

TRANSFORMERS & INDUCTORS 100 Hz - 500 kHz



*Dear Customer,*

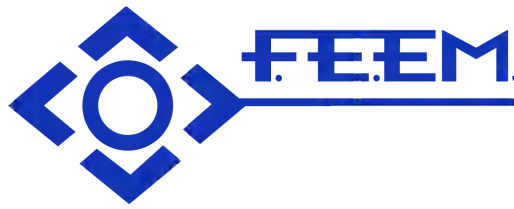
*I founded F.E.E.M. in 1996 after ten years' experience in power electronics, realizing the expressed needs of this market for the production of magnetic components.*

*In subsequent years I have invested in the organization implementing the design department exclusively to electromagnetic components. This choice has made productivity gains by acquiring more and more customers among which the most important companies in the world operating in the sectors: civil and industrial power electronics, automotive, railway, military, naval, renewable energy, electric motors and components.*

*"My philosophy of life is not to give up in front of any goal", the same one that I sent to my company facing new challenges with commitment and professionalism of the market.*

*Benedetto Astelfo*





## **OUR WORK**

We design and produce transformers and inductors operating in power electronics applications at frequencies from 50 Hz to 500 kHz.

## **DESIGN & SERVICES**

F.E.E.M. offers the following services:

- Complete electromagnetic design, prototyping and components production
- Production of custom electromagnetic components based on customer's specification
- Design and production of cabinets related to electromagnetic components
- Electromagnetic products trading

## **ORGANIZATION, QUALITY & COMPANY METHODOLOGY**

Our team checks the technical requirements for the realization of each product from the electromagnetic calculation and the design of the mechanical parts. The business organization is structured according to the ISO certification guidelines, for monitoring the quality and documentation of business processes (from technical department, purchasing, production and commercial and administrative management) to ensure the traceability of components, maximize the effectiveness of each stage in the management of the order.

## **OFFICER R&D**

R & D manager, in accordance to the company philosophy, has matured during last 20 years of collaboration with F.E.E.M. lot of experience thanks to his dedication to work and the masters obtained at KG Magnetics USA directed by Prof. McLyman and others achieved in the USA. The insertion of new engineers has provided a more complete service for every customer request.



## PRODUCTION

We grow with the most common systems, such as KAN-BAN and BUFFER STOCK, adapting them to the needs of each customer.

Headquartered in Varazze (IT) handles all special products, great power items and prototyping.

The plant in Bulgaria manages the production of all small-sized components for massive productions and is connected to our headquarter by raw materials and finished items direct flows.

## COLLABORATIONS

F.E.E.M. actually co-operates with many customers; among the most popular: ABB, DANIELI AUTOMATION, GENERAL ELECTRIC, MITSUBISHI Electric, LEONARDO and ST Microelectronics.

## COMMERCIAL



Our commercial agent are present in:

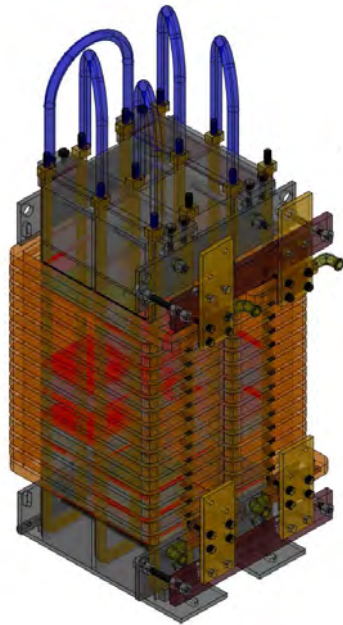
- Italy
- Germany
- Austria
- Switzerland
- Spain
- Portugal
- Poland
- Russia
- Ukraine
- Brasil
- Bulgaria
- France
- Belgium
- Holland



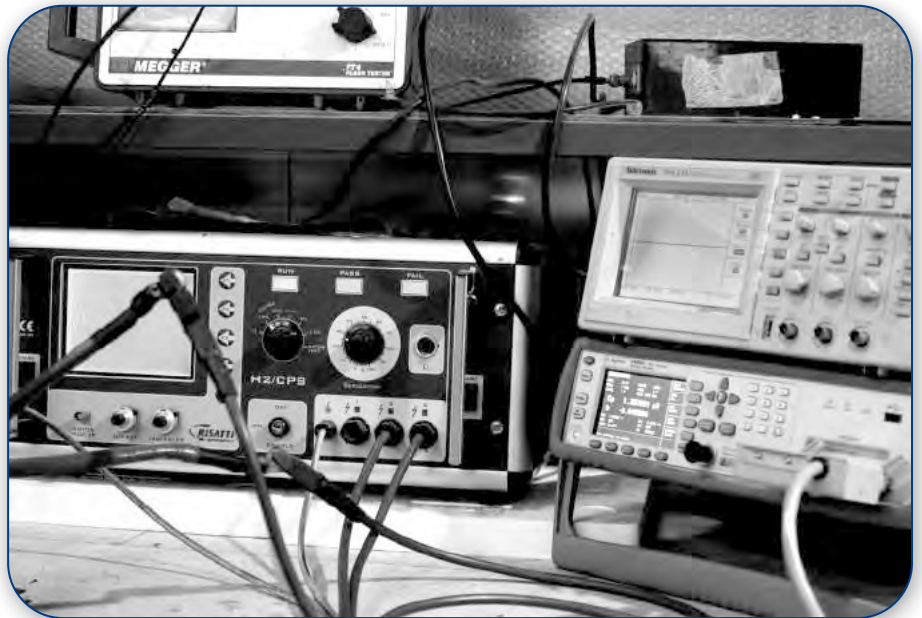




STAFF

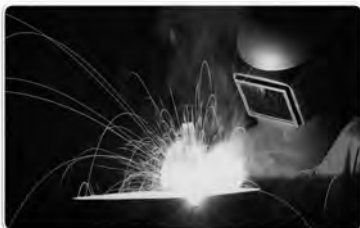


3D modeling



## 3D MODEL & INSTRUMENTS





Welding



Railway



Different industrial sectors



Wind Power



Solar



Power Electronic

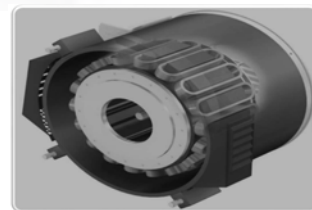
( PCB demo ST. Microelectronics )



Military



Automotive



Brushless Motors

# APPLICATION AREAS



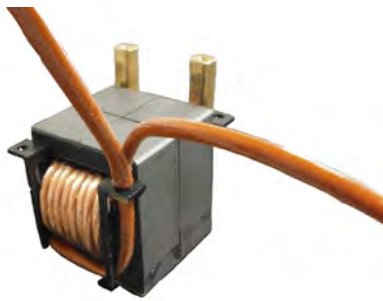


# TRANSFORMERS & INDUCTORS





## TRANSFORMERS



**Power : 5 kW**  
**Frequency : 50 kHz**  
**Application area : Welding**



**Power : 87 kW**  
**Frequency : 10 kHz**  
**Application area : Military**  
**( Service equipment for F-35 Lightning II )**



**Voltage : 10000 V**  
**Frequency : 30 kHz**  
**Application area : Plasma Cutting**



**Power : 6 kW**  
**Frequency : 25 kHz**  
**Application area : Galvanic**



**Power : 2.5 kW**  
**Frequency : 50 kHz**  
**Application area : Welding**



**Power : 8 kW**  
**Frequency : 70 kHz**  
**Application area : Galvanic**



## TRASFORMERS



Power : 22 kW  
Frequency : 45 kHz  
Application area : Welding



Power : 15 kW  
Frequency : 30 kHz  
Application area : Welding



Power : 20 kW  
Frequency : 40 kHz  
Application area : Welding



Power : 16 kW  
Frequency: 50 kHz  
Application area : Welding



Power : 75 kW  
Frequency : 8 kHz  
Application area : Railway Traction



Power : 115 kW  
Frequency: 50 Hz  
Application area : Military  
( Service equipment for F-35 Lightning II )





## INDUCTORS



Inductance and current: 0.1 mH - 250 A  
Frequency : 20 kHz  
Application area: UPS



Inductance and current: 0.1 mH - 200 A  
Frequency : 20 kHz  
Application area: UPS



Inductance and current: 1 mH - 30  
Frequency : 20 kHz  
Application area : Photovoltaic



Inductance and current: 1 mH - 60 A  
Frequency : 30 kHz  
Application area: Corona treatment



Inductance and current: 0.2 mH - 30 A  
Frequency : 20 kHz  
Application area : Ultrasound



Inductance and current: 3 mH - 300 A  
Frequency : 5 kHz  
Application area: Railway traction





## INDUCTORS



Inductance and current: 0.7 mH - 50 A  
Frequency : 40 kHz  
Application area: Renewable Energy



Inductance and current: 0.15 mH - 40 A  
Frequency : 60 kHz  
Application area : Renewable Energy



Inductance and current: 7 mH - 25 A  
Frequency : 8 kHz ( appl.DC )  
Application area : Battery charger



Inductance and current: 0.2 mH - 100 A  
Frequency : 25 kHz  
Application area : Harmonics Filtering



Inductance and current: 0.08 mH - 100 A  
Frequency: 20 kHz  
Application area : Induction Heating



Inductance and current: 0.5 mH - 200 A  
Frequency : 2 kHz  
Application area: Laboratory



## INDUCTIVE COMPONENTS DESIGN

Power capability up to 5 MW



cooling fluid circuit



### TECHNICAL DATA:

Weight : 700 Kg

Dimensions : 500 x 500 x 1200 mm

Inductance: 200  $\mu$ H

Current: 2000 A ( rms )

Frequency: 500 Hz

Design of mechanical supports

## LIQUID COOLED COMPONENTS DESIGN



## Flat Winding Technique

( \*catalogue available )



( Windings for brushless motors )



## 50 Hz - 400 Hz INDUCTIVE COMPONENTS ( liquid cooled components included )

( \*catalogue available )



## OTHER PRODUCTIONS





[www.feemwindings.com](http://www.feemwindings.com)

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