



S O L U T I O N S • S E R V I C E S • P L U M B I N G





“Creative energy”

There are often many ways to overcome an obstacle, and it takes a certain degree of skill to identify the best way to do so. Sometimes, however, there is no way to overcome an obstacle, and that is where imagination comes in useful.



The simplicity of a snowflake conceals complex designs and circuits



SYSTEMS ENGINEERING



We have designed and implemented all sorts of systems; from antennas on 50m tall pylons to geothermal probes that reach down 300 metres underground, as well as biogas digesters, lacustrian underwater electricity power cables, vegetable oil cogeneration power stations and induced wind power generators.

We have always made functionality a priority.

PROJECT PLANS

- Technical and economic feasibility studies
- Development of preliminary, definitive and implementation plans
- Detailed estimates and price analysis
- Implementation-ready project plans
- As-built drawings and maintenance manuals

MANAGEMENT OF WORKS

TESTING

- Testing procedures
- Quantity surveying
- Project plan checks

AUTHORISATION PROCEDURES

- Legislative Decree 387
- Italian VIA, SIA and AIA checks for Environmental Impact Evaluation, Environmental Impact Studies and Integrated Environmental Authorisation respectively
- GSE (Italian State Energy Company) procedures
- Building permits, Authorisation of Power Plants
- Energy Certification



"If it ain't on there it can't break"

Henry Ford



RENEWABLE SOURCES OF ENERGY

Saving energy is the best form of "green energy". Efficiency and the recycling of wasted energy follow suit. Renewable energy sources do not justify waste.

- **THERMAL RES**
 - Solid and liquid biomass CHP cogeneration
 - Solar heating and cooling
 - Heat pumps
 - Low enthalpy geothermal energy
 - Hydrothermal energy
 - Aero-thermal energy
- **ELECTRICAL RES**
 - Wave motion
 - Biomass
 - Wind
 - Hydroelectric
 - Photovoltaic
- **ENERGY EFFICIENCY**
 - Recycling of wasted energy
 - Second stages
 - District heating
 - Diagnostics, management and control
- **GRID CONNECTIONS**
 - Aerial and underground low/medium/high voltage cabling
 - Lacustrian underwater electric power cabling
 - Transformer and measurement substations

"Whatever you can imagine, nature has already created"
Albert Einstein



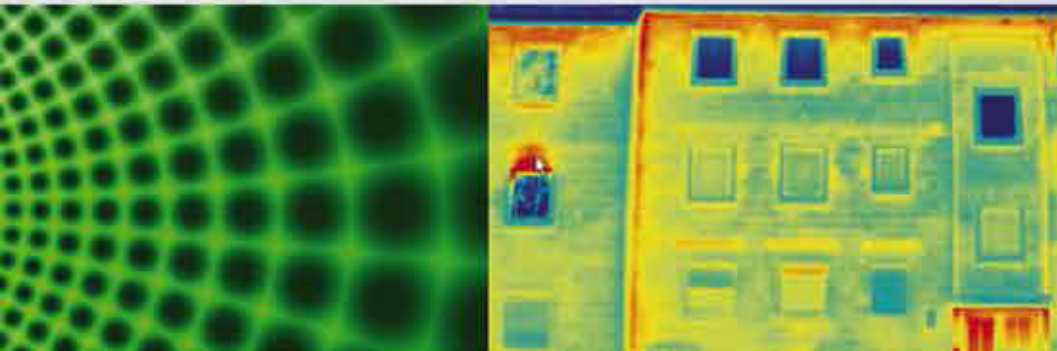


MEASUREMENT, TESTING AND MONITORING



In order to transform a good project plan into a good system you must ascertain its foundations, check its functionalities and measure its performance.

- Electromagnetic field measurement
- Electrical insulation measurement
- Measurement of earth potential at Electricity Substations
- Pressure testing
- Hydraulic flow testing and measurement
- Execution of GRT (TRT) on geothermal probes
- Temperature measurement
- Heat measurement
- Measurement of light intensity
- Pyranometric measurement
- Topographic measurements and more



"Measure whatever is measurable, and make measurable what is not so"

Galileo Galilei



MATERIALS AND EQUIPMENT

Supply of materials and equipment supported by project planning and installation experience. Sale, rental and servicing of instruments and equipment used for performance testing of systems and buildings.

■ GEOTHERMAL APPLICATIONS

- Geothermal probes and accessories
- Collectors and distributors
- Filler mortar with improved thermal conductivity

■ EQUIPMENT

- Geothermal testing instrumentation
- Roller conveyors and unwinding apparatus for the installation of thermal probes

■ AIR CONDITIONING

- Air cooled and water cooled heat pumps and chillers
- Floor, wall and ceiling radiation systems for heating and cooling
- Thermostatic control

*"Each tool requires experience to be made.
And each tool has to be used with the experience that gave rise to it"*

Leonardo Da Vinci



Examples from nature are our inspiration. When we study them we see the light



RESEARCH & DEVELOPMENT



It is not just competition but also passion that induces Mechanikoi to dedicate much of its resources to the development of innovative ideas to improve technology and, above all, to make it more readily accessible to all.

■ THE “GEOGERT 2.0” PROJECT

Automatic and interconnected instrumentation system for thermal and mechanical testing of deep geothermal probes

■ THE “C.E.N.T.R.I.C.” PROJECT

Intelligent controller for the optimized hybrid management of thermo-climatic systems for renewable and traditional sources of energy

■ THE “TRACCE DI MALTA” PROJECT

Mortar preparation techniques and surveying instrumentation for testing the continuity of cemented contact for deep geothermal probes

■ THE “T-feg” PROJECT

Piston driven energy piles

■ THE “ECO-boat” PROJECT

Miniature wireless instrumentation for tracking the progress of the process of cementing vertical geothermal probes during installation



“Keep on sowing your seeds, for you never know which will grow”

Albert Einstein



ENERGY CONSULTING AND ARCHITECTURAL SOLUTIONS

A comfortable living area is the result of the good work of an architect and the excellent work of an engineer. We have always paid attention to the comfort that utility systems can provide to homes and working environments.

- Thermal modelling of buildings
- Finite-element analysis and simulation of thermal systems and special refrigerators
- Energy certification
- Consulting service for LEED certification
- Consulting service for BREEAM certification
- Consulting service for certification in any environmental energy protocol
- Checking and optimisation of industrial thermal processes
- Studies for the pursuit of energy efficiency and attainment of Italian Energy Efficiency "White certificates" (TEE)



"Anything one man can imagine, other men can make real"

Jules Verne





SKILLS



"It may also happen that you write some things that are really botched and futile (and this happens often) but you don't realise it, which is very possible, because paper is too tolerant a material. You can write any enormous amount on it, and it never complains: it is not like the wooden support structures in mines that creek when overloaded."

Primo Levi - The Monkey's Wrench

- Project Designer on-the-job training in building sites
- An interface between Project Planning and construction that enables concrete and applicable financial estimates
- Transversal skills
- "Turnkey" projects
- "More for less" methodology oriented



"The engineering phase is the first half of the project, but it is only by implementing a similar project that you can start to work as an engineer."

Riccardo Delmastro - in a job interview with a young engineer



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