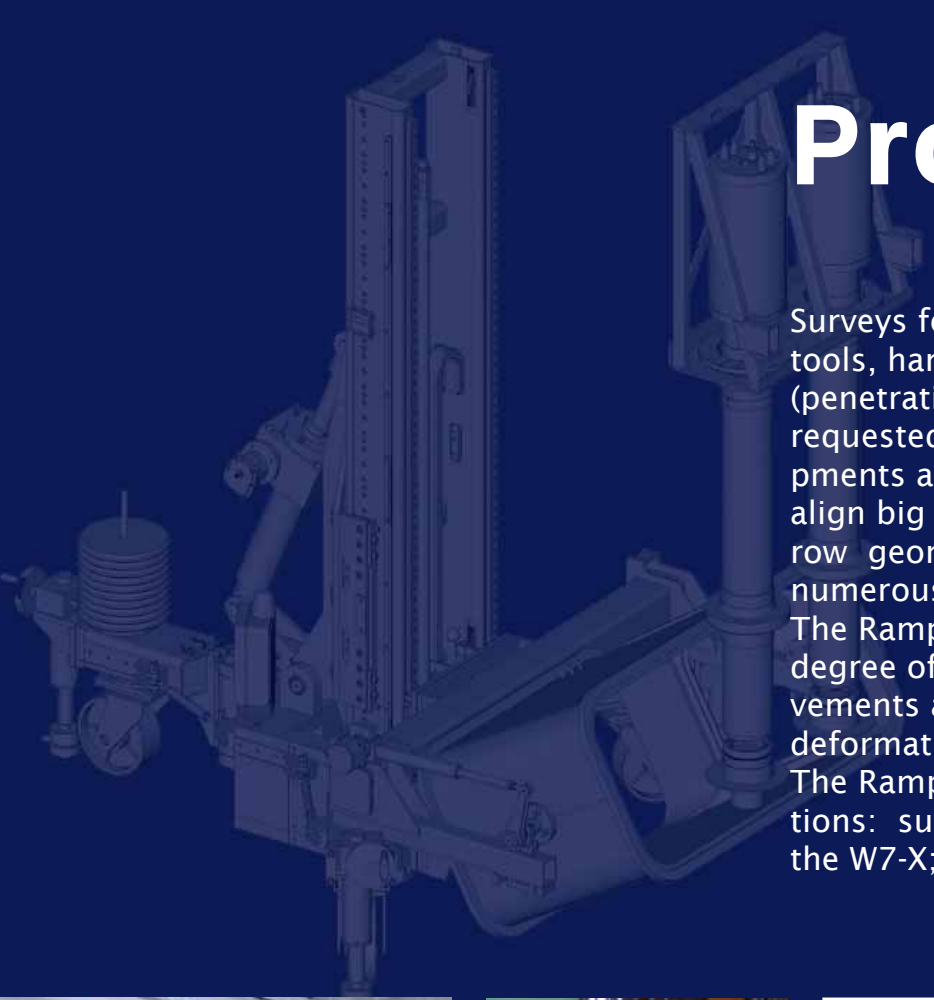
Projects with IPP

W7-X

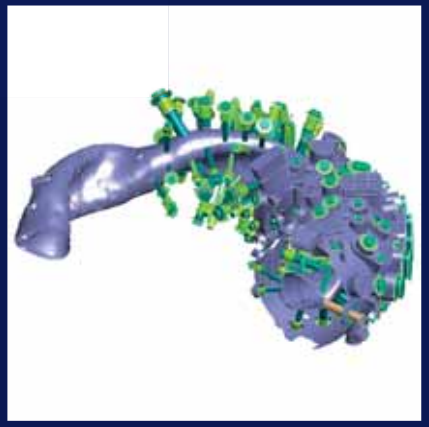
Wendelstein-7X is now under construction in the Max Planck Institute for Plasma Physics in Greifswald, in 2014 it will be the bigger and advanced reactor type Stellarator. The main goal of this project is investigating on the application of this configuration in the next power plants. The optimization of magnetic field generated by modular superconductive magnets will allow the W7-X to show the principal characteristic of these machines; the possibility to operate on the plasma in stationary condition.

Projects with IPP

Max-Planck-Institut für Plasmaphysik



Surveys for the preparation of calking tools, handling and welding of 254 Port (penetrations in the Plasma Vessel), have requested the realisation of Ramps, equipments appositely conceived to precisely align big masses by handling in the narrow geometrical space allowed by the numerous systems already installed.
The Ramps are equipped with 10 or more degree of freedom with controlled mouvements able to compensate the elastic deformations of materials.
The Ramps guided the Port in all directions: supported from the Bridge over the W7-X; or mobile under the Vessel on air cushion or wheels, between basement, temporary structures and bars of the Bus; on board of Tower for the big Port in the equatorial areas.
Particular installation techniques and preparatory equipments are currently tested with the prototypes of Current Lead, the high temperature superconductors (HTS) which have the top side cold in the W7-X.
Some other techniques are being studied in order to extend the use of Ramps to the handling and installation of the Dome-Sections, the cumbersome lower layers of the Outer Vessel which will be put in-site after the Current Lead.



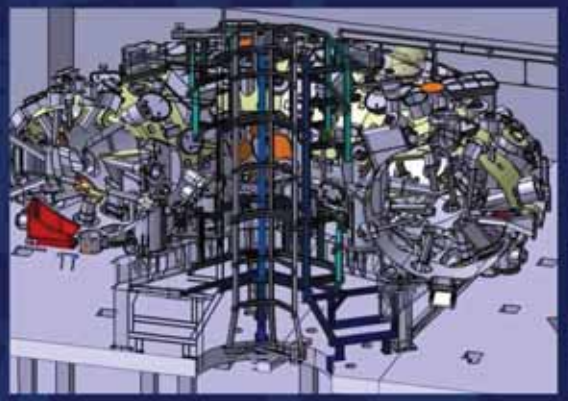
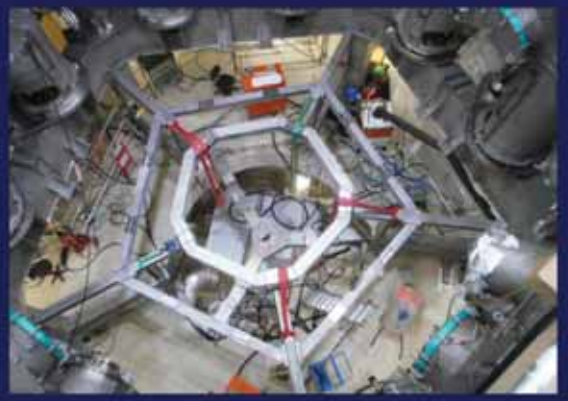
Projects with IPP

W7-X

Projects with IPP

Max-Planck-Institut für Plasmaphysik

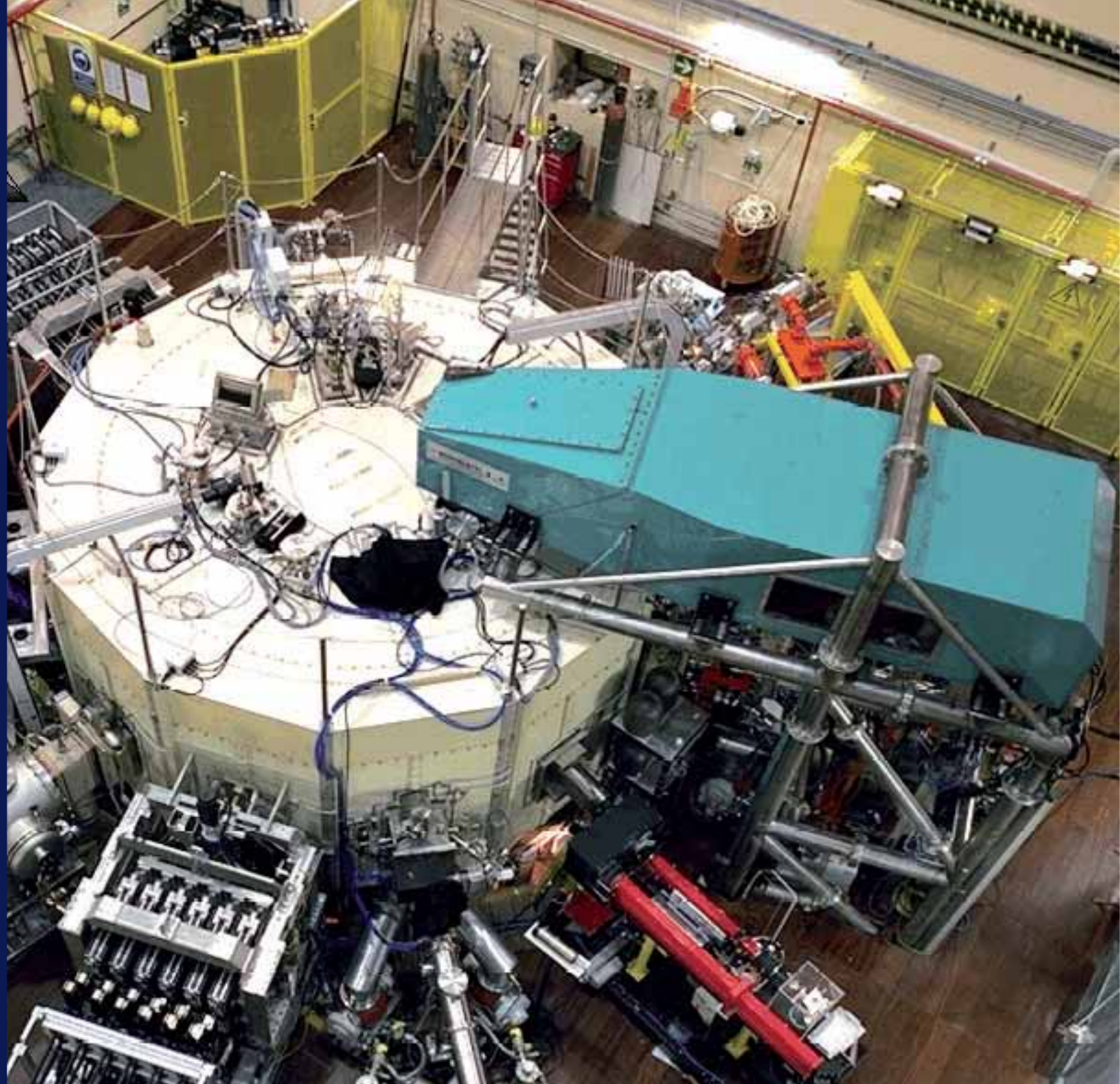
The Stellarator W7-X reactor is fitted with a complex system of auxiliary structures for the support of numerous secondary systems (vacuum hoses and pipes, cooling water, technical gases, instrumentation, electric and power cables) and to allow personnel access from above and from inside the compartment at the center of the main toroidal vessel.
The structures (constructed mainly in stainless steel, with various components in aluminum) were designed and built on the basis of these needs; they are made up of a double central coaxial tower (installed in the compartment at the center of the reactor), a second side service and access tower and two upper radial, single bay bridges, 11m in length each; one is heavy duty supporting of pipes, hoses and cableways and the other allows personnel access for inspection and maintenance and supports a laser interferometer for measuring the temperature of the plasma in the vessel.
All structures were built in compliance with executive, dimensional and extremely severe quality constraints, also in consideration of their proximity to the reactor body.


Projects with ENEA

FTU

FTU is a medium-size tokamak machine with a high toroidal magnetic field (80,000 Gauss). For such a high field, a continuous current of 37,800 Ampere per 1.5 seconds has to pass through the toroidal windings. As all the FTU windings are copper coils, their resistivity has to be lowered in order to considerably decrease dissipation through the Joule effect and hence avoid damage to the coils.



Projects with ENEA

The only way to do this is to constantly keep the coils at the operating temperature of liquid nitrogen, that is, about -196°C. Although FTU is a medium-size tokamak, it is extremely complex and needs a large number of plants (or sub-plants) to be able to work. The sub-plants, which can be quite large, are installed both in the building housing the machine itself (meaning the vacuum chamber and toroidal and poloidal windings) and in various other buildings nearby.

For ENEA's Fusion Research Centre in Frascati (RM) two equipments for Frascati Tokamak Upgrade (FTU) machine have been manufactured.

IVROS - In Vessel Remote Operating System

It is a structure used for the disassembly of the LIMITER that is of the plates composing the inside protection layer of the vacuum room's walls of the fusion machine. These plates can be locally damaged in case of defection in the magnetic confinement of plasma so that the disassembly and replacement will be necessary.

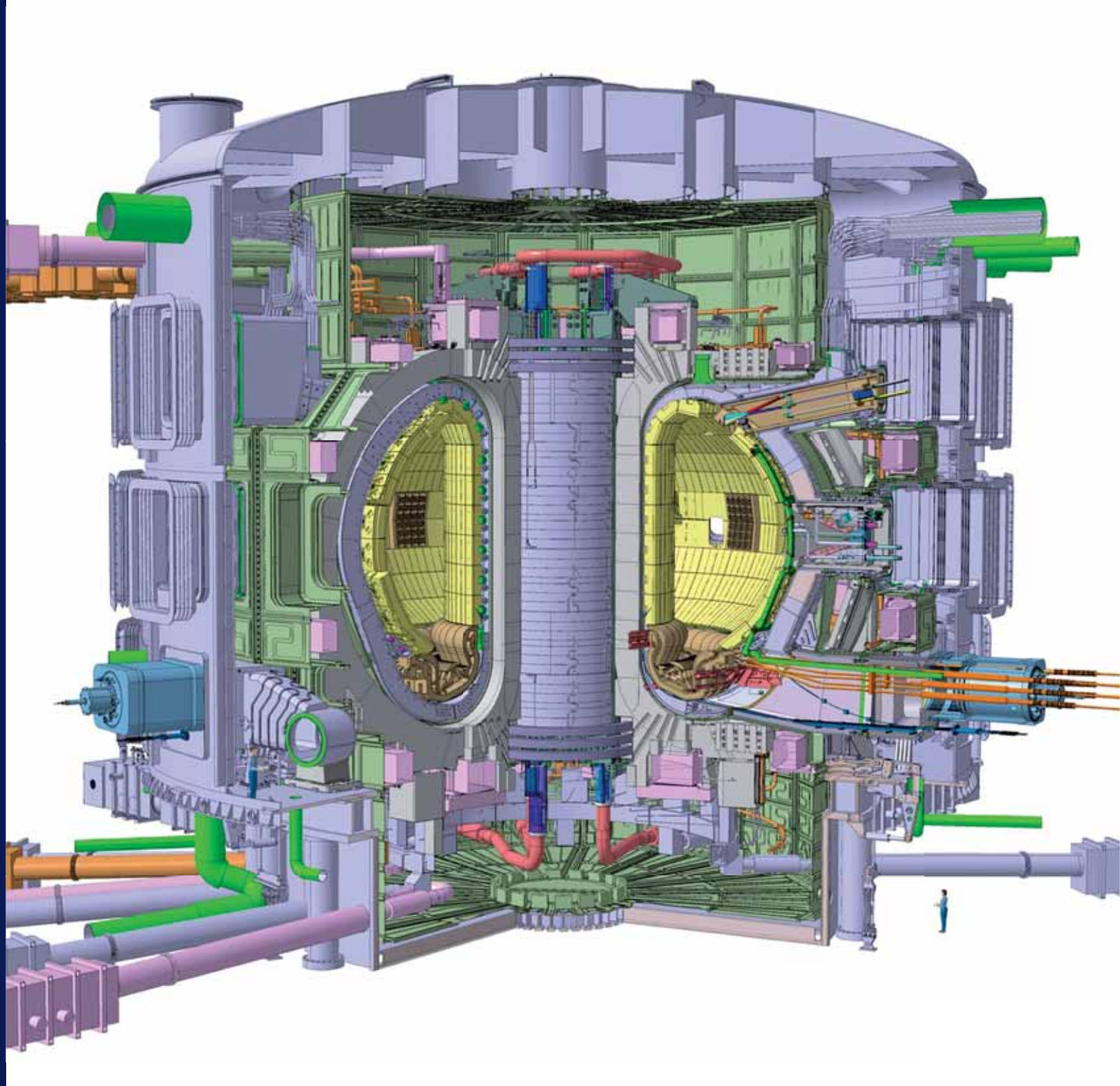
MULTI-LINK

It is a mobile structure sliding on suitable slides, studied to allow the insertion inside the FTU room of a manipulator with tools on board for the visual inspection and for the various measurements to be made during the life of the machine.

Projects with ENEA

ITER - RINGS

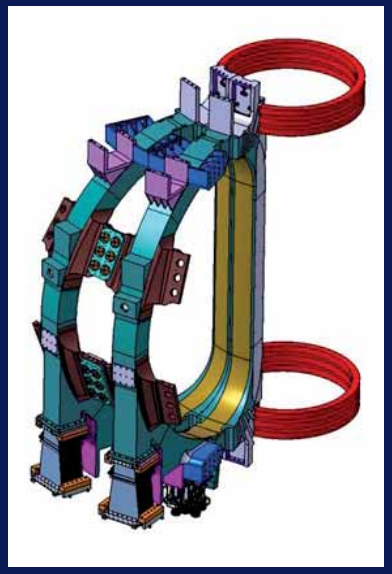
The pre-compression rings will be one of the most challenging composite structures ever manufactured. Weighing more than 3 tons each, they will tightly hold the ITER toroidal field coils from the top and bottom with a radial load of 7,000 tons per coil and withstanding hoop stress of 350 MPa for ring.



Projects with ENEA

Ten years of successful R&D performed by the Italian laboratory ENEA near Frascati, under Task Agreements with the European Fusion Development Agency (EFDA), the European Domestic Agency, and direct contracts with the ITER Organization, have recently been brought to a close.

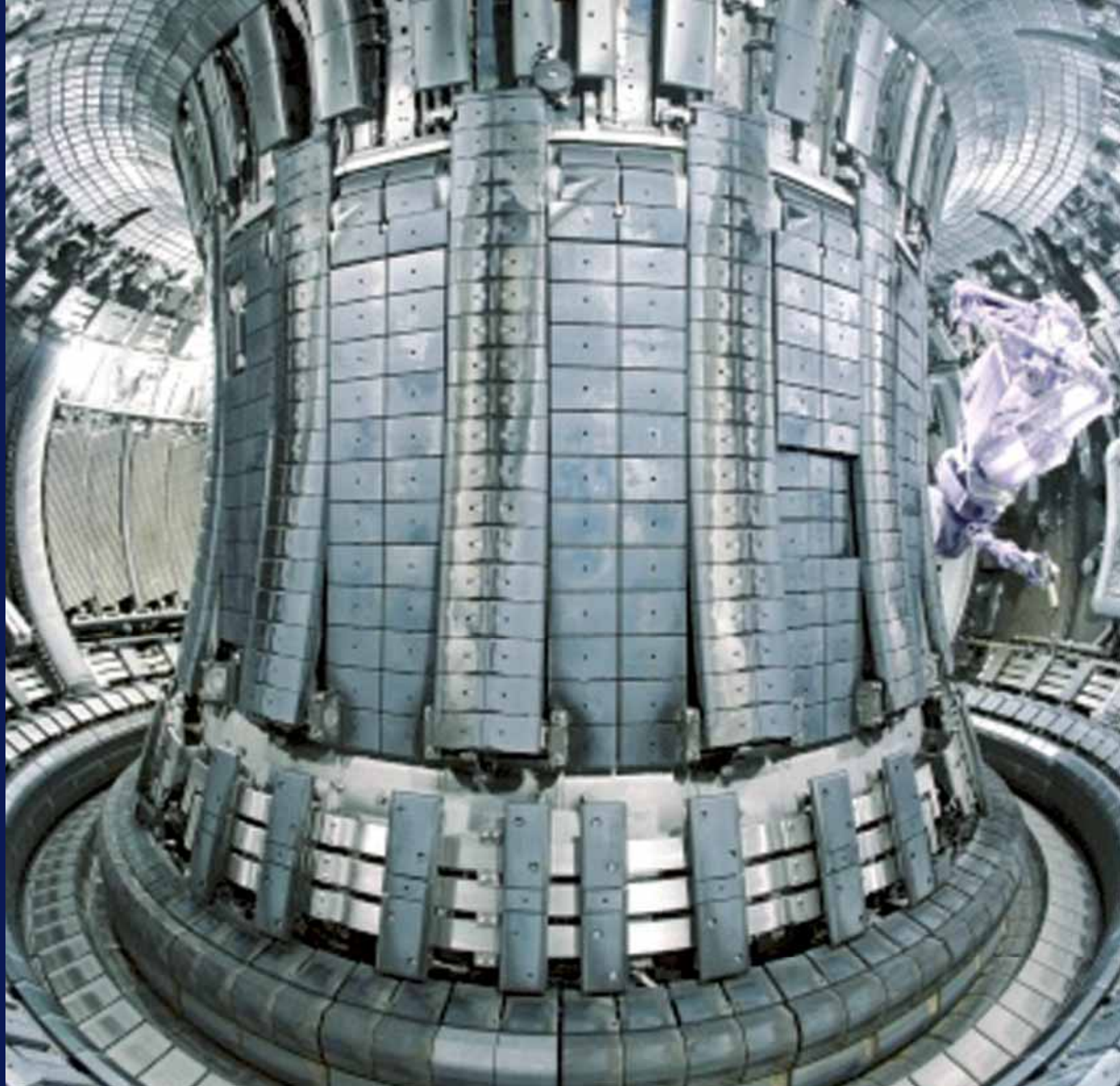
The work performed by ENEA's team identified two suitable fabrication processes for the rings, and developed applicable nondestructive examination methods by x-ray and ultrasound. The Italian team further completed the full mechanical characterization of the glassfibre/ epoxy composite at room and operating temperatures, allowing a final optimization of the ring design, and determined the ultimate tensile stress (UTS) of 6 mock-up rings (in average over 1500 MPa) in a purposedesigned machine that, with 18 independent hydraulic pullers, simulates the configuration of the 18 toroidal field coils.
Fantini Company has produced the a mechanical structure intended for the assembly of a machine to be used for impact tests and relaxation of the precompression ring slow scale for ITER magnets.



Projects with UKAEA

JET

For the European cooperation programme concerning the nuclear search in the field of magnetic confinement, a sperimental project is beeng developped on JET (Joint European Torus) plant at UKAEA's Culham Science Centre; the project aims to demonstrate the technical and scientific feasibility to produce energy from the fusion of light atoms.

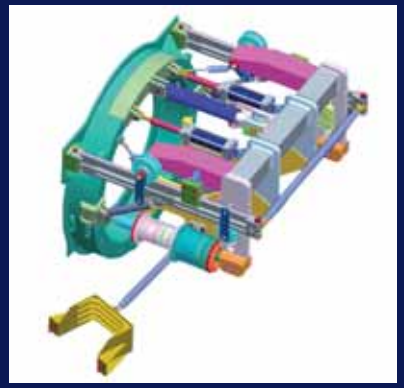


Projects with UKAEA

JET machine, for which has been realized a support structure for the antenna that will provide the plasma heating by mean of radiofrequency, is a prototype machine, scaled with respect the future ITER machine; this last one, with an heating power of 500 MW, will be the first fusion machine able to produce a quantity of thermic energy comparable to the one of a commercial reactor.
The Ex Vessel Support Structure realized for JET is a AISI 316 L stainless steel structure, composed of the following main elements:

Trolley: it is the main componet with two plates where the antenna will be fixed.
Rails and wheels: two gruops of wheels are installed on the trolley, one for each side, to allow the trolley to move together with the antenna in case of vibrations due to possible plasma disruptions.
N° 2 spring dampers to contrast the vacuum forces inside di chamber where the antenna is installed.
N° 2 pneumatic cylinders to balance atmospheric pressure variations within +/- 10 kN

Further a lifting frame has been realized for the trolley + antenna handling during its positioning on the test bed and on the finql installation, and jigs for calibration and test of Spring Damper and for the structure (simulating the working conditions) have been also supplied.

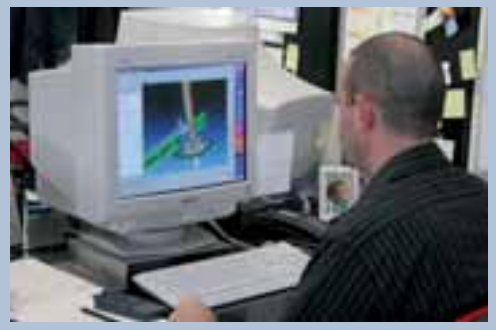


“ Human resources,










OTHER DIVISION

the foundation of our **success** ”










1700

chain saw machines working worldwide

The great experience and a complete range of chain saw machines for the extraction of natural stone make Fantini capable to fulfil every need the customer may have and propose suitable solutions for the market's requirements. In the field of chain saw Fantini has a technological know-how and a consolidated leadership worldwide.

“Chain saw machines division”

Quality

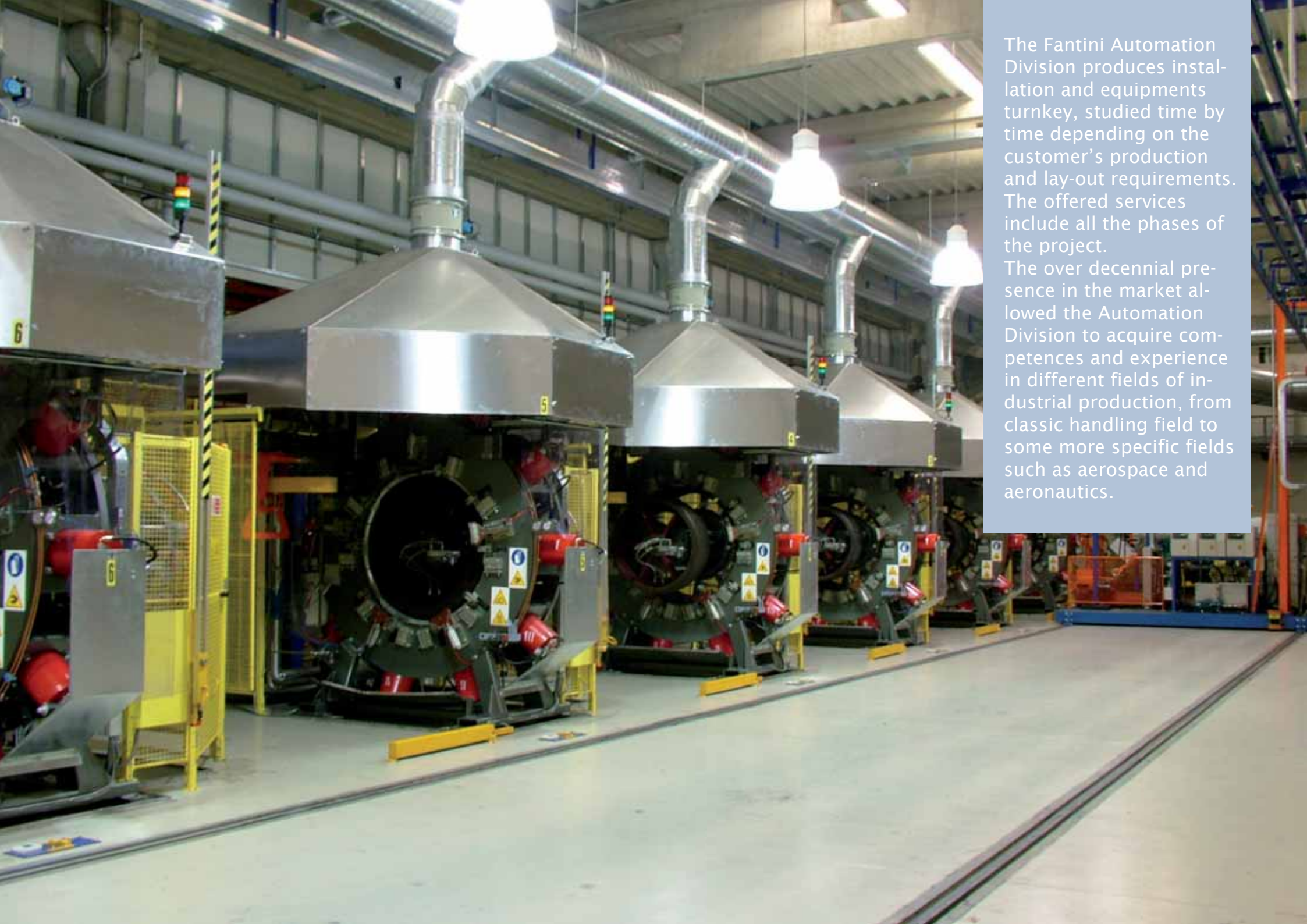
...choosing a Fantini chain saw machine means descovering day after day a realiable and safe machine with high quality and efficiency. Fantini is present in the market worldwide for long time now. The Fantini Sud always keeps in contact with Customers by the Customer Care assistance and fast delivery of spare parts in order to satisfy any need the customer may have.

Innovation

Modern equipments, reliable automatic machine tools, CAD systems and a staff of high specialized technicians are our resources working to supply a product of high innovation.

Fairs

Fantini Sud company is present in the most important marble and ornamental stones fairs worldwide to present the high technology and the most advanced and competitive products and welcome the customers with professionalism and competence since the first contact.



The Fantini Automation Division produces installation and equipments turnkey, studied time by time depending on the customer's production and lay-out requirements. The offered services include all the phases of the project.
The over decennial presence in the market allowed the Automation Division to acquire competences and experience in different fields of industrial production, from classic handling field to some more specific fields such as aerospace and aeronautics.

“Industry automation division”

Machine design

The purpose of Fantini mechanical division is study as best the process and design of production lines, focalizing to custom technical solutions.
These plants and machines very often are realized to perform processing unsolvable with commercial machines or for optimize the process at the best, or to obtained specific and/or tolerances unsecured from solutions ready on market.
For our resources is essential to analyze and understand as well the needs and the expectations of the customer to obtain at the end a product really consistent with such finality, is therefore indispensable start from a correct study of the production process or processing request and from the real operating terms when the machine must be operate.

Application fields

- Aeronautic industry
- Aerospace industry
- Food industry
- Rubber industry
- Transport and handling line for materials
- Packing and palletizing line
- Automatic store
- AGV and transport shuttle/ trolley
- Lifting equipment

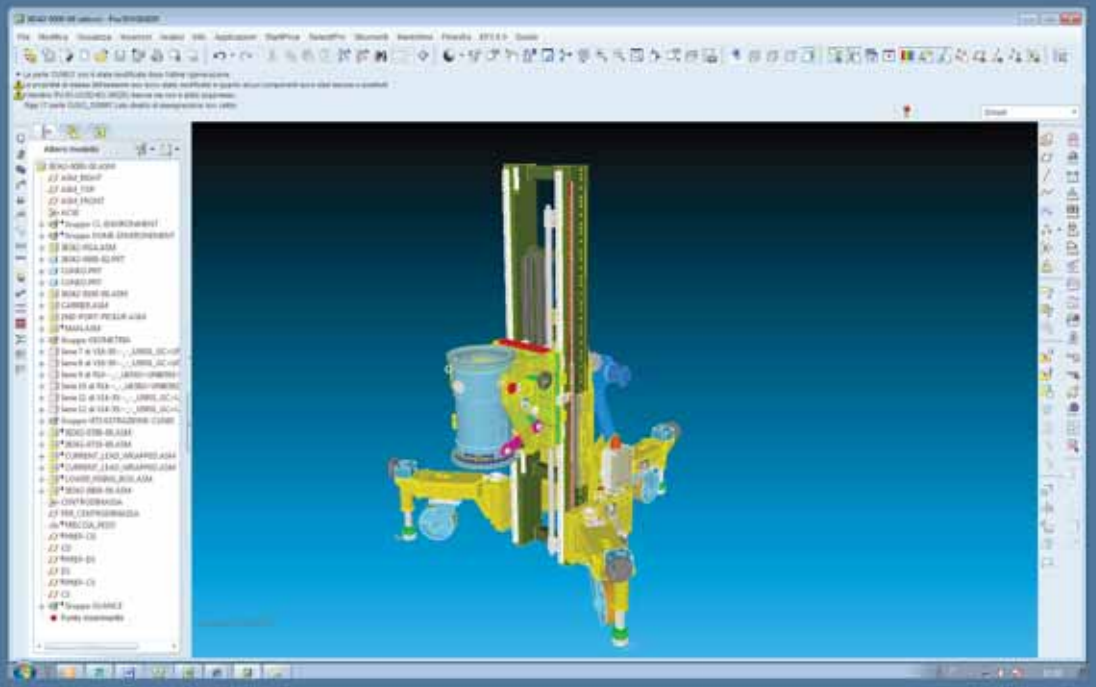
Experience at the service of development and engineering „

We share with enthusiasm and involvement the ideas of our customers, searching for the most advantageous solutions, both from technical and economical point of view.

Thanks to our manufacturing experience, we can grant a good performance and reliable results.

The Company fulfills all stages of a project…

- Visits to the Customer to survey his needs and to focus on preliminary solutions;
- Economical quotations;
- Mechanical design, calculations and structural verifications;
- Electrical system and automation software design;
- Technical documentation of the product in compliance with applicable European Directives;
- Construction, mechanical and electrical pre-assembly in its factory;
- In-house testing;
- Installation and final testing at the Customer's premises;
- After-sale service and spare/consumable parts supply



Certifications

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Fantini external Relations and Communication

Graphic project
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Special thanks

National Institute of Nuclear Phisics

Max-Planck-Institut fur Plasmaphysik

Enea

Ukaea

Latest release November 2013

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