ITALSIGMA

TESTING MACHINES AND SYSTEMS FOR OIL & GAS

Giuliani Federico group

TOGETHER IS BETTER

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Italsigma S.r.L. has been operating in the material testing field since 1982, with the aim to provide **turnkey systems** to its customers.

Undoubtedly, laboratory tests carried out by simulation under any load conditions, therefore very close to real-life conditions, allow a company to **save time and money** by detecting functional limitations.

Accurate planning and great attention to our customers' needs have enabled us to successfully interface with structured, cutting-edge companies, **such as our collaboration with the most important Italian research centres.** Over the years Italsigma has developed and made various testing machines 'night after night', supported only by the passion of achieving a result that places us among companies that **work hard** in the research world.

Italsigma S.r.L. has always paid great attention to experimentation and innovation, to offer its customers highly innovative solutions ensuring high performance. This approach has allowed us to achieve a leading position in the field of testing machinery based on specific requirements in the national territory, working with most Italian Universities and obtaining significant results abroad.

The company has grown continuously thanks to its skilled and qualified staff that carefully oversee every research and development process. Finally, thanks to technological development, we are able to maintain low costs and thus offer our customers solutions designed specifically to meet their needs at an affordable price, always offering the best quality.

<< In the testing field, if something seems simple, you might not have understood it well >>

1960
Foundation of the company Giuliani S.n.C.

1975
Start of activities in the testing field for Giuliani S.n.C.

1982
Foundation of the company Italsigma S.r.L. operating in the testing field

1995
Start of activities in the alimentar industry field for Giuliani S.n.C.

2012
Merge of the two societies all activities are exercised by the company Italsigma S.r.L.

2013
Italsigma is rapporteur for a report on the stress tests at the "International Reliability & Technologies" fair

2013
Italsigma is rapporteur for a report on the testing machines at the AIM conference

2015
Italsigma is the main sponsor of the international conference of Stress Analysis in Messina attended by all the Italian Universities

2016
Italsigma is sponsor of the international conference about the "Analysis of fracture" in Catania attended by scholars from all around the world

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30 MN (3000 TON) FULL SCALE TESTING MACHINE TENSILE + COMPRESSION + BENDING

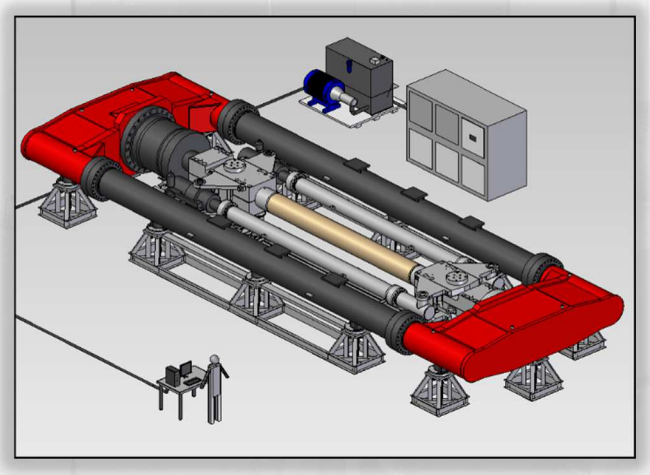
FURTHER FEATURES

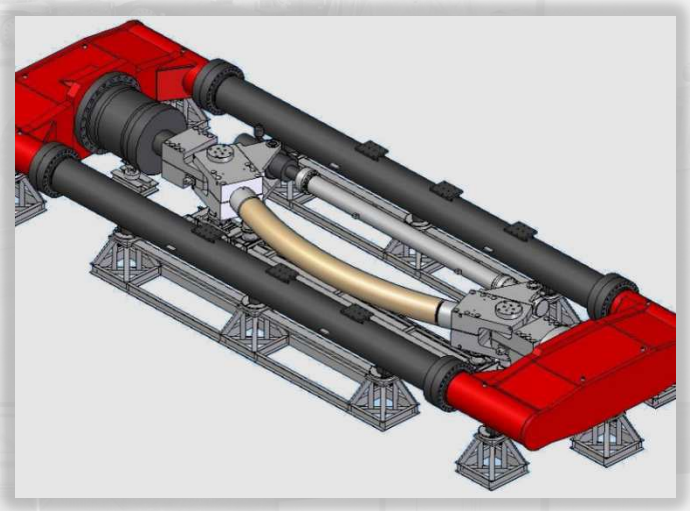
This machine performs tensile, compression and bending tests on steel pipe for gas and oil pipelines.

Optimized system for specimen positioning and clamping.

Feasibility of cyclic tests.

Feasibility of tests with pressurized pipe.





TECHNICAL FEATURES

Max compression force **30 MN**

Max tensile force **25 MN**

Max bending **300 ton·m**

Max pipe diameter **20" (508 mm)**

Max pipe length **5000 mm**

Dimensions **16 x 6 m – Height 2 m**

Max axial stroke **500 mm**

Max bending angle **± 20°**

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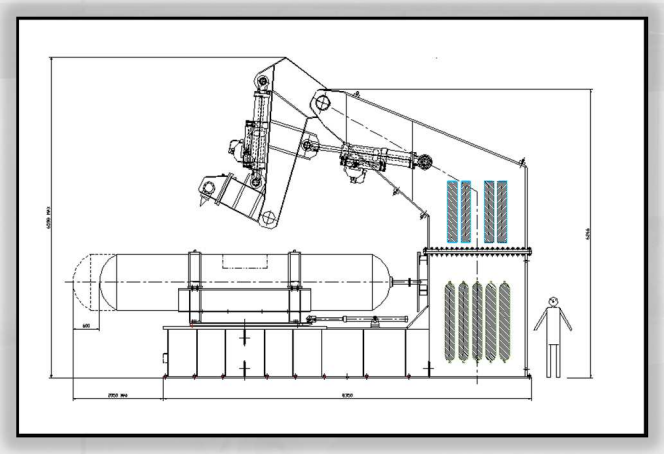
FULL SCALE DAMAGE SIMULATION TESTING MACHINE

FURTHER FEATURES

This machine performs the simulation of the damage due to the hoe of a digger (or other kind of construction machine) on steel pipe for gas and oil pipelines.

The damage is simulated with the impact of a steel striker at controlled speed and path.



TECHNICAL FEATURES:

Pipe size (diameter):	**24” - 36” - 48” - 52”**
Max pipe length:	**6600 mm**
Striker max speed:	**5 m/s**
Striker impact angle on pipe:	**from 0° to 90°**

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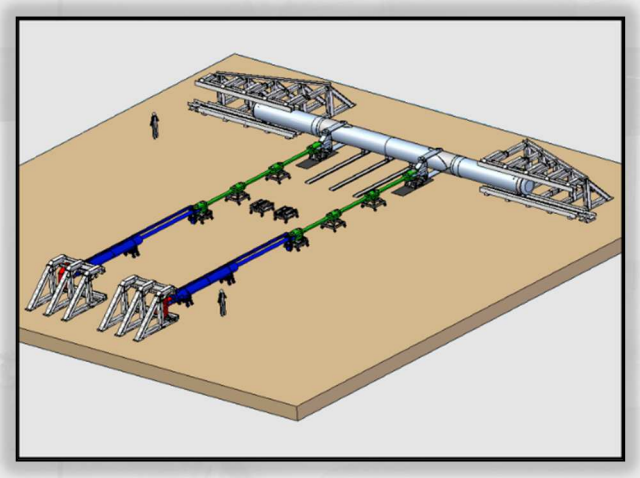
FULL SCALE BENDING TESTING MACHINE



FURTHER FEATURES

Reduced sliding friction: the specimen and the pulling system cylinders and chain) supported on sliding and pivoting low friction guides.

Adjustable distance between cylinders for different pulling forces geometry.

TECHNICAL FEATURES:

4-points bending test on steel pipe for gas and oil pipelines.

Max force:	**8 MN**
Max support distance:	**26 m**
Max pipe length:	**30 m**
Max pipe diameter:	**56” (1420 mm)**
Max pipe deflection:	**5000 mm**

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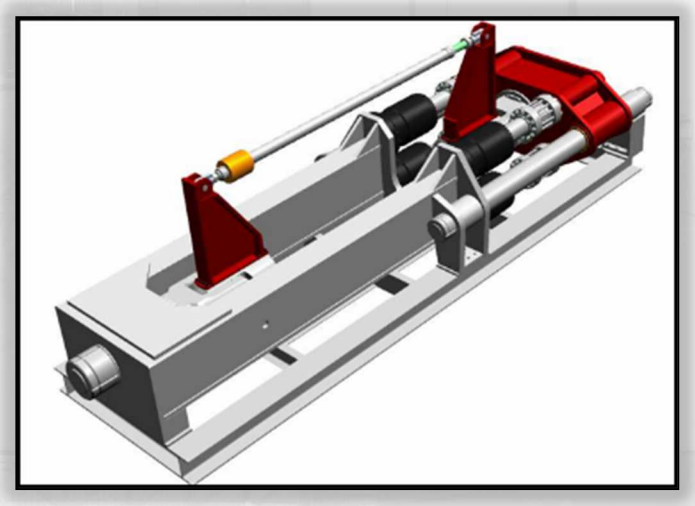
13 MN (1300 TON) FULL SCALE TESTING MACHINE

FURTHER FEATURES

This machine performs tensile, compression and bending tests on steel pipe for gas and oil pipelines.

Feasibility of cyclic tests (max 5 Hz).

Feasibility of tests with pressurized (internal or external) pipe.



TECHNICAL FEATURES

Max compression force:	**10 MN**
Max tensile force:	**13 MN**
Max bending:	**30 ton / m**
Max pipe diameter:	**14” (356 mm)**
Max pipe length:	**2000 mm**

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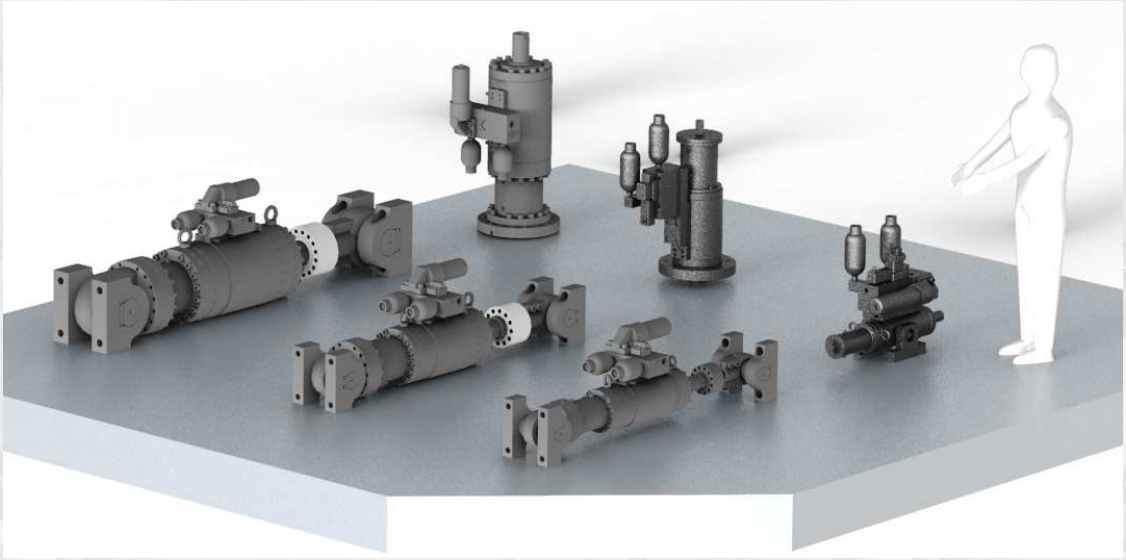

We are designers and manufacturers of a wide range of hydraulic power and cylinders with high-performance

HYDRAULIC POWER UNITS (HPU):
flow from 20 to 500 l / min -pressure operating 210 bar

HYDRAULIC CYLINDERS:
Static and dynamic capacity from 10 to 5000 kN

- Stroke from 20 to 5000 mm

- Performance dynamics up to 4 m/sec.

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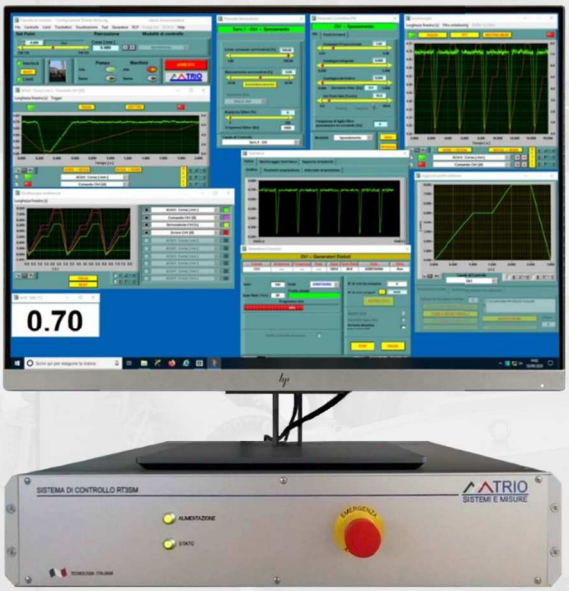
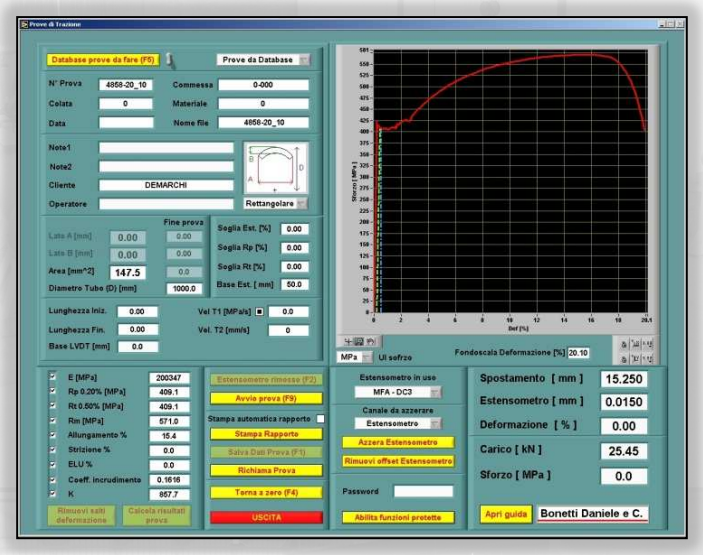
ELECTRONIC CONTROLLER RT3

The Electronic Controller RT3 is the result of a custom design based on the integration of advanced technology components, reliable, easy to find and to replace with the same that the market will offer in the more advanced versions.

It's built on the Real Time National Instrument hardware platform and the software is entirely developed in LabVIEW. In particular, RT3 system is made up by an embedded computer and by one or more acquisition and generation boards that are selected and combined according to the specific features of the final application. The different components are available on the market and are easy to find in case of update or of an improbable failure.



The RT3 control system is managed by an application software that works with a Real-Time operating system (working in deterministic mode without the inconvenient of the latency times caused by Windows environment) and is interfaced by an Ethernet link with a normal PC in a Windows environment, where reside application software developed with LabVIEW for the system management, the user interface, the configurations database, the data acquisition and operator front-end.



Into the RT3 system there are the electronic modules for the transducer conditioning, the drive of the servo valves and the management of the hydraulic devices.

According to these ideas and considering the versatility of his software, the system will maintain its value and its actuality in the years to satisfy the growing future operative needs. The particular initial configuration of RT3 can be upgraded to increase the number of control and acquisition channels to build complex testing devices.

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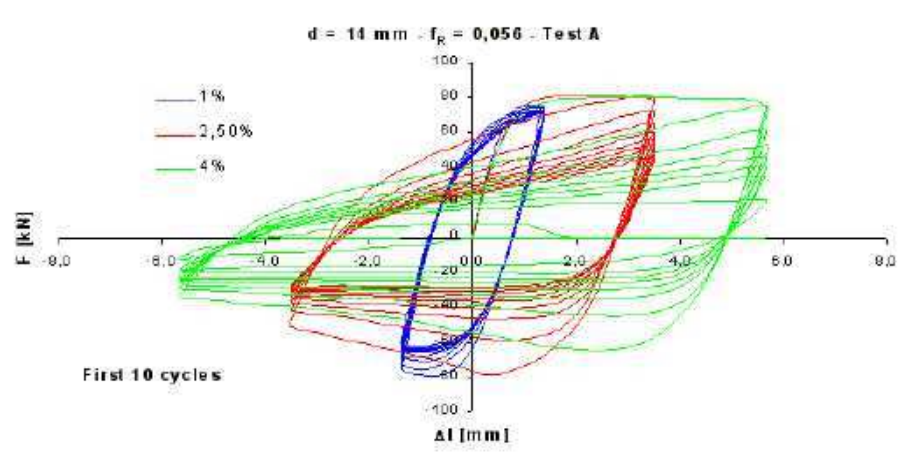

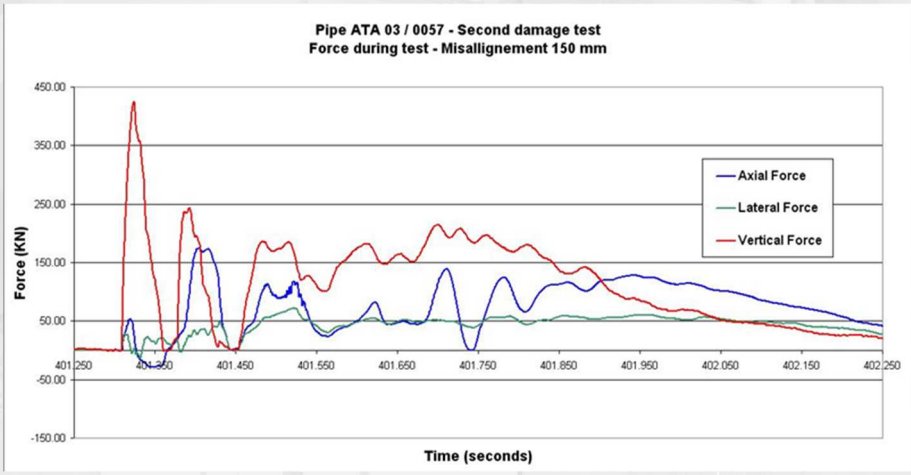

Features:

- Real Time National Instrument hardware platform
- software developed in LabVIEW in Windows environment
- Acquisition and generation boards with a resolution of 16 bits (18 bits optional).
- Flexible configuration for more control channels according to the selected hardware (from 1 to 4).
- 32 acquisition channels (optionally expandable)
- Add on software for specific testing request
- Control of hydraulic and/or electromechanical testing systems
- Automated start-up and shut-down sequences
- Continuous data acquisition with high response real-time graphics
- Integrated safety system

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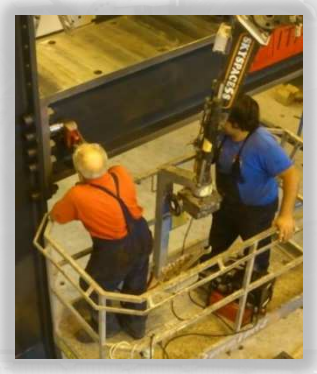
SERVICES

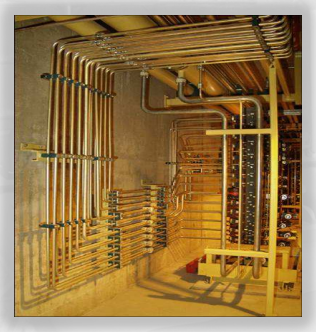
Global service

Assembly of mounting hydraulic pipe and **testing** of the system plan.
Verification of the general conditions acceptable for correct use of the operations of **Internal and external cleaning of the tank** and shift of hydraulic oil with replacement filter elements and control and charging of accumulators.
Revision of the servo valves and spare parts.
Check and calibration high and low pressure.



After Sales Service

One of our major strengths is the ability to **provide "turnkey" systems**.
After sales service is an integrant part of co-operation process with Italsigma.
Our team, made of experts in mechanics, hydraulic and electronics **ensure that the installation is totally available**.



Scheduled maintenance

Scheduled preventive maintenance is the key to obtain high productivity.
It significantly reduces cost and machine downtime, ensure reliability and prolongs the life of part, system and installations.

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***REFERENCES*: Universities - Industries - Research Centers**

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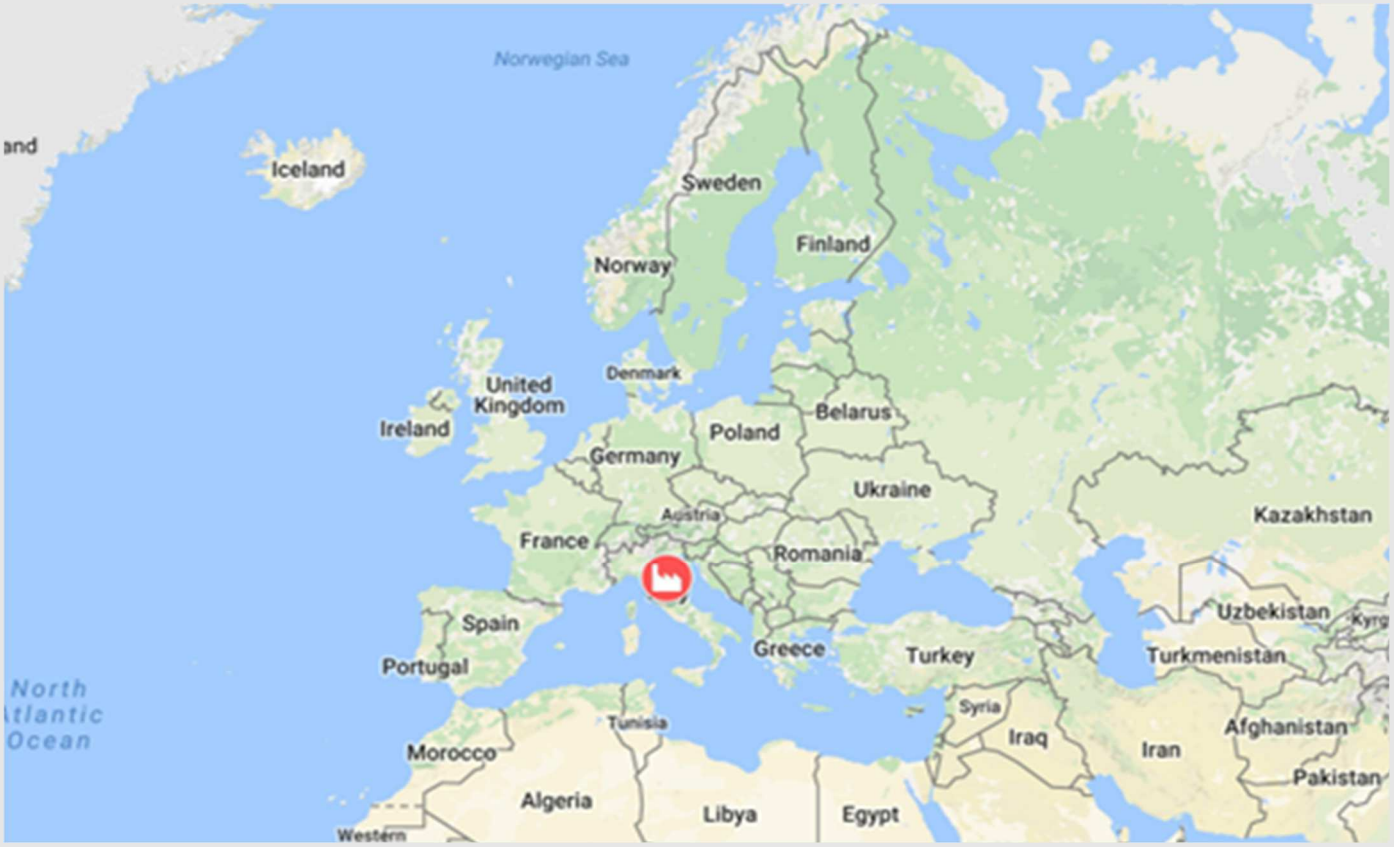

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