### **Rail Division**



**Profile** 





### Rail solutions

The development of solutions and systems for the efficient exchange of energy in different sectors, combined with our know-how on rolling stock engineering and rail operations, allow us to offer solutions that allow all parties actively involved in this sector to implement significant improvements. Our solutions and systems are mainly centred on improving aspects that for operators are key factors, like exploitation costs, reliability, availability, maintainability and energy efficiency.



#### **Innovation**

The excellence of our products and services is the reason for our existence, the objective behind our R&D activity, as well as the processes developed by us.

Our management system has been certified compliant with the IRIS and ISO 9001 and 14001 standards.

#### Commitment

In our opinion developing a close relationship with our customers and adapting to their needs are aspects that are fundamental for the success of every project. For this reason our project and procedure management is flexible and adapted to meet all our customers' needs. Our organisation strives to provide a service that will bring us closer to our customers.

#### **Solvency and Experience**

Since its birth, in 1972, the Group's solid and sustained growth has always been based on continuous technological efforts. INGETEAM supplies innovative electrical engineering solutions that satisfy even the most demanding customers, worldwide.

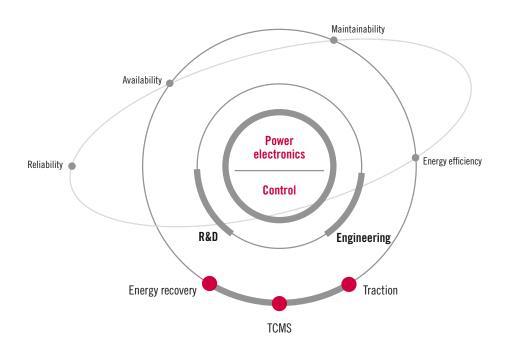






#### **Research & Development**

The strategy of INGETEAM is to continuously invest in research and development in the electrical/technical field. To this end, we count with the support of an expert team that is informed about rail market demands. Moreover, we also have at our disposal one of the best electrical/technical laboratories in Europe. We use the latest technologies available in the market to develop semi-conductors, applied to a broad range of voltage and power ratings. This investment allows us to obtain innovative products, adapted to the needs of the customer and geared towards increasing energy efficiency and reliability, and a significant reduction of operating costs. In the control area, the TCMS systems developed have been incorporated to some of the most advanced projects in the rail market.





#### **Engineering**

Our vocation is to work side-by-side with our customers, from the beginning of the project, by contributing with out experience in analysing the performance of the systems, starting with the original system in the case of renovations, until a final optimal solution is attained, from the standpoint of performance and costs.

Throughout this process, all the simulations required to guarantee the correct specification of all the embedded electrical components, traction system, control, auxiliary supply, communications, signalling, safety and control are carried out to integrate said systems in the train's engineering.



Internationalization is a vehicle for future progress. At present we have production and commercial establishments in more than 10 countries.

# Some references



PESA
Traction converters and auxiliaries for the ELF family.



Traction converters, auxiliaries and TCMS for High Speed.



METRO BILBAO INGEBER energy recovery system: 5 units.



MOBIEL
INGEBER energy recovery systems: 2 units.

# Ingeteam