



A GLOBAL LEADER IN
INDUCTION TECHNOLOGY
AND APPLICATIONS



INDUSTRY 4.0
READY

SAET EMMEDI

SINCE 1966 SAET EMMEDI HAS BEEN ON A MISSION TO PROVIDE **CUTTING-EDGE INDUCTION HEATING SOLUTIONS** THAT EMPOWER INDUSTRIES TO OPTIMIZE EFFICIENCY, ENHANCE PRECISION, AND FOSTER SUSTAINABILITY.

We are committed to delivering innovative, high-performance technologies that meet the evolving needs of our global customers, while upholding the highest standards of quality, reliability, and environmental responsibility. Saet Emmedi's history is defined by pioneering solutions, from early innovations to global expansion in India, China, and the US.

Founded in Turin, we are globally recognized as an Italian company of excellence in the induction field. With innovation as our heartbeat, **we provide a wide range of induction processes, including mass heating applications, tube and pipe products, and engineered heat treat solutions.**

As a leader in tailor-made induction heating solutions, we continue to shape the future of this technology.

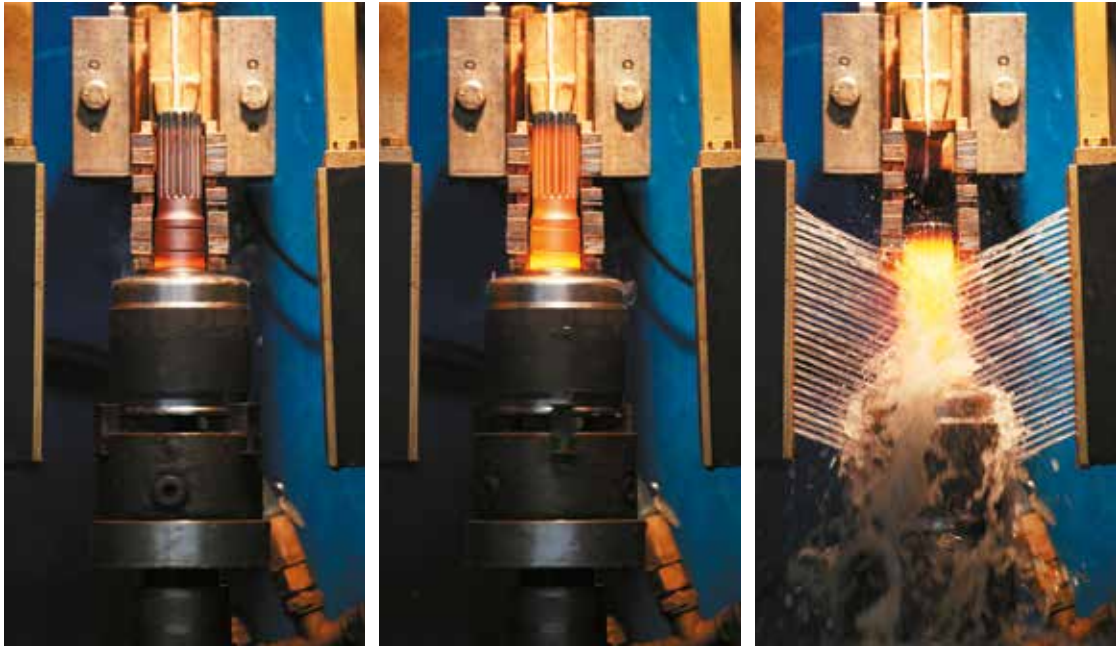
AT SAET EMMEDI, WE PROVIDE A UNIQUE COMBINATION OF **STANDARDIZED AND CUSTOMIZED MACHINES**, DRIVEN BY THE VERSATILITY OF INDUCTION TECHNOLOGY, AND AN ADVANCED, **FLEXIBLE RANGE OF POWER SUPPLIES** TO ENSURE THE RIGHT POWER SYSTEM FOR EVERY APPLICATION.

Our dedicated r&d department designs equipment tailored to meet the unique needs of our customers while remaining at the forefront of technological advancement. Combining **metallurgical expertise with a state-of-the-art process development lab**, we push the boundaries of possibility through **comprehensive inductor development** and the pioneering of **new processes for innovative solutions**.



This is why Saet Emmedi is the strategic partner to all major players in the **automotive, wind energy, construction machinery, agriculture, aerospace, tube, and steel industries.**

We provide comprehensive induction solutions for heat treating, brazing, and heating of bars, billets, pipes, tubes, and flat products for a wide range of applications.



INDUCTION IS



FAST - By generating heat directly within the workpiece, induction heating bypasses the slow process of conduction and thermal inertia. This translates to significantly faster process times and improved throughput.



PRECISE - With precisely tuned frequency, power, and inductor geometry, induction heating targets specific workpiece areas with exceptional accuracy. This fully automated and software-controlled process guarantees stable and repeatable results, delivering the perfect thermal profile for desired hardening or relieving.



GREEN - Induction technology offers a fast and efficient path to significant primary energy savings, thereby reducing CO₂ emissions. Its clean and safe operation, compared to traditional thermo-chemical treatments, further benefits both people and the environment.

ONE TECHNOLOGY, MANY APPLICATIONS



Wind Energy



Automotive



Construction Machinery



Aerospace



Steel industry



Industrial Heating

INDUCTION TECHNOLOGY OFFERS A VERSATILE SOLUTION FOR A WIDE RANGE OF HEATING PROCESSES DEMANDING RELIABLE, FAST, AND EFFICIENT PRODUCTIVITY.

By precisely controlling parameters like power, frequency, and heating time, induction heating ensures repeatability and accuracy at every stage. Its adaptability extends to parts of varying shapes and sizes, from millimeters to substantial diameters and thicknesses, serving diverse applications.



AUTOMOTIVE

DRIVELINE COMPONENTS

MORE THAN 300 MACHINES
MANUFACTURED SINCE 1979

Saet is a strategic supplier for all major players of this industry segment with a long consolidated experience on the treatment of the different driveline components. Saet tailored machines are able to grant ambitious productivity level with very short cycle time together with highest level of flexibility and easy maintenance according to actual market trends. The extensive metallurgical know-how and the continuous innovation carried out with our



customers allows to push hardening and tempering process to their limits: it results in very short heating time, minimal part deformation and precise control of metallurgical structure of security components. Machine handling configurations go from linear transfer system to rotary tables up to stand alone and robotic cells.



STEERING COMPONENTS

REALIZED MORE THAN 200 PROJECTS

We are able to carry out all types of hardening process: induction and conduction hardening as well as teeth or backside process hardening. Saet has developed an high expertise in steering components induction heat processes. Processes included scanning of rack teeth, pinion, ball screw and barrel, using stand alone or robotics cells.

HUB AND SPINDLE BEARINGS

150 EQUIPMENT DELIVERED
WORLDWIDE

A unique experience in hardening and tempering of Hub and Spindle wheel bearings with machines installed worldwide in very demanding productivity conditions (production rate: 8-40 sec/part).

Specific coil design allows us to obtain particular heating and cooling treatment process that provides a perfect hardening pattern and the management of tempering process permits to reach high homogeneity of temperature in the part.

Machine configuration: rotary tables, stand alone and robotic cells.

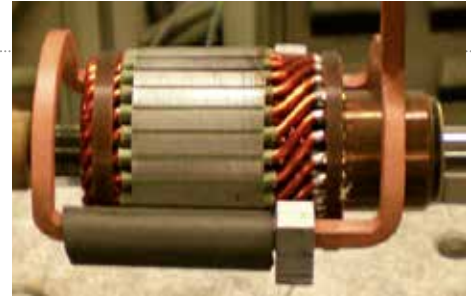


CRANKSHAFT, CAMSHAFT AND ENGINE COMPONENTS

OVER 70 INSTALLATIONS
FOR ADVANCE HARDENING
PROCESS APPLIED
TO COMPONENTS IN MOTION

Today's engines are important users of induction heating process. From top to bottom, most of the component in motion are hardened by induction. Valve, crankshaft, camshaft, flywheel, balancing shaft are among the components needing advanced hardening process. In particular Saet experience in crankshaft application has evolved towards the shuttle configuration with a high degree of flexibility, in parallel to the traditional transfer solution. Our innovation effort has led to several patents concerning contactless technology in order to reduce the deformation of the piece, improving the engine's performance.





INDUCTION SOLUTIONS IN THE ELECTRIC VEHICLES WORLD

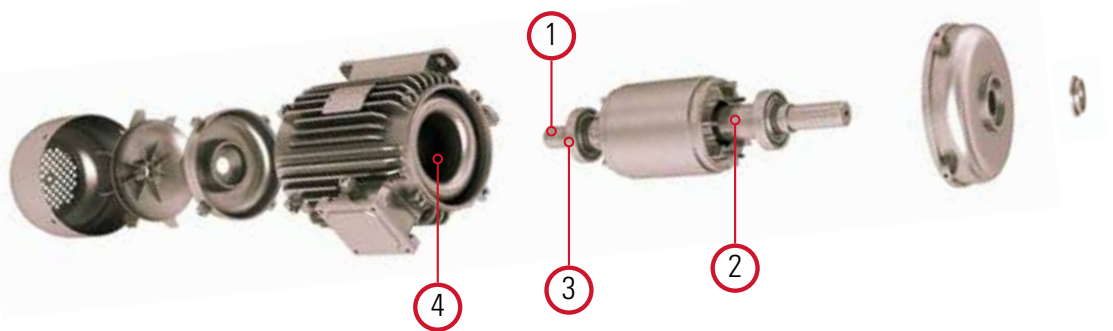
THE WORLD OF ELECTRICAL VEHICLE (EV) IS EVER CHANGING WHICH MAKES INDUCTION THE BEST CHOICE FOR HEATING NEEDS

Many electrical products, of any size, like electric motor generators, pumps, transformers, starters and alternators can be treated with induction heating.

Saet Emmedi and AjaxTOCCO Magnethermic have become an important partner in the electrical vehicle (EV) world, by collaborating with major EV OEM's to design and manufacture cutting edge induction systems for heat treatment and heating of EV components.

The advanced Saet Emmedi and AjaxTOCCO Magnethermic technology will assist in keeping EV production on the forefront of manufacturing today. Multiple machines are currently being manufactured and commissioned with other on-going tests in the Saet Emmedi and AjaxTOCCO Magnethermic state-of-the-art metallurgical laboratory, utilizing the most up to date technology.

1. Hardening of stator shaft
2. Shrink-fitting of rotor
3. Shrink-fitting of various components
4. Brazing of conductors



INDUCTION HEATING BENEFITS:

- Fully controlled processes
- Production flexibility
- Safe and clean environment
- Direct & Homogeneous heating
- Traceable production
- No overheating
- Temperature control



WIND ENERGY

ROLLER BEARINGS / SLEWING BEARINGS

OVER 100 TAILOR-MADE
EQUIPMENT REALIZED WORLDWIDE

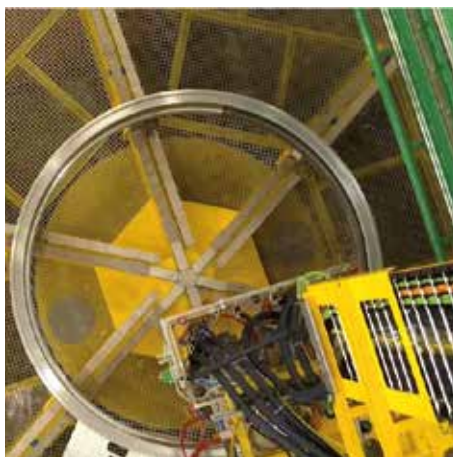
For more than 20 years Saet has developed highly recognized expertise in large gear and slewing ring hardening solutions with and without soft zone.

The continuous research in the sector with many patents filed has led to the cutting-edge seamless technology with 4 heating heads.

A widespread range of applications has been industrialized over the years with vertical and horizontal scanning machine configuration both for tracks and gears up to a part diameter of 8 meters.

Saet has also pioneered high power single shot hardening machines up to 2500 mm diameter and 2500kW power.

A new tailored tracking system is apt to keep constant the air gap with the inductor while the relevant scanning speed achievable allows a perfect fulfillment of the customers' hardening profile requirements.





CONSTRUCTION MACHINERY

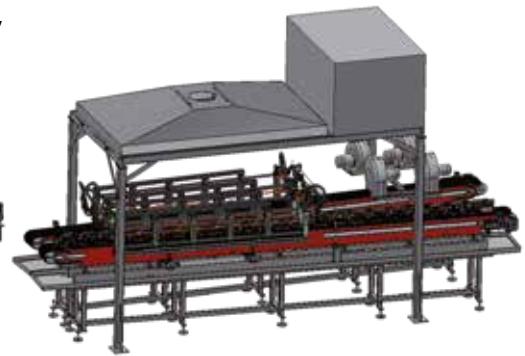
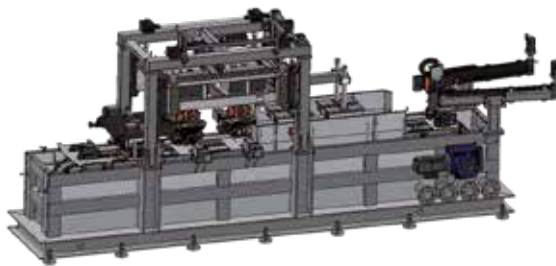
OVER 400 INNOVATIVE SOLUTIONS REFERRING THE UNDERCARRIAGE FIELD

The construction machinery is a very demanding segment where machine flexibility is a must, since production rate can range from very low to very high output.

We deliver high customized machines depending on the customers needs.

Within undercarriage sector our equipments might treat pins, rollers, bushing, sprocket (single shot hardening up to 1200 mm diameter), idler, tracklink.

New process innovations led us improving important features on the machines, among which, the automatic regulation of inductors positioning in order to maintain the air gap constant without caring of the specific tolerance of the working piece.





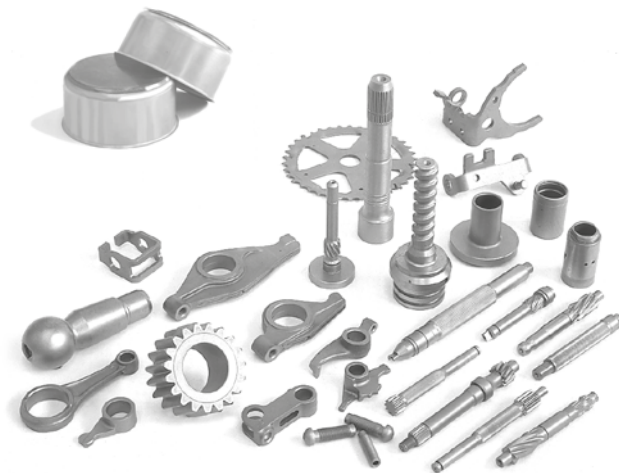
INDUSTRIAL HEATING APPLICATIONS

Induction technology is a highly versatile and efficient heating solution, adaptable to a wide range of applications. At Saet Emmedi, we have always prioritized listening to our customers' needs – regardless of their industry – to provide tailor-made solutions that meet their specific requirements.

Our expertise spans from micromechanics to large-scale applications exceeding twenty tons. Each solution is meticulously designed around the specific application, ensuring precision, reliability, and excellence in every machine we build.

Saet Emmedi has developed and manufactured induction heating equipment for a variety of industries, including also:

- **Components for special application devices**
- **Rail transport**
- **Machine tools**
- **Medical devices**
- **Household appliances**
- **Aerospace**
- **Energy production**
- **Oil and gas**



Our heat treatment machines integrate advanced engineering to ensure components are perfectly suited for their intended applications. Whether the process involves hardening, tempering, annealing, or precision control systems, Saet Emmedi provides comprehensive solutions.

Each induction system includes:

- **MF/HF power supply lines**
(capacitors, connection heating heads, and treatment systems)
- **Cooling systems** for electrical components and quenching lines



STEEL INDUSTRY

The steel industry demands high-performance heating solutions to enhance **strength, durability, and efficiency** in manufacturing processes.

With **cutting-edge technology and decades of expertise**, Saet Emmedi is a **trusted partner for the steel industry**, specializing in **induction heating systems** designed to optimize steel processing, reduce energy consumption, and improve product quality.

Saet Emmedi's advanced **induction heating solutions** for the steel industry **enable precise and efficient processing across a range of applications, including mass heating, flat product processing, and tube industry applications.**

These include:

- Induction Melting
- Induction Heating for Forging
- Induction Preheating
- Induction Surface Treatments
- Induction Quench and Temper
- Coating preparation



BRIGHT ANNEALING

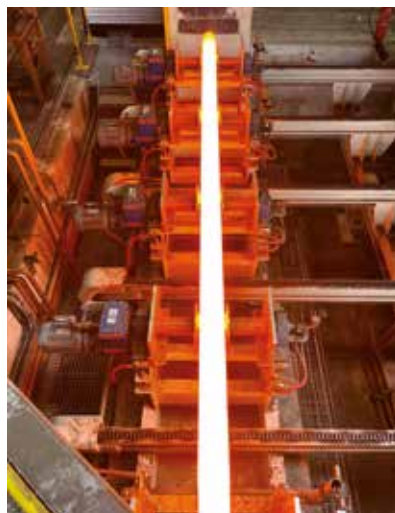


COATING





INDUCTION HEATING FOR FORGING

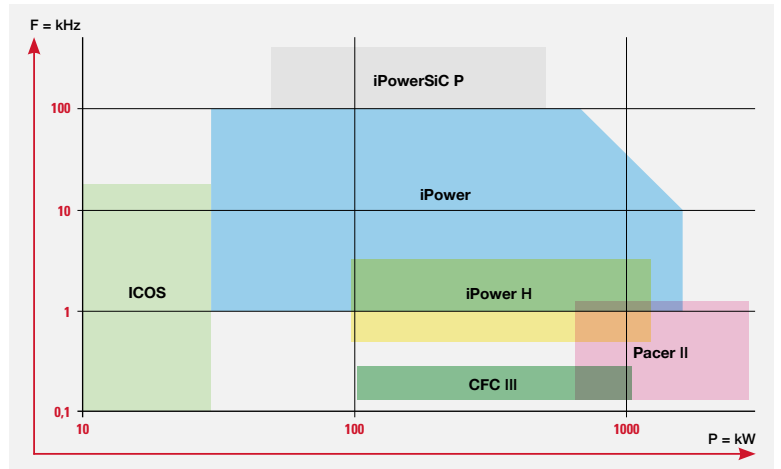


BAR & BILLET INDUCTION HEATING EQUIPMENT

MELTING

POWER SUPPLIES

With nearly 60 years of expertise, Saet Emmedi maximizes the benefits of **Induction Heating**, delivering efficiency, sustainability, and production advantages. If you prioritize **process optimization, energy efficiency, safety, and sustainable manufacturing**, our global team is ready to support you.



THE RIGHT POWER SYSTEM FOR EVERY APPLICATION

A **reliable power supply** is key to effective induction heating. Saet Emmedi's **Induction Power Supplies** go beyond frequency and power – they ensure long-term performance, allowing you to focus on your business.

PARALLEL COMPENSATED POWER SYSTEMS

IPOWER-P / PACER II



HYBRID POWER SYSTEM (LLC)

IPOWER-H



SERIES COMPENSATED POWER SYSTEM

IPOWER-S / ICOS



NON-COMPENSATED POWER SYSTEM

CFC III



PROCESS DEVELOPMENT



SAET EMMEDI PROCESS DEVELOPMENT LABORATORY

OUR METALLURGICAL LABORATORY AND PROCESS DEVELOPMENT DEPARTMENT PROVIDE EXPERTISE IN THE DEVELOPMENT OF INDUCTION HEATING AND HEAT TREATMENT

Saet Emmedi's Laboratory is the core of development, with over 50 years of experience in the design of tailor-made processes based on induction heating. Where engineers test all the variables to obtain the desired heating profile, inductor design, quench system, and recipe.

Saet Emmedi's application engineers, material scientists, and metallurgists bring unparalleled capabilities to process development.

Saet R&D Lab offers:

- Induction process simulation
- Process analysis
- Process development
- Partnership in new process
- R&D contracts
- Inductor Design
- Development Services



The Laboratory can perform prototype heat treatment on parts using the 4 induction heating machines and perform tests utilizing:

- Hardness testers
- Metallography systems
- Microstructure analysis
- Image analyzers
- Specialized instruments
- Cut-off saws
- Radiometric Thermal Imager

The Laboratory is the center of design and innovation with a lab team involved in many activities such as check and verify processes to optimize the solutions and following up with the appropriate tests to verify quality.

The preliminary design is an essential step for choosing the correct way to develop an inductor.



COILS DESIGN AND DEVELOPMENT

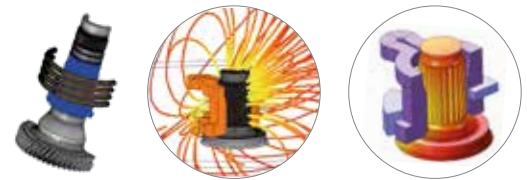
Our company offers full engineering support for an all-inclusive development of your inductors.



Preliminary design to develop the inductor



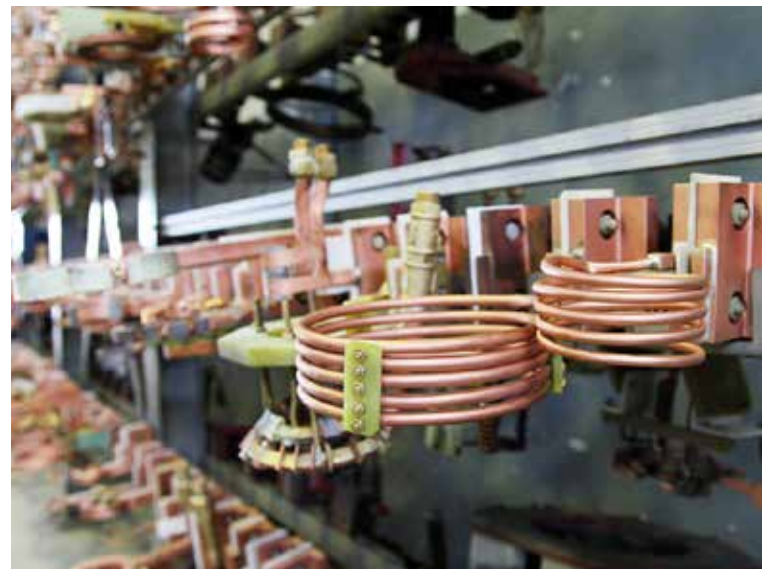
Metallurgical reports with the lab machines' test results.



Virtual approach with electromagnetic simulations.

COILS MANUFACTURING, REPAIR & SPARE PARTS

The indispensable components that make induction heating possible are a harmonious blend of craftsmanship and technical precision.



AFTERMARKET AND CERTIFIED SUPPORTS

SAET EMMEDI IS COMMITTED TO MEETING THE REQUESTS OF EVERY CUSTOMER IN THE WORLD AND TO GIVING ANSWERS TO IMPROVE PERFORMANCE AND RELIABILITY.

STAY IN TOUCH WITH OUR TEAM



globalservicehd@saetemmedi.com

READY TO PROVIDE IMMEDIATE RESPONSE TO OUR CUSTOMERS WITH A FULL RANGE OF SERVICES:



HELP DESK & TELEASSISTANCE



TRAINING COURSES



MAINTENANCE CONTRACT



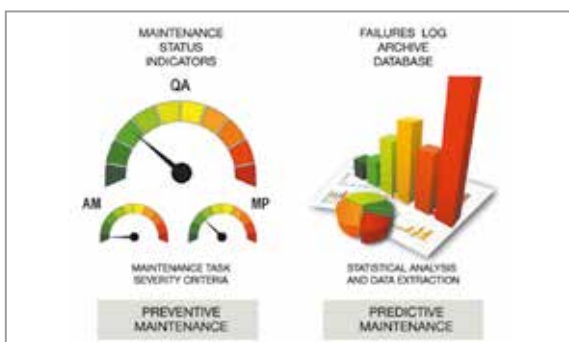
FIELD MODIFICATION & EQUIPMENT RETROFIT



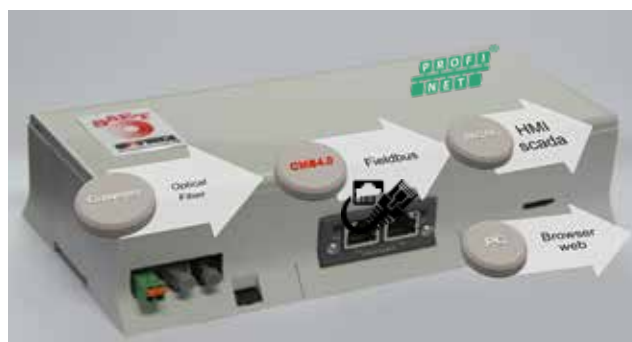
TECHNICAL ASSISTANCE ON SITE



PREVENTIVE PREDICTIVE MAINTENANCE SOFTWARE



CONNECTIVITY AND REMOTE PRODUCTION MANAGEMENT



Worldwide Service

SAET and EMMEDI customers can benefit from the resources of a global corporation.

We provide worldwide assistance through our network of regional sales and service engineers. Our experienced service team is strategically placed for quick response to customers wherever they are located.

Our commitment to customer support means that SAET and EMMEDI are available to deal with emergencies at any location worldwide.



World Headquarters

Leini, Turin (Italy)	39-011-99-77-999
Birmingham (England)	44-121-322-8000
Meckesheim (Germany)	49-6272-9217-500
Valencia (Spain)	34-961-352020
Le Roeulx (Belgium)	32-64-67-37-77
Warren, OH (Usa)	1-330-372-8511
Alberville, AL (Usa)	1-256-279-1200
Wickliffe, OH (Usa)	1-440-833-0386
North Canton, OH (Usa)	1-330-818-8080
Longview, TX (Usa)	1-903-297-2526
Madison Heights, MI (Usa)	1-248-399-8601
Sterling Heights, MI (Usa)	1-586-254-8470
Brookfield, WI (Usa)	1-262-317-5300
Rochester (Usa)	1-585-368-2120
Ajax, Ontario (Canada)	1-905-683-4980
Queretaro (Mexico)	52-44-2221-5415
Cotia (Brazil)	55-11-4617 2710
Shanghai (China)	86-21-3760-1498
Pune (India)	91-20-6634-6100
Tokyo (Japan)	81-3-3647-7661
Seoul (Korea)	82-2-837-0413
Singapore	65-9699-4089

SAET S.p.A • Via Torino, 213 • 10040 Leini (To) Italy
Phone (+39) 011 99.77.999 • Fax (+39) 011 99.74.328

www.saetemmedi.com