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EDITORIAL

THE SPANISH RAILWAYS SECTOR: PROVEN EXPERIENCE ON MAJOR INFRASTRUCTURE PROJECTS WORLDWIDE

Mr José Luis Ábalos Meco, Minister of Public Works.

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REPORT

THE SPANISH RAILWAY INDUSTRY CONOUERS THE WORLD

The extensive experience acquired during the implementation of one of the most modern and extensive rail networks in the world has opened the doors to its industry in more than 90 countries.

HIGH SPEED, TECHNOLOGY AND KNOW-HOW THAT CROSSES BORDERS

The spanish railway industry is present in the five flagship projects of recent times.

URBAN RAIL TRANSPORT: NETWORKS BEARING THE SPANISH HALLMARK

Spain appears as one of the main suppliers of state-of-the-art suburban and light rail networks.

INFRASTRUCTURES: TECHNICAL EXPERIENCE THAT OVERCOMES MAJOR CHALLENGES

The solid professional knowledge acquired by the Spanish sector can be seen in its international renown.

SPANISH INDUSTRY, TOP OF THE TREE FOR TECHNOLOGICAL RAILWAY ACHIEVEMENTS

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MEMEBER'S DIRECTORY

MANAGEMENT: MAFEX.

MAFEX COMMUNICATION COMMITTEE: Albatros, Alstom Transporte, ArcelorMittal, Bombardier España, CAF Signalling, Idom, Indra Sistemas, Ingeteam, La Farga Yourcoopersolutions, Patentes Talgo, Siemens España, Thales España and Stadler Rail Valencia S.A.U. ADMINISTRATION: comunicacion@mafex.es. ADVERTISING: comunicacion@mafex.es. SUBSCRIPTIONS: comunicacion@mafex.es. Mafex magazine is not responsible for the opinions, images, texts and works of authors and readers that will be legally responsible for their content. It is understood that the signing authors have given their consent to be included, for which he or she will be responsible. Also, the magazine is not responsible for typographical errors contained in the original documents submitted by the authors.

THE SPANISH RAILWAYS SECTOR:

Proven experience on major infrastructure projects worldwide

MR JOSÉ LUIS ÁBALOS MECO, MINISTER OF PUBLIC WORKS



n recent decades, Spanish transport infrastructures have been the focus of substantial recapitalisation through sizeable and ongoing investment. The investment efforts made in this type of infrastructures had allowed for the transformation of our entrepreneurial sector, placing to the fore of the world market. Specifically, in the railway sector, Spain stands out in terms of design, civil works, signalling, safe and efficient management of rail traffic, the supply of rolling stock, operations

and maintenance. An example of the foregoing, in High-Speed Rail, Spain has the most extensive European network (with more than 3,000 km of track in service) stressing the value of a highly competitive, majorly professional and wholly integrated industrial fabric, with companies present throughout the entire railways' value chain.

Spanish companies in the sector are present in more than ninety countries, offering highly innovative solutions, with the highest standards in

terms of quality and safety, as well as respect for the environment.

On one hand, the entry into force of Law 39/2003, on the Railway Sector, incorporating directives from the first and second railway package, contributed to Spain's modernisation of its railway management model on the part of publicly run state companies, entrusted with both the management of the infrastructures, as well as the provision of transport services. Following the entry into force in all of Europe for the 4th Railway Package,

the market will be opened to new operators in 2020. For 2018 the forecast railway investment for carrying out tasks will exceed 4 billion euros (48% of the total volume of investment in infrastructure), which provides a clear example of the weighting this sector has in our country.

Furthermore, European aid programmes must be added, including the recently announced CEF Regulations (Connecting Europe Facility) for the period 2021-2027. In this Regulation, the expansion of the European corridors of the basic transport network is included, amongst which routes in corridors such as the Mediterranean and Atlantic appear, which run through Spain. To complement this Regulation, work is being carried out on the inclusion of some of the connections in the Mediterranean Corridor that have not been included in said Regulation, such as the Valencia-Zaragoza connection which we consider of the utmost importance.

Other lines of action that we are going to tackle with regard to the railways would be the improvement of regional rail systems (Radial Nuclei in Barcelona, Girona and Tarragona, Madrid, Cantabria, Asturias, the Community of Valencia and Basque Country, amongst others), the improvements necessary for conventional rail services along the line Madrid-Extremadura and the boosting of rail freight transport with improvement actions aimed at access to ports and terminals.

On the other hand, to adapt to the European directives relating to the release of the railway sector, a modification was made to the Railway Regulations, facilitating the opening

"The Ministry of Public Works develops and will continue to develop a series of actions geared towards providing support for Spanish companies operating abroad"



"Spain has a highly competitive, majorly professional and wholly integrated industrial fabric, with companies present throughout the entire railways' value chain"

to competition on passenger transport lines required for 2020.

The Ministry of Public Works develops and will continue to develop a series of actions geared towards providing support for Spanish com-

panies operating abroad. The aims that are pursued are the creation of a technological, innovative and entrepreneurial image of Spain in the sector and taking advantage of the comprehensive capability of the Spanish trade offer, thus bolstering Spanish international positioning.

The infrastructures sector will also undergo an overhaul in the coming years, and with this, opportunities will be presented both for governments, as well as companies in the sector. It is for this reason that from the Ministry of Public Works we wish to facilitate Spanish companies' pro-

MAFEX 5

4 MAFEX

gress, already leaders in the sector, by combining efforts that allow for the further strengthening of its international positioning. Furthermore, the incorporation of innovation in the sector by strengthening investment in knowledge and fostering the development of new sustainable economies, creating economic growth and employment, is another of the fundamental pillars to enhance this development.

Innotrans

For the eighth consecutive year, the Spanish Railways Association, MAFEX, coordinates the Official Spanish Pavilion in the trade fair Innotrans. In this new edition, the increased exposure on a worldwide level of the railway sector will take place in Berlin from the 18th to 21st of September this year and will

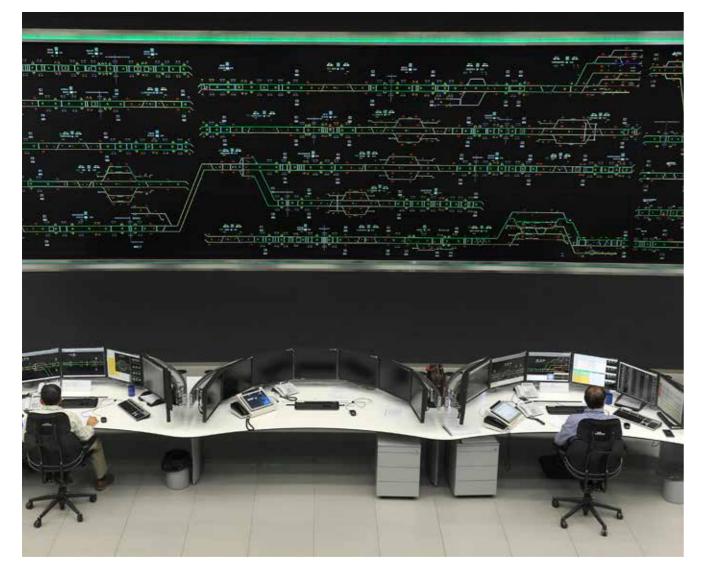
"During Innotrans, Spanish solutions arose the greatest interest due to the advancements on display, as well as its proven track-record in large-scale railway projects the world over"

boast the attendance of more than 55 Spanish firms, alongside Adif and Renfe providing support and offering a showcase for the industry nationwide.

In the 2016 event, 137,391 professionals from 119 different countries took part in an event in which they found out more about the 2,995 exhibitor stands from 60 countries showing innovations in the global

rail offer. Of all of these, the Spanish solutions arose the greatest interest due to the advancements on display, as well as its proven track-record in large-scale railway projects the world over.

This new edition promises to reach record attendance figures, making the same an ideal showcase for Spanish ability in the sphere of the railways.





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At Ingeteam, we apply the concept i+c to every project we undertake – innovation to find the best solution and commitment to provide the best service.

We strive towards on offering in-house/state-of-the-art developments for **rolling stock** (Traction & Control Systems) and **infrastructure** (Energy Recovery Systems) and we aim to become the preferred technological partner for our customers: cooperation goes from conception and business case to beyond implementation, and our innovation and commitment is shown from project definition, through the study, design and engineering phases to ensure a successful turn-key supply of the complete solution.

The formula of the new energy i+c



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The Spanish railway industry conquers the world

THE EXTENSIVE EXPERIENCE **ACQUIRED DURING THE** IMPLEMENTATION OF ONE OF THE MOST MODERN AND EXTENSIVE RAIL NETWORKS IN THE WORLD HAS OPENED THE DOORS TO ITS INDUSTRY IN MORE THAN 90 COUNTRIES.

he Spanish rail network is one of the most extensive and modern in the world. It integrates 3,200 high-speed kilometres and metro lines in the main cities: Barcelona, Bilbao, Madrid, Malaga, Palma de Mallorca, Seville and Valencia. These are joined by innovative light rail and tram systems in eleven other capitals (Alicante, Barcelona, Bilbao, Granada, Jaen, Madrid, Murcia, Parla, Seville, Tenerife, Valencia, Vitoria and Zaragoza) as well as a complete national service of medium

8 MAFEX

and suburban distances. In addition, it has one of the most advanced train fleets in the world, is at the forefront of ERTMS (1,900 kilometres) and has HIGH SPEED Ahead in high speed with 3,200 kilometres, only METRO 7 cities with metropolitan rail networks and 13 RECORD European record in terms of ERTMS: 1,900 kilometre. AUTOMATED LINE Lhe most extensive automated line in Europe (L9 of Barcelona Metro).

PROJECTS BY COUNTRY managed to overcome numerous engineering challenges. The construction of these avantgarde systems and their implementation process count on the latest

IMPLEMENTATION OF SPANISH COMPANIES IN THE WORLD

North America South America 50 63 Europe Africa 24 Asia 41 Oceania 3

advances in all fields (rolling stock, signalling, telecommunications, tic-

SPANISH RAILWAY NETWORK, AMONG THE MOST EXTENSIVE AND MODERN

MAFEX 9

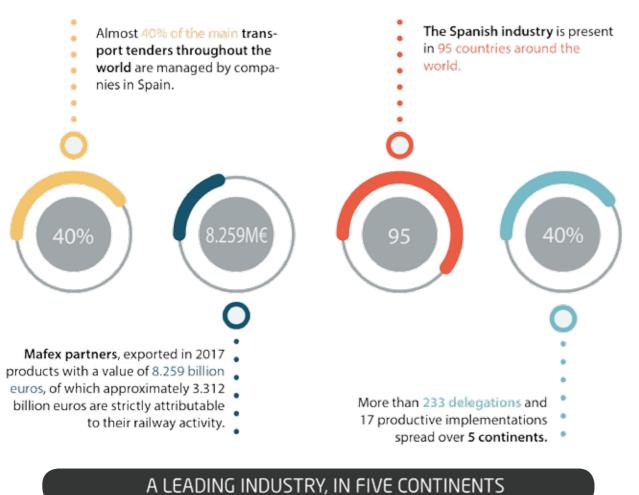
keting, etc.) and have incorporated into the market their own technological developments.

The industry has developed solid know-how that is now demanded in countries spread over the five continents. Indeed almost 40% of the world's major transport concessions are managed by Spanish firms who already boast a presence in more than 95 countries.

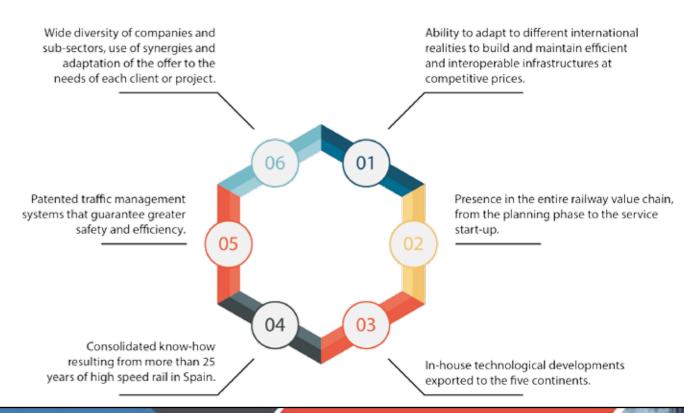
In recent years, the country has become a global technological power, it is a benchmark in the sector and endowed with clear supremacy in the commissioning of new lines and the updating of existing ones.

All this through the work of a highly competitive and professional and widely integrated industrial fabric. Their companies are present throughout the railway value chain, from the planning stage to the commissioning. §





KEY CHARACTERISTICS OF SPANISH RAILWAY COMPANIES





High speed, technology know-how that crosses borders

SPAIN INTEGRATES ONE OF THE MOST COMPETITIVE OFFERS IN THE WORLD IN HIGH-SPEED PROJECTS, WHICH **ENCOMPASSES THE WHOLE** VALUE CHAIN: FROM THE DESIGN, TO THE RUNNING OF THE NETWORK, APPLICATION OF NEW TECHNOLOGIES AND MANUFACTURE OF MODERN ROLLING STOCK. ITS INDUSTRY IS PRESENT IN THE FIVE FLAGSHIP PROJECTS OF RECENT TIMES.

pain has an advanced highspeed network with more than 3.000 kilometres in service, thus making it the second largest in the world solely after China. This backing over time of high-speed rail has served to place our country at the forefront in this field and export its deep-rooted technical knowledge. Proof of this is the constant visits of foreign delegations with the aim of finding out more about the national rail system and its operation.

It has also successfully exported its own developments, such as the Da-Vinci system for the management of railway traffic, one of the most advanced in the world, which is already operational in Lithuania and Morocco, amongst other countries. Another important stride forward is the advances in automatic width change system of track, of significant interest to countries like Russia; as well as the development of new



Tashkent-Samarkand

The first high-speed train in Central Asia

Talgo has built the units of this network. A project in which the traction division of Ingeteam has collaborated on, herein supplying the equipment in four tractor units of this section, as well as the control electronics.

The Afrosiyob service links Tashkent with Samarkand, in Uzbekistan, using several Talgo 250 units designed to run on Russian track width.

United Kingdom

The Spanish industry is present

in the design, engineering and

implementation of the largest

current European infrastructure

project (531 km with speeds of

preparatory work for the

Participating companies: Ferrovial, Ineco and Sener.

up to 350 km / h)



Ankara-Istanbul

Three Spanish companies INECO, OHL and CAF participate in the first high-speed line in Turkey: Ankara-Istanbul.



Follo Line

The largest railway project in Norway, which includes the two longest railway tunnels in Scandinavia.

Spanish companies such as ACCIONA, OHL and Elecnor form part of the project.

Oslo

(Airport Express)

The new high-speed trains for the Oslo-airport line belong to the Oaris family manufactured by CAF.



Spain-France

Madrid-Barcelona-Lyon-**Paris**

Renfe operates the Madrid-Barcelona-Lyon-Paris corridor together with the French public operator, SNCF, with trains from both companies.



Rome-Naples

Construction that involved more than 400 km of single track, 50 mobile detours, four stations and the laying of 184 km of track. More than 13% of the route takes place through a tunnel.

The Spanish company COMSA was responsible for these works.

Milan-Naples

First experiment in the world with injections to consolidate the earth compensating with guided drilling along a curved line.

Spanish companies such as ACCIONA are involved in this project.

Spain is a leader in the implementation and development of this European interoperability system, whose installation covers a length of about 1,900 kilometres of its network.

DID YOU KNOW THESE FACTS?



Adif has developed a fully Spanish catenary under the name



The eight major high-speed projects of recent times in the world bear a Spanish stamp.



Infrastructure manager Adif has received, in the last four years alone, 375 visits from different foreign delegations with the aim of finding out more about the national rail system and its



The Spanish industry has introduced in the world market two platforms of high speed of last generation: Oaris and Avril.



Spanish high-speed technology is successfully implemented in all markets: Saudi Arabia, Great Britain, Turkey, United States; Egypt or India, amongst others.



Spain comprises one of the most competitive offers in the world in term's of High-Speed rail projects.

width or "third lane", the creation of an entirely Spanish catenary under the name C-350, or the high-speed platforms AVRIL manufactured by Talgo and Oaris by CAF, which are renowned amongst the most advanced throughout the world.

This experience has enabled the Spanish industry to take its place at the fore of the most important highspeed initiatives of the moment such as the project Mecca-Medina, one

of the most important infrastructure projects in the Arab world in recent decades; the Berlin-Moscow railway corridor, which runs on two different track widths; the first high-speed network in California, which is also the most ambitious infrastructure programme in the US, the high speed line between Ankara and Istanbul and the Marmaray Tunnel, built under the Bosporus, amongst numerous other examples. •

technologies linked to the mixed

12 MAFEX



Saudi Arabia

Mecca-Medina

This is the most important tender awarded to Spanish companies, for a value of around 6,500 million euros.

Companies: Adif, Renfe and Ineco, and private OHL, Indra, Cobra (ACS), Consultrans, Copasa, Imathia, Dimetronic, Inabensa and Talgo. All these firms account for 88% of the winning consortium, which is completed by two local firms, Al Shoula and Al Rosan.



United States

High-Speed California

The United States relies on Spanish companies for high speed in California, one of the most ambitious infrastructure projects in the country.

ACS and Ferrovial are involved in these

Urban rail transport: Networks bearing the Spanish hallmark

SPAIN APPEARS AS ONE OF THE MAIN SUPPLIERS OF STATE-OF-THE-ART SUBURBAN AND LIGHT RAIL NETWORKS. he implementation of this extensive diversity of urban systems has led to an extremely high degree of excellence.

The combination of cutting-edge technology from Spanish infrastructure companies means that the country also appears as one of the main suppliers in state-of-the-art suburban and light-rail projects. Examples of this are important projects and works of extraordinary technical complexity, such as the Riyadh or Stockholm Metropolitan Railways, which include a deep tunnel in rock under the sea.

EUROPE

FRANCE POMANIA Antalya Light Metro Bucharest Metro Istanbul Metro Brussels Metro GREAT BRITAIN IRELAND Edinburgh Tramway Dublin Metro Birmingham Tramwa ITALY Sheffield Tram-train Rome Metro **ESTONIA** Naples Metro Tallinn Tramway Tramway of Cagliari GERMANY HCELAND Freiburg Tramway Amsterdam Metro Rostock Light Rail SWEDEN Karlsruhe Light Rail Stockholm tramway Chemnitz Tram-train DENMARK FINLAND Odense Tramway Helsinki Automatic Metropolitan Copenhagen Metro PORTUGAL NORWAY Lisbon Tramway Oslo Tramwa CZECH REPUBLIC GEORGIA Prague Metro Tbilisi Metro **GEORGIA** HUNGARY Thlisi Metro Debrecen Tramway GRECIA POLAND Athens Metro Warsaw Metropolitan HUNGARY TURKEY Szeged Tram-train Antalya Light Metro

AFRICA AND THE MIDDLE EAST

Ankara Metro

Istanbul Metro

ALGERIA
Oran Tramway
Algiers Metro
ARABIA SAUDÍ
Mecca Metro
Riyadh Metro

UNITED ARAB EMIRATES Dubai Metro MAURITIUS Mauritius Tramway QATAR Doha Metro

AUSTRIA

Gmunden Tramway

AUSTRALIA

AUSTRALIA Sidney Tramway Newcastle Tramway Canberra Tramway Melbourne Metro

NEW ZEALAND Auckland Regional Rail Network



35% of the Metropolitan Railways in the main cities of the Latin American continent have Spanish technology, such as Santlago de Chile, Lima, Mexico City, Monterrey, Panama, Medellin, Sao Paulo, Bogota, etc.



Spanish companies have manufactured the first trams without catenaries implanted in several Brazilian and European cities.

GLOBAL SOLUTIONS DEMANDED INTERNATIONALLY

The most demanding markets in the world, including Germany and Austria, Scandinavia and the United Kingdom boast Spanish trams and tram-trains.



Spanish construction companies have won contracts for the development of Metropolitan Railway projects around the world worth around 21 billion euros in recent years.

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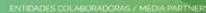


















SUCCESSFUL PROJECTS OVER THE FIVE CONTINENTS

Infrastructures:

technical experience that overcomes major challenges

THE SOLID PROFESSIONAL KNOWLEDGE ACQUIRED BY THE SPANISH SECTOR CAN BE SEEN IN ITS INTERNATIONAL RENOWN.

he ability to build and maintain interoperable infrastructures, provide traffic management systems with maximum guarantees in safety and efficiency, at very competitive prices, means that Spanish industry has an increasingly significant weighting. Its leadership is evident, for example, in the major metropolitan railway works of recent times (Riyadh, Doha, Lima, Panama). Also, rolling stock has been developed with state-of-the-art trains, with modular and flexible designs that are adapted to the specific needs of each network and operator.

All this is joined by the significant contributions in terms of energy efficiency as energy recovery systems,

which have made catenary-free rail traffic possible, or train-tram systems, specially designed to link urban centres and nearby towns with units that also take advantage of the commuter networks. Figures published also indicate its outstanding position. 35% of metropolitan railway networks in South America and 25% of European networks feature Spanish technology.

All these milestones have made the railway administrators request the support of Spanish companies as top-level consultants and technical advisors to successfully meet the new challenges presented by providing the best and most modern solutions. 6

SOME EMBLEMATIC INFRASTRUCTURES RESULTING FROM SPANISH INDUSTRY WITZERLAND St. Gotthard Tunnel The most complex underground project in the world boasted Spanish experience in a section of its construction. STATES

The East Side Access

Excavation of four tunnels in two levels and coating of two caverns. Recipient of awards due to its exceptionality and for performing under extreme geological and logistic conditions in urban areas.

UNITED

Marmaray Project

Premier underground connection in the world between continents.

Haramain Project

This was the greatest technological challenge in the history of railways: to provide a fleet of trains capable of traveling at more than 300 km / h in a hostile environment.

Crossrail

The Spanish construction companies awarded the largest tunnel under London that links it by train to Heathrow Airport.

MEXICO

Interurban train Toluca-Mexico City

Important transportation project will serve 230 thousand passengers a day. It will have a total length of 57.7 kilometres and feature 6

UNITED

HS₂

Spanish engineering firms behind civils packages.

AUSTRALIA

North West Rail Link

Includes two twin tunnels of 15.5 km in length, the longest railway tunnels in

Electrification Ghaziabad-Moradabad

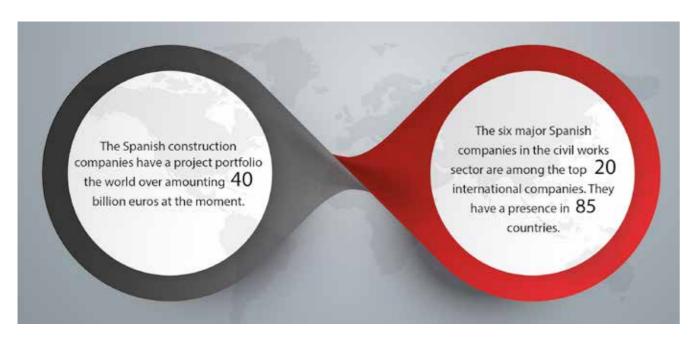
Design, supply, execution and commissioning of the electrification of 140km of double track, 25kV ca.

..........



California High Speed Rail Project

The California High-Speed Rail Authority (CHSRA) has awarded contracts to Spanish engineering firms for the development of engineering services.



Spanish companies are at the fore with regard to design and construction of major railway tunnels

> The San Gotardo, located in the Swiss Alps, is the longest (57 km) and deepest in the world.



Spanish industry, top of the tree for technological railway achievements

panish companies have become a favoured railway partner due to their multiple qualities. Their extensive technical knowledge, the highly qualified nature of their experts, as well as the working synergy of the multidisciplinary teams, are present in the planning, design and implementation of numerous transport systems.

These achievements have been possible thanks to the major investments in R & D. State-of-the-art technology results in significant and constant progress in terms of environmental management, interoperability, system automation, accessibility, user comfort and safety.

The numerous developments that this industry has incorporated into international projects has allowed for many countries to boast cutting edge railway networks.

Innovative braking energy recovery system.

INGERER SYSTEM

Debut ATO applications on ETCS Level 2 on the Mexico-Toluca commuter line (Mexico).

AUTOMATIC TRAIN DRIVING An innovation "made in Asturia to withstand heavy freight traffic.

HARDENED HEAD

RAILWAY SYSTEM DEVELOPMENTS

GREENTECH ENERGY

Accumulation systems allow for stemary-free circulation and the energy baking recovery, reducing the invironmental impact in the cities and contributing to a non-polluting rail transport. DETECTION OF FALLING
OBJECTS IN THE INFRASTRUCTURE
BASED ON FIRRE OPTIC TECHNOLOGY

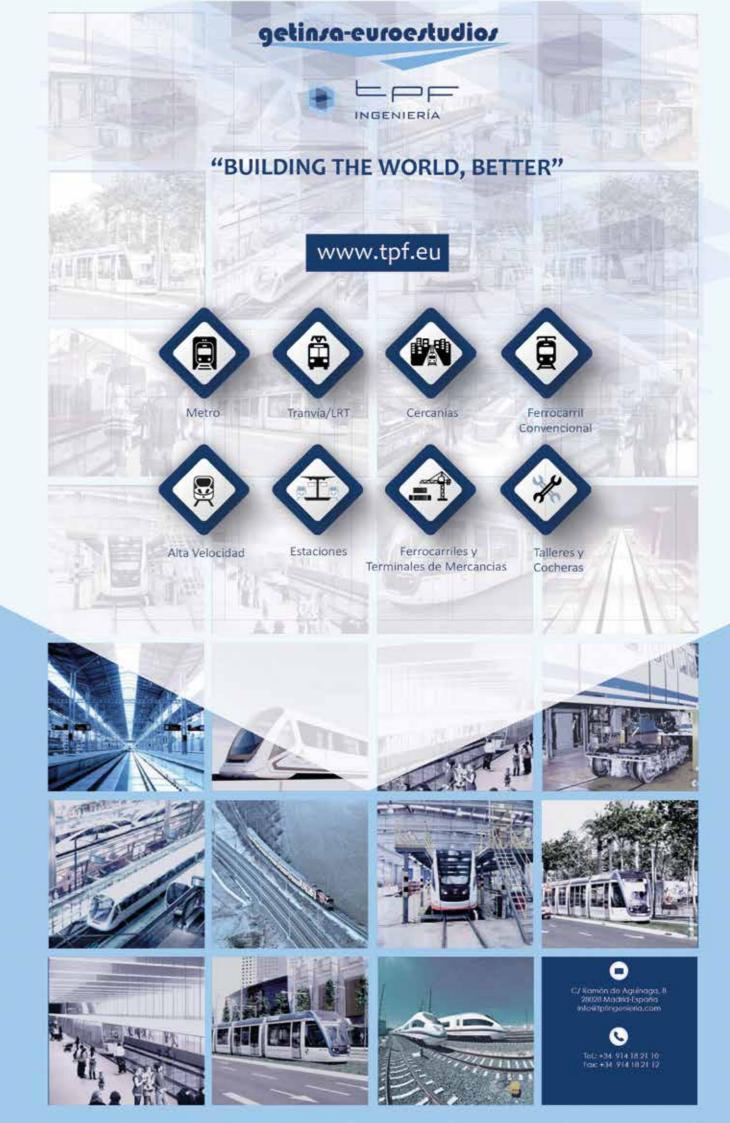
thly reliable development and with low maintenance cost. SIDE WIND DETECTOR SYSTEM TO IMPROVE RAIL TRAFFIC

Adif has worked with Sener, Cobra, Logytel, Thales, CAF Señalización and Indra to develop this technology. "COPERNICUS" SYSTEM

Exclusive and emblematic computer application to know ne status of the train fleet in rea time.

▶ Some Spanish technological developments regarding high speed rail

TECHNOLOGY	DESCRIPTION
DaVinci system	Global reference platform for the management of high-speed rail traffic and other networks. Implemented in Morocco, Lithuania,
Ferrolinera®	Improves the energy efficiency of the railway sector by recovering braking energy from trains for the recharging of electric cars.
Aerotraviesa	New design of sleeper for high speed that minimises the effects of the phenomenon called "ballast lift".
Railway Technologies Centre	With the creation of the CTF, the position of the Spanish railway system is reinforced as a benchmark for the European and global technological vanguard.
New generation of AV4 detours	Developed in Joint Venture with Fabrides in line with ADIF requirements.
"Telphe" Technology	Created by Telice, it prevents road needles from freezing due to the cold.
Solutions for gauge width change	CAF and Talgo. Innovations that allow rail vehicles to adapt to any track width.
Very high speed train AVRIL (Talgo)	Integration of significant advantages in the field of energy efficiency and the use of advanced materials. Reaching 380 kilometres per hour as a maximum travelling speed.
Oaris high speed platform (CAF)	Advanced concept of high-speed train that responds to the challenge of railway interoperability.
New train-tram transport solutions:	Units provide service on tram lines in the city and connect with other urban centres taking advantage of the local infrastructure.
Diesel Locomotives	Development of first passenger diesel locomotives operating at 200 km / hour worldwide.



Ferrocarrils de la Generalitat Valenciana upgrades and expands its network

THE PUBLIC COMPANY OF THE REGIONAL GOVERNMENT OF VALENCIA RESUMES THE LINE 10 METROVALENCIA. WORKS. THE NEW ACTIONS HAVE ADOPTED THE 2017-2023 UNIVERSAL ACCESSIBILITY PLAN OF THE PUBLIC COMPANY.

errocarils de la Generalitat
Valenciana (FGV) maintains as its primary objectives
the continuance of the upgrading
and expansion of the Metrovalencia and TRAM d'Alacant (Alicante
Metropolitan TRAM) operations.
Likewise, adopting as a reference
benchmark for its actions the implementation of the 2017-2023
Universal Accessibility Plan presented by the Regional Government's
public company last year.

The large-scale projects in this term will help upgrade the connection between Benidorm and Dénia of Line 9 of the TRAM d'Alacant (Alicante Metropolitan TRAM), and will undertake the execution of Metrovalencia Line 10, which will connect the town centre of the capital with the maritime neighbourhood of Natzaret.

Furthermore, FGV's new Universal Accessibility Plan is the framework which stipulates, orders and promo-





tes all the initiatives that the company undertakes in order to meet the requirements of the organisations which represent groups with physical or mental limitations. These are organisations have taken part in the drafting of this document. The proposed measures are modelled on the principles of equality, dignity, increased autonomy, comfort and safety for people.

Commencement of Line 10 works

Following the award of technical assistance contract for the drafting of the studies and projects of Metrovalencia Line 10, FGV will be able to resume in 2019 the construction of this line, whose construction works have been suspended since 2011. The route, between the centrally located street of Alicante and Natzaret, which will run through a top tourist destination such as the City of Arts and Sciences, and the Oceanogràfic Valencia ("The Oceanographic" oceanarium).

The President of the Valencian Regional Government, Ximo Puig, recently announced that the Valencian Government had mobilised the Line 10 situation with an initial investment of 50 million Euros, of which 30 million Euros will be contributed by the Regional Government and 20 million Euros coming from the European

Union, through the 2014-2020 Operational Programme of the European Regional Development Fund (ERDF) of the Valencian Community.

TRAM d'Alacant (Alicante Metropolitan TRAM) Line 9 Actions

Line 9 of the TRAM d'Alacant (Alicante Metropolitan TRAM), in particular the section between Benidorm and Dénia, plays a pivotal role for public transport in a coastal area with high tourist potential.

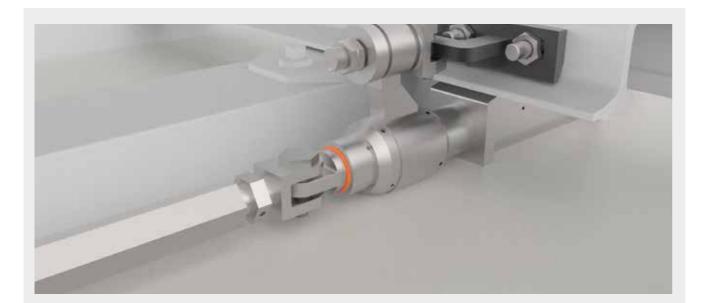
FGV is currently addressing several actions, such as track renovation, retrofitting of bridges and embankments, rolling stock improvements, improvement to security, communications and energy facilities, as well as the tram-train line project for the access gate to the city of Dénia.

Following the renovation of the route between Calp and Teulada, the route to Dénia will be executed in 2019. From among the initiatives underway or planned, the Valencian Regional Government's investment in this TRAM d'Alacant (Alicante Metropolitan TRAM) line exceeds 120 million Euros. FGV awarded to Stadler Rail Valencia, with registered office in Albuixech, the construction of six mixed trains (electric and diesel) to cover Line 9 traffic, for an amount of 43.3 million Euros.



NEW PRODUCTS AND TECHNOLOGIES

MAFEX'S PARTNERS DISPLAY THEIR INNOVATIONS AT INNOTRANS



Amurrio innovates in the components of its railway turnouts

AMURRIO

A roller locking device that hardly requires maintenance throughout its life cycle. This is CRBM, the roller locking device with watertight mechanism developed entirely in Amurrio. Sealed against water or dirt, CRBM internal parts roll or slide on antifriction materials, reducing the need for lubrication. It can be installed by only one person, and does not require holes in the rail. It is adaptable to all track widths and blocks both the tongue attached as the open.

A fixation designed specifically for use in turnouts, which significantly facilitates installation and reduces costs. These are the innovations of Amurrio Ferrocarril y Equipos, one of the international leaders in the manufacture of manganese steel crossings (Mn12 / 14%) and in the manufacture, installation and maintenance of turnouts for high speed, conventional, metro, tram and heavy haul railway paths all over the world

New rails calculation tool Available now for download in your app store

rails arcelormittal.com



ArcelorMittal is extending its 4.0 transformation with several digital tools

ARCELORMITTAL

ArcelorMittal Rails & Special Sections launched the Rail Tool App in continuation of the permanent evolution in the rail sector.

Available now in stores, allows rail key players to:

- get interactive information regar-

ding standards and profiles for different rail product typology.

- calculate length or tonnage for different types of railway projects.
- download the dimensional profile drawing for transport, crane, light and tram applications.

Website rails.arcelormittal.com, was revamped to make it more productsoriented, more responsive and to offer an improved visitor experience. Available in English, Spanish and Polish, is now enriched with three new landing pages in French, Portuguese and German.

Also, an interactive and three-dimensional tour was added; it features a realistic digital walkthrough of ArcelorMittal's rail facilities, the R&D Centre and the port, that can even be visualised in 3D using cardboard glasses.



Variable gauge OGI Axles for freight

AZVI

In order to solve the problem of breaks of gauge between the different railway networks in rail freight, the consortium composed by Azvi, Tria and Ogi, as well as Adif, has developed an automatic variable gauge system made up of variable gauge axles and a gauge changeover facility

The Variable-gauge Axle homologation process set out by the Spanish ETH standard is being verified and certificated by Bureau Veritas, the en-

publishing the evaluation report. Currently, the OGI axles have successfully completed Laboratory Tests

and On-Track Tests, as well as the 100,000 km in Phase I and II of the In-Service Tests set out in the standard, and they will obtain the provisional Technical Approval for commercial operation.



Leadmind, caf digital train

CAF LeadMind Platform provides a new generation of connected trains and more competitive services to operators and maintainers of the railway industry through the collection, storage, processing and advanced analytics to support real time decision making and advance towards condi-

LeadMind:

1. Provides a modular, open and scalable product, customizable according to client's needs.

tion based / predictive maintenance.

- 2. Delivers insights in a friendly format and a powerful tool to ease the decision making process.
- 3. Increase efficiency in operation and maintenance (reducing LCC, improving fleet availability and root cause analysis, reduction of repeated failures...)



- 4. Eliminates black-boxes by mixing all the data of the railway ecosystem.
- 5. Complies with modern Cybersecurity standards.

Projects:

Amsterdam Trams, Flytoget, Brussels Metro, Nothern Arriva, Transpennine Express, NS, Metro Chile, Euskotren, SAR. Trenitalia Locos...

CAF Signalling shows in Innotrans next generation developments regarding signalling

CAF SIGNALLING

Concerning the European Rail Traffic Management System (ERTMS), the company has the comprehensive solution Auriga: ERTMS Level 1 and Level 2. In this edition the ATO (Automatic Train Operation)

solution will be reported with a degree of automation GoA2 based in specifications of ERTMS interoperability. The system is divided in two parts, track ATO, for the automatic regulation of the traffic; and boarded ATO, It includes improvements in performance, expenses and user experience.

In the fair it will be disclosed the product and service family of CAF

Signalling. Among them, the electronic interlocking QUASAR S3e and the solution NAOS for Integrated Control and Multifunctional Centres, along with the most recent development underway for the interoperable CBTC, resulting from the agreement between ETS and Euskotren. The solution will be installed at the end of 2019 on L3 of the Bilbao Metropolitan Railway.



Ceit-IK4 presents **MainRail: solutions** for the management of infrastructure maintenance

CFIT-IK4

MainRail (www.mainrailsolutions. com) is a tool that allows optimizing the costs associated to the management of the railway infrastructure maintenance. It is a modular solution that adapts its functionality to the operator's needs. MainRail is composed by five modules that are fully customizable:

- ASSETS, for the digitization of assets (discrete and lineal) to be maintained
- HEALTH, that integrates the data coming from auscultation devices and other means of inspection, in order to monitor the health status of assets.
- MAINTENANCE, for the management of maintenance operations.



 PREDICT allows evaluating future scenarios based on accurate predictions to assist in the decision making.

• DASHBOARD, with information about the business-relevant indicators for the strategic management of maintenance operations.

> VISIT US Hall 7.2C / Stand 201

www.aquafrisch.com

SOLUTIONS FOR WASH PLANTS AND WATER TREATMENT FOR RAIL DEPOT

TRAINTOILET EXTRACTION (CET) WATER TREATMENT AND RECYCLING

BOGIE WASH PLANTS

TRAIN WASH PLANTS



Aquafrisch

Aguafrisch C/ Ignacio Zuloaga 2 E-28522 Rivas - Vaciamadrid, Spain Tel. +34.91.380.03.33



CETEST technology applied to instrumented wheelsets

CETEST

The wheel-rail contact plays a key role in the vehicle dynamics from the point of view of rolling safety, ride quality, track fatigue, safety against derailment or wheel and rail wear.

Instrumented wheelsets are designed to measure the wheel-rail contact forces. CETEST offers, as a product or test service, its own patented strategy for strain-gauge

based measuring wheelset solution, specially designed to minimize the effects of different sources of uncertainty.

The calibration process appears crucial to assess the accuracy of this measurement system. CETEST decided to develop its own roller test bench for instrumented wheelsets, which allows the independent application of turn, vertical and lateral loads in both wheels.

CETEST instrumented wheelsets have been proven under special environmental conditions, such as ice, sand and extreme temperatures, as well as at high speeds. Tried and tested in all market segments (me-

tros, locomotives, high speed trains, special maintenance vehicles, freight wagons, active tilting technologies, variable gauge, etc.) and across the entire globe.

More than 70 wheelsets have been delivered in the last two years!



DANOBAT has developed a Technology for Smart Wheel Reprofiling

DANOBAT

The company will present its technological development for intelligent wheel machining at the upcoming INNOTRANS fair.
The technology developed by

The technology developed by DANOBAT reduces cycle time, increases the process reliability and safety and extends the life of the

GEMINIS

GR3-W

wheels within railway fleets. The stand will also be dedicated to explain DANOBAT's comprehensive solutions to all manufacturing processes of rolling stock parts. In addition, the company will avail of this opportunity to share its digital value proposition composed of in-house, technological developments based on

industry 4.0. The aim is to advance in the creation of intelligent manufacturing spaces, fitted with interconnected equipment and capable of autonomous operations.

COMSA brings its centenary railway specialization to InnoTrans

COMSA

COMSA will show at InnoTrans its turnkey services offer of construction, industrial engineering and maintenance for high-speed and conventional lines, metros and tramways.

With over 125 years of railway specialization, the company will expose success cases such as its participation in all Spanish high-speed projects, the expansion of the lines 2 and 3 of the Ankara metro (Turkey) and the A, B and C lines of the Dublin tramway (Ireland).



Geminis GR3-W will be presented to the professional public for the first time at InnoTrans 2018

GORATU

Geminis is going to present a wheel hub boring machine at the booth 701 of Hall 22A at the Innotrans. It is going to be the first time that the vertical machine for boring applications is going to be showed at a fair. The GB3-W integrates the last available technologies some of its most important features are: hub boring application specific design, easy to use interface, automatic tool change, wheel hub

measuring system integration, automatic reports generation, hydraulic autocentering chuck.

Geminis machines are specialized in machining of axles, wheelset and wheels. Geminis has a track of more than 60 years supplying highly demanding machining solutions and

service all over the world.

One of our more important characteristic is the customizing capacity

of our solutions. This has been highly considered in the GR3-W design to fulfill all customer needs.

Geminis - Innotrans

Hall 22A- Booth 701

Geminis is the brand of the manufacturer Goratu.

26 MAFEX 27



ICON Multimedia goes to InnoTrans with DENEVA, its intelligent solution at the service of citizen

ICON MUITIMEDIA

With the aim of offering a higher quality of service, security and bet-

ter information for the citizen, DE-NEVA PIS becomes into a Comprehensive Communication System designed, not only for the travellers needs, but also in users as potential service customers, around stations or airports.

ICON Multimedia incorporates its intelligent technology in Digital Signage to keep the passenger's attention more effectively. Its updated DENEVA Digital Signage solution for transport includes wayfinding systems, measurement of audiences that allow to realize specific advertising campaigns, or even more, to take the emotional control of travelers. DENEVA software also allows the use of these systems by third-party

companies, reducing the costs of public infrastructures, and improving the return on investment obtained.

ICON Multimedia will be in Inno-Trans at Hall 22/Booth 704

• To verify the route. It is useful for verifying the correct compliance

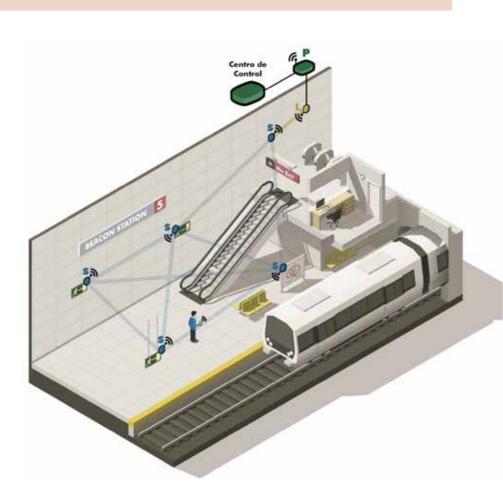
High security thanks to beacon technology

IMPLASER

Implaser has developed an intelligent security systems with beacom technology that we will present at Inno-Trans 2018 in Hall 22 / 704.

The beacons are part of the sign. Through an App that works as an interface between the beacons and the user, new and interesting features like the following can be managed:

- Guide the user. The user is given information of interest about a determined place or about the environment in general.
- To promote an accessible environment. It can provide information to visual or hearing-impaired people to ease their guiding in normal conditions and also in case of emergency.
- Guide in case of emergency. It enables a safer evacuation with the usual signalling. In determined situations, the closer emergency exit could not be the safest.



of the surveillance tour or maintenance routines.



EURODUAL

EURODUAL es más que una locomotora 'last mile'. Ofrece dos soluciones en una. La versátil locomotora puede ser utilizada para el transporte de mercancías y pasajeros a velocidades de hasta 160km/h, tanto en líneas electrificadas como en no-electrificadas. EURODUAL es una locomotora de 6 ejes, con transmisión CA/CA y de bajo peso por eje basada en componentes y subsistemas altamente probados en servicio comercial y diseñada con un alto grado de redundancia para incrementar su disponibilidad. www.stadlerrail.com

INNOTRANS 2018 VISITANOS En Hall: 2.2, 103 Zona exterior: 0/615





Indra promotes the rail interoperability and digitization

INDRA

Indra is presenting its leading solutions for operation management, safety and collection, which incorporate the latest digital technology and the company's innovations.

Its ERTMS technology is more intero-

presence at INNOTRANS

INGETEAM: Bigger

perable, with an RBC system "Open ERTMS" that offers open and standardized interfaces for the control center's signaling and management systems and EVC onboard solutions, which expand their functionality and compatibility with infrastructure systems.

Indra brings the latest generation of smart and secure IoT to the sector with innovative wireless communication-based solutions and develops a new interoperability framework to make it possible to book a trip in different means of transport in Europe in a single click.

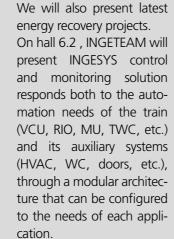
It is presenting too its ticketing systems and its TMS, considered the most advanced rail traffic management platform in the world.

for all kind of rail vehicles.

INGETEAM

The company will show new power basic electronic modules for INGE- TRAC converters and INGESYS so-

INGETEAM will present the High/ Medium / Low power electronic modules for INGETRAC converters



The new modules are designed with most advanced topologies and are being implemented on the latest rail projects.

JEZ presents turnouts and diamond crossings for urban transport vehicles

In the last decade, urban transport vehicles have been introduced in Eu-

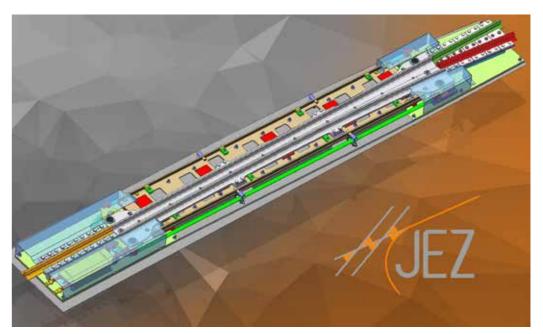
rope with hybrid characteristics between a tram and a bus.

The system consists in vehicles with pneumatic wheels guided through a central rail, and a metallic wheel system that clamp it.

These central guidance systems need track devices, such as turnouts and diamond crossings. JEZ has developed turnouts and diamond crossings for this type of transport systems, integrating in them the switching engine, the

position detection and the heating. The solution developed by JEZ consists of rotary panel with main and branch rail, preferably made of Mn steel, Cam mechanisms at the entrance and exit of switches, with

integrated locking system of the end positions and integration of the switching unit, locking and detection of the electrohydraulic engine UNISTAR HR inside the turnout or the diamond crossing.







The Power of Adaptability























New tool for galley managemenPhone: GMS

Kelox presents at Innotrans 2018 the GMS automatized solution. The galley is a food service area where the crew prepares, heats, and cools meals for passengers. The electrical cabinet is composed of:

- Electrical and communications interfaces
- Electrical protection systems
- Galley Management System (GMS) The main function of GMS is to monitor, control, and perform data storage of all galley functional modules or subsystems.

The GMS is an automatized solution based on a central unit with local I/O and a remote CAN with I/O distributed. The control can be integrated in the train Ethernet network in order to provide maintenance task information. Each user has a customizable profile controlling access and system permissions for the PLC, from locals HMI (touch screen) and

from PC through the web server embedded in the GMS.

The GMS is a Satys designed solution for functional or subsystems modules of the galley/ restaurant areas within the train. Its main features are:

- Comply with Rolling stock standards EN50155 v EN45545-2
- Uses communication buses such as: RS232/485, CAN, MVB, Profibus, Ethernet TCP/IP, TRDP, Ethernet IP, CIP and IPTCOM
- Internal structure is modular configuration with VO signals and interfaces. It allows many different applications
- Multiple I/O modules (digital/analog, output relay, motor control, audio messages, etc.)
- Software compatible with standard IEC61131 and program with C/C++
- Web server embedded for remote diagnostics and monitoring



The GMS advantages are:

Improvements in Predictive Maintenance, RAMS & LCC:

- Status and Performance of all systems and subsystems
- Failure Modes (normal, degraded, emergency)
- Individual system and subsystem operating duration and number of
- -Pressure and temperature of the cooling circuit
- -Tank level status for oil, gas, and wa-

The innovative proposals by **NEM Solutions, at Innotrans NEM SOLUTIONS**

NEM Solutions offers data analysis solutions for the generation of normal machine behavioral diagnostics. In the current Innotrans edition, opt for translating knowledge obtained from raw data into services

With the purpose of implementing predictive maintenance strategies closely linked to technological change, through our A.U. R. A platform NEM Solutions offers its in-depth knowledge of data analysis, as well as its dominant position in the Railway sector. With a customer accompanied service in order to extend the life cycle of train assets, in this way they manage to both improve availability conditions and reduce costs. Definitively, NEM Solutions proposal for creating added value revolves around a customer-focused approach along with the successful implementation of technology facilitates the optimization of maintenance plans.



SEGULA TECNOLOGIAS will present its specialized offer of Augmented Reality at **Innotrans**

SEGULA TENOLOGÍAS

On September 18th, Segula Technologies will attend to the Innotrans event in Hall A. - Stand 403. It is the largest European event in the railway sector, where the French group will present the full range of services, with a special emphasis on Augmented Reality. Currently in the group, the AR is being used in nu-

merous projects for the preview of technical and useful information in design, training, production, use, maintenance and distribution with some of our customers.

The objective is to drastically reduce the time in the productive cycle phases and to benefit from the errors reductions, the greater labor security and foresight. The adoption of methods such as those developed by Segula is part of the digital transformation of the corporate and productive environments of the connected industry.

Segula Technologies, has successfully implemented RA projects in the aeronautical, automotive and energy sectors, and the railroad is the next to be developed.

With this technology, Segula will be able to provide a unique and differential value to the client portfolio, making again a further difference in the sector.







The new generation of Stadler's locomotives. EURODUAL – the universal locomotive

STADLER

Berlin is always worth a visit. At Inno-Trans 2018 Stadler launches 7 innovative vehicles among which includes the new generation of 6-axle locomotives designed and manufactured by Stadler Valencia. The exhibited locomotive will be the EURODUAL for the German operator HVLE that has acquired 10 locomotives of this type. The versatile 6-axle bi-mode EURODUAL locomotive can run on electrified lines with a power of up to 7 MW but also has a 2,800 kW diesel engine to operate on non-electrified lines.

It offers two solutions in one and combines the advantages of both types of traction, diesel and electric. In addition, its incredible performance, efficiency and hauling capability allows to transport longer and heavier trains with a single machine.

The EURODUAL is the technological response of Stadler to the challenges

posed by cross-border corridors such as the Mediterranean or the Atlantic Corridors. With its avant-garde technology, it covers every need in an efficient and reliable way ring rail operators numerous economic and ecological benefits.



Customer	HVLE
Region	Germany
Number of vehicles	10
Locomotive type	Dual-mode:
100000000000000000000000000000000000000	Electric/Diesel-electric
Track gauge	1435 mm
Axle arrangement	Co'Co'
Supply voltage	25 kV 50 Hz and 15 kV 16.7 Hz
Diesel engine	CAT C175-16, IIIB
Power	Diesel: 2800 kW
	Electric: Up to 7000 kW
Starting tractive effort	500 kN
Fueltank	3,500 l fuel
Urea tank	4001
Transmission	AC/AC
Maximum speed	120 km/h

Modular vehicle platform meets growing demands for flexibility, lower lifecycle costs and improved comfort

SIEMENS

The new Velaro Novo from Siemens is a systematic further development

of the three preceding generations of Velaros. Numerous innovations in details make the new high-speed train a unique, highly efficient concept that consumes 30 percent less energy and substantially reduces investment and maintenance costs while at the same time providing a ten-percent increase in capacity. With its empty tube concept and numerous configuration possibilities, the Velaro Novo is future-proof and can be flexibly adapted to meet new design concepts and operator needs even after years in operation.



NANOTEC signs, cuttingedge signalling

TECNIVIAL

Tecnivial is the leading company to manufacturer Fixed Signalling (Marker Boards). During 2017, the R+D Tecnivial have developed the Nanotec Signs, the first signs in the world made with composite additive with graphene, complying with the European Standard EN 12899-1 and obtaining the CE MARKING.

We can highlight the main advantages of Nanotec Signs; presebted at Innotrans:

- Light, Elastic and Safe.
- Corrosion- free. Excellent behavior against the humidity.
- Low environmental impact.
- Resistant to loads; snow & wind.
- Low residual value.
- Low maintenance and transport cost. Improving work team time.



New system for in-service ultrasound inspection of railway axles

TECNATOM

Within its line of railway products, Tecnatom has developed a

new portable system for in-service maintenance of solid axles, named "SAIS" (Solid Axle Inspection System), which allows the ultrasonic inspection of the entire axle in a simple and reliable way. SAIS uses a phased array probe that performs an angular sweep and an encoder that synchronizes acquisition with rotation, thus ensuring optimum coverage and detection.

The evaluation of defects is perfor-

med automatically, identifying geometric echoes to avoid false positives.

The inspection results are digitally signed and fully stored to ensure the traceability and auditability of the process.

The equipment works on batteries and incorporates a tablet, from which the inspector carries out their work. The system has WiFi connectivity for connection to the workshop's computer network or to the Internet.



MAFEX 35

Teltronic, secure radio communications that enhance rail operations

TELTRONIC

Teltronic, backed by over 40 years of experience deploying the safest professional mobile radio (PMR) projects worldwide on a turnkey basis, Teltronic presents at Innotrans a broad portfolio of critical communication solutions for transportation.

Based on TETRA and LTE technologies, Teltronic develops customized and fully integrated projects of metros, tramways or railways, with solutions comprised of infrastructure, on-board radios and command & control, and provides integration with a variety of applications used in the daily running of a transport service, such as passenger information systems, signalling data, real-time surveillance or internet for passengers.

A strategic point to highlight from the Teltronic portfolio at Innotrans



is the professional broadband LTE technology.

Developed according the 3GPP standard, it provides data capabilities to signalling CBTC appli-

cations among others, including a comprehensive list of advanced features as high availability, QoS mechanisms or priority management.



Thales at Innotrans

THALES

Thales will be present at Innotrans 2018 with a wide range of products and Solutions for main and High Speed lines as well as urban transport.

SelTrac Generation 7: The new age of CBTC, the enabling platform for autonomy.

Cybersecurity: The entire portfolio of solutions and services for cyber transport.

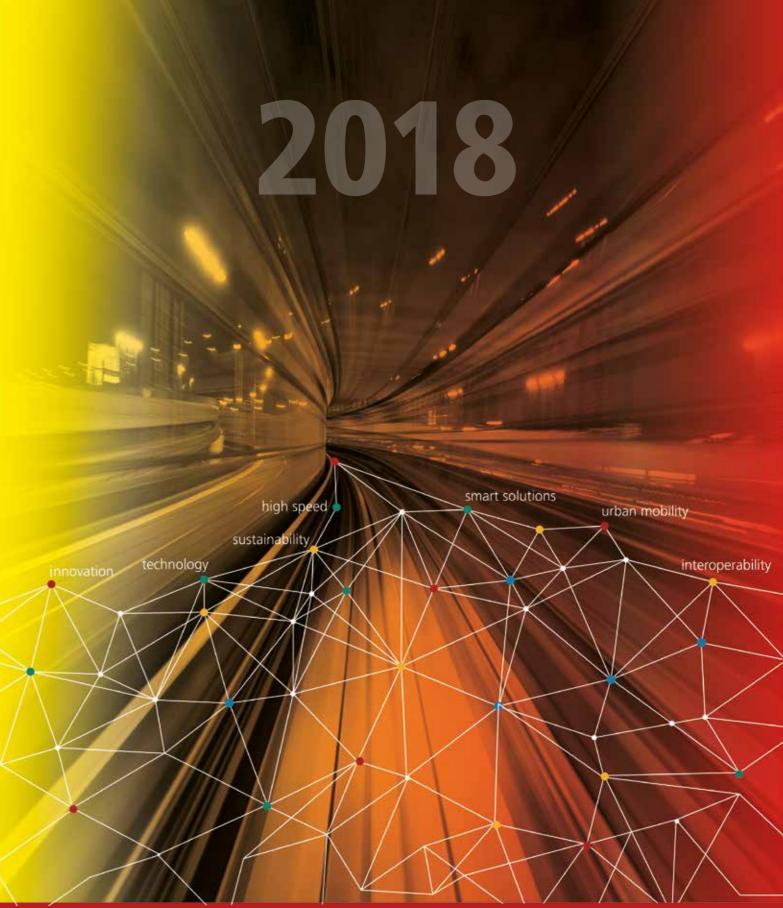
Aramis: New Generation cloud based ready for digital Traffic Management System (TMS) for integrated Network and Centralised Traffic Control (CTC) centres.

FICOS: the Fiber Optics Axle Counter, a breakthrough in rail field elements.

Digital services platform: NAIA, Eclipse, VCA as services on the platform.

You can have the opportunity to immerse yourself in our journeys through our interactive digital walls and discover our Vision Lab where we will have different topics:

- Autonomy
- Smart infrastructure and IoT
- Data-driven operations
- Interactive screen to showcase Thales innovation solutions for transport



SPANISH PARTICIPATION AT INNOTRANS

Spanish participation at Innotrans 2018

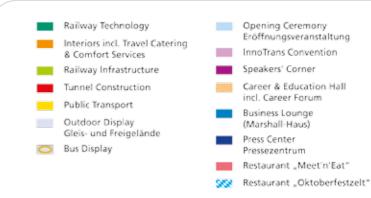
Spanish participation at Innotrans 2018

Kaiserdamm North Entrance Masurenallee Pro Partie Bus P R Messedonn Hall 7 Entrance (B) April 2 Halenseestraße Messe Stid SE CityCube Berlin

■ SPANISH PARTICIPATION AT INNOTRANS

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ign speed

urban mobility

vation tech

chnology

interoperability

ADIF



ADIF is the main Spanish Infrastructure Manager, attached to the Ministry of Public Works. The company is in charge of building new lines, upgrading and maintaining the existing ones, as well managing rail traffic, meeting the highest safety requirements, stations and freight terminals.

Adif is one the biggest companies in Spain, the main investing company in the country for years. It manages a 15.400 km-long network, including High Speed and conventional lines, as well as 2000 stations. Adif, alongside the Spanish rail sector companies, gather 25 years of highly valuable experience in the design, construction and operation of the new Spanish rail network, an expertise that we now share with countries around the world, such as India, Saudi Arabia, Sweden, Denmark, Turkey etc....

- ▶ mpvillanueva@adif.es
- www.international.adif.es

C/ Sor Ángela de la Cruz, 3 28020 Madrid (MADRID) Phone: +34 91 774 42 47



Hall 22 / Stand 704

▶ AMURRIO FERROCARRIL Y EQUIPOS



Maskuribai, 10 01471 Amurrio (ÁLAVA) Phone: +34 945 89 16 00

Amurrio Ferrocarril y Equipos, SA is one of the international leaders in the design, manufacture, installation and maintenance of railway turnouts for High Speed lines, Conventional Rail, Subway, Tram and Heavy Haul.

Another of Amurrio's specialties is the design and manufacture of monobloc crossings in manganese steel, which are designed, cast and machined in their own facilities.

Amurrio also designs and produces any other type of crossings, as well as track expansion devices and re-railers. And it has a technical office that provides innovative solutions for railway paths.

info@amufer.eswww.amufer.es

Hall 26 / Stand 307

ALBATROS



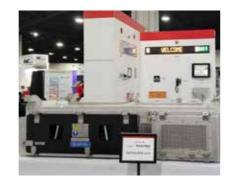
Technology company, subsidiary of Schaltbau, specialized in the design and manufacture equipment for trains, metros and trams. Headquarters located in Spain and factories in USA and Brazil.

Divisions: Power Electronics (static power converters and battery chargers) and On-Board Systems (PACIS, control systems and other embedded systems) SEPSA products stand for high quality, high reliability and a long design life. The QM system is certified in accordance with ISO 9001 and its eco-management system in accordance with ISO 14001.

The company has been quality-certified in accordance with IRIS and CMMI-DEV Model.

- ▶ info@sepsa.es
- www.sepsa.es

Albatros 7 y 9 - P.I. "Pinto Estación" 28320 Pinto (MADRID) T: +34 91 495 70 00



Hall 2.2 / Stand 102

AQUAFRISCH S.L.



High reliable maintenance equipment for railway depots.

Aquafrisch main manufactured products are Train Wash Plants, Bogie Wash Cabins and CET systems (Train toilets sewing systems) both in fixed or mobile possibilities together with water treatment plants. Other available equipments are Sand Filling Systems and Internal Rail Tank washers.

The company has over 20 years experience developing projects in more than 20 countries.

Aquafrisch has been certified ISO 9001, 14001 and OHSAS 18001 and practices a quality policy focused on reliable products tailored to customer needs and services with optimal solutions.

- ▶ aquafrisch@aquafrisch.com
- www.aquafrisch.com

C/ Ignacio Zuloaga, 10 28522 Rivas Vaciamadrid (MADRID) Phone: +34 91 380 03 33



Hall 7.2C / Stand 201

ALSTOM



Alstom showcases at Innotrans its contribution to the transition towards more sustainable transportation by designing and delivering innovative, environmentally-friendly and efficient mobility solutions. As a major player of the environmental revolution, Alstom presents its enlarged range of sustainable solutions in rolling stock (the Coradia iLint hydrogen regional train, the Prima H4 bi-mode locomotive, and the Aptis e-bus), charging infrastructure technologies (SRS for trams and buses, APS for road), energy efficiency and eco-design. As a mobility maker in the era of digitalization, Alstom showcases its latest developments and innovations for passengers and operators (passenger experience, the Iconis security control center, Mastria and data analytics for multimodality).

german.ruiz@transport.alstom.com

www.alstom.com

C/ Martínez Villergas 49, edificio V 28027 Madrid (MADRID) Phone: +34 91 334 58 00



Hall 3.2 / Stand 306

▶ ARCELORMITTAL -



ArcelorMittal, as the steel industry leader in product and process innovation and as one of the leading suppliers of rails worldwide, is fully geared to meet the future requirements of the rail industry. This is made possible by leveraging our research and development capabilities.

ArcelorMittal has rail production facilities in Luxemburg, Poland, Spain and United States that offer a wide portfolio of products, covering rails for subways, trams, trains, light rails, crane rails, crossings, rail accessories, specialist in high-speed with over one million tons produced, and is present in infrastructure projects of over 30 countries.

▶ rails.specialsections@arcelormittal.com

www.rails.arcelormittal.com

Apdo. 570. Edificio Energías, 2ª pl. 33691 Gijón (ASTURIAS)



Hall 26 / Stand 307

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urban mobility

LM Iturrioz 26

ARDANUY INGENIERIA

Ardanuy

Ardanuy is an engineering company specialized in the provision of consultancy services for railways and urban transport (metros, tramways, cable cars, etc). Over 1000 projects have been carried out in the Railway sector since the company's beginning till today.

The company was incorporated in December 1992 and currently employs a permanent team of over 180 fully qualified engineers and architects. Ardanuy operates mainly in Spain, where it has offices in Madrid, Barcelona, Valencia, Seville and Tenerife, and has worked in 5 continents. Ardanuy currently has subsidiary companies in Lithuania, India, Algeria, Colombia and New York.



Avda, Furona, 34 28023 Madrid (MADRID) Phone: +34 91 799 45 00



Hall 5.2^a / Stand 104

Derio Bidea, 28

48100 Mungia (VIZCAYA)

Phone: +34 94 601 12 00

D CAF



CAF is one of the world leaders in the design and implementation of comprehensive transit systems. CAF provides comprehensive project and engineering management throughout all stages of the project including feasibility analysis and investigations, system design, civil work, signalling, electrification and other electromechanical systems, rolling stock supply and system operation and maintenance.

In terms of rolling stock, CAF supplies and maintains high speed trains, regional and commuter trains, locomotives, metro units, light rail vehicles and

For more information, please visit our website.

caf@caf.net www.caf.net

Hall 4.2 / Stand 104

ARTECHE (ELECTRONICA ARTECHE SMARTGRID)



Arteche's expertise of more than 55 years manufacturing electromechanical relays technology gives the client the assurance of a technological leader. Our dedicated range of railway relays are designed to meet and exceed several railway industry standards in aspects such as vibrations (EN-61373) and fire behavior (EN-45545-2), among other railway industry focused features.

Arteche relays have extremely high MTTF values. Its reliability and durability allow them to be used not only as a general purpose relay, but also in all kind of safety functions, both in on-board and in signaling applications, making them suitable to be used in circuits requiring up to SIL-4 safety integrity level.

aol@arteche.com www.arteche.com

Hall 17 / Stand 107

D CAF INVESTMENT PROJECTS AFTER INVESTMENT PROJECTS



CAF is the responsible for Ferrocarriles Suburbanos System 1 Concession for a period of 45 years. The project covers the construction, operation and comercial management of the railway, in addition to the provision of a public rail service. This line covers the route Buenavista-Cuautitlan and joins Mexico City with four nearby municipal districts. CAF also participates in the construction of a 57 km railway line between Mexico D.F. and Toluca. The project includes the supply, installation and commissioning of rolling stock, signalling, communication systems, control centre, electromechanical systems of the tunnel and viaduct, tracks and energy systems, and construction of two traction substations and technical buildings in the line. CAF is the leader of the consortium of this project for the Secretaria de Comunicaciones y Transportes (SCT).

caf@caf.net www.caf.net

BOMBARDIER

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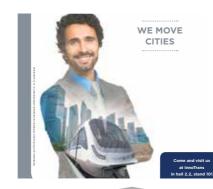
Bombardier Transportation is a global mobility solution provider leading the way with the rail industry's broadest portfolio. It covers the full spectrum of rail solutions, ranging from trains to sub-systems and signalling to complete turnkey transport systems, e-mobility technology and data-driven maintenance services.

Combining technology with empathy, Bombardier Transportation continuously breaks new ground in sustainable mobility by providing integrated solutions that create substantial benefits for operators, passengers and the environment all over the world. Headquartered in Berlin, Germany, Bombardier Transportation employs around 39,850 people and its products and services operate in over 60 countries.

susana.bargsten@es.transport.bombardier.com

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Hall 2.2b / Stand 101

CAF MIIRA



CAF MiiRA is a global reference in the supply of critical components and comprehensive solutions for rolling gear and coupling systems, providing state-of-the-art engineering, manufacturing and maintenance capabilities for a complete portfolio of extensively proven solutions. MiiRA rolls forward with new innovation, continuous product optimization and a mentality to ensure customer satisfaction.

Currently MiiRA is supplying all type of complete wheelsets; monobloc and resilient wheels, axles and gearboxes, besides an extensive portfolio of couplers for any rolling stock, from locos or freight to light rail vehicles or high speed.

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MAFEX 43

42 MAFEX

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Spanish participation at Innotrans 2018

CAF POWER & AUTOMATION



CAF Power & Automation goes beyond the design and development of traction, control, and energy storage systems.

Our commitment to create modular and integrable systems makes possible to incorporate all our solutions into new vehicles and those currently in service. This ensures fleet modernisation and maintenance cost reduction.

This specialisation has opened the international locomotive market for us in countries such as Italy, India and the USA.

We have uncompromising passion in our work to support and advice all your decisions throughout the operating life of the product. Discover the power of adaptability by the hand of CAF Power & Automation.

▶ info@cafpower.com

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Hall 4.2 / Stand 104

CAF SIGNALLING



CAF Signalling is a world reference in the design and implementation of rail control solutions for the railways industry. CAF Signalling boosts its own inhouse engineering and expertise to undertake "turn key" railway signalling projects with recognition from Administrations over Europe, America, Africa, Middle East and Asia.

Headquartered in Spain, CAF Signalling is a leading reference in ERTMS/ETCS and rail control solutions for every type of rail system: main lines, high speed, light rail, metros and freight The company uses its own technology following the highest European standards and certified by recognised certification bodies for SIL4 and interoperability.

- ▶ cafsignalling@cafsignalling.com
- www.cafsignalling.com

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D CAF TURNKEY & ENGINEERING



CAF Turnkey & Engineering is a leading company in the provision of multidisciplinary comprehensive engineering, specialized in the design, project management, construction, commissioning and maintenance of infrastructure projects specializing in rail transport systems.

Its headquarters in the Bizkaia Science and Technology Park (Zamudio) from where our highly qualified staff of over 250 professionals offer global and integral solutions to our clients throughout the entire project cycle, including operation and maintenance of the infrastructure.

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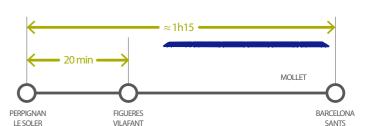
Located in the heart of the Mediterranean Corridor and Rail Freight Corridor no 6, the line is a major link that connects the Spanish rail network with the French rail network, as well as with all the other European countries, with no disruption, no transhipment and no stop and under unbeatable rapidity, safety and comfort conditions.

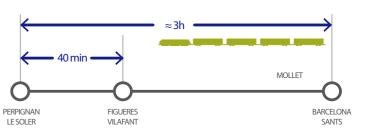
Genetically designed for mixed traffic, the International Section allows simultaneous operation of high-speed trains operating at 300 km/h, regional trains operating at 160, 200 or 220 km/h and freight trains operating at 100 or 120 km/h. Trains cross each other with no restrictions. The line offers a capacity of more than 100 trains per day.

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According to the type, one 4-axle locomotive can operate up to 1.300 t trains, whereas a 6-axle locomotive can operate approximately up to 1.800 t trains.

Territory development tool at the service of mobility, the International Section is currently the guickest, safest and most cost-effective mean, for both persons' mobility and goods' transport by rail.







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speed and conventional railway, metros and tramways.

SA is currently located in 17 countries.

D CEIT IK4



Ceit-IK4 is a non-profit private research centre created in 1982. Our primary mission is to carry out applied industrial research projects under contract, working closely with our clients. Ceit-IK4 promotes excellence in applied research by publishing non-confidential results, disseminating scientific and technical knowledge in a variety of venues, and training doctoral students within the framework of industrial research projects.

Ceit-IK4 seeks regular collaboration with companies in among others railway sector and strives to understand all aspects of our clients' business in order to develop high value added solutions through applied investigation projects.

• efernandez@ceit.es

www.ceit.es

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Hall 24 / Stand 102

COMSA



C/ Julián Camarillo 6A, 2ª planta 28037 Madrid (MADRID) Phone: +34 913 532 120



Hall 22 / Stand 704

D CETEST



Lazkaibar, s/n 20200 Beasain (GUIPÚZCOA) Phone: +34 943 028 690

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Fully accredited ISO17025, experts in railway vehicles and components testing (structural & fatigue, static tests, ride dynamics, noise, vibrations, EMC...). Their offering covers a wide variety of component test benches at their facilities as well as portable ones. They provide a global on-track measurement deployment capacity. Anywhere, anytime.

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▶ jalvarez@comsa.com

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Specialised Machine Tools and production systems for railway industry offering technologically advanced solutions and services, including among others engineering, consultancy, which are fully adapted to clients' needs.

With over 125 years of history, COMSA is highly-specialized in turnkey railway

projects covering the construction and maintenance of infrastructure and

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The company has a leading position in the Spanish railway market, where it has been involved in the development of all high-speed lines, and has expor-

ted its know-how to the main European and Latin-American markets. COM-

DANOBAT focuses its activity in the supply of turnkey solutions for the manufacturing and maintenance of railways rolling stock, incorporating own leading technology products, together with those manufactured by specialized companies.

DANOBAT solutions include in-house technological developments based on industry 4.0 concepts with an aim in advancing the creation of intelligent manufacturing spaces, fitted with interconnected equipment and capable of autonomous operation.

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Hall 22 / Stand 704

COLWAY FERROVIARIA



COLWAY FERROVIARIA S.L., a company belonging to the COLWAY group, specializes in the design, engineering, manufacture, supply, installation and commissioning of turnkey railway vehicle interiors and toilet modules. Both for new rolling stock and for material to be modernized.

Through the integrated management of modular supplies and systems, based on experience, knowledge, research and innovation, the company achieves the satisfaction of the needs and expectations of its customers: railway constructors and Public Administrations.

Its work is based on the application of strong values: commitment, professionalism, ethics and agility.

▶ acolomerf@colway-08.com

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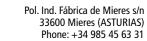
DURO FELGUERA RAIL



Specialized Company for the design, manufacturing and supply of turnout systems and their components, covering a wide range of applications: from tramway to high speed turnouts, passing by metro or conventional turnouts (crossovers, double slip crossings, , ...) assemblied on wooden and concrete sleepers or on slab track, with Manganese steel crossings or swing nose crossings.

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D EJE OGI

EJEOGI

In order to solve the problem of breaks of gauge between the different railway networks in rail freight, the consortium composed by Azvi, Tria and Ogi, as well as Adif, has developed an automatic variable gauge system made up of variable gauge axles and a gauge changeover facility.

OGI axles have successfully completed Laboratory and On-Track Tests, as well as the first 100,000 km of the In-Service Tests set out by the Spanish ETH standard, and they will obtain the provisional Technical Approval for commercial operation.



▶ info@ogiaxle.com www.ogiaxle.com

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PERMIX



Poligono Pinoa 1D 48170 Zamudio (VIZCAYA) T: +34 94 497 71 80

Flexix develops, manufactures and sell worldwide injection and extrusion rubber parts, rubber-metal, rubber-plastic and assemblies.

We belong to Kächele-Flexix Group, with plants near Stuttgart and Munich (Germany), Zamudio (Spain) and a logistic warehouse in Houston (USA).

Our products for the railway sector, are mainly for infrastructures, absorption of vibrations under track, tie pads for sleepers, with different stiffness, new developments, materials, competitiveness, non-conductivity (or yes, if necessary), non-harmful gases.

Type of parts Flexix produces: Ducts, bellows, tubes, silentblocks, joints, bumpers, axles, links, valves, bearings.

Mixtures: nr, sbr, epdm, cr, nbr/hnbr, eco, aem, acm, vmg/silicone, fkm/fpm.

- ▶ javier.encinas@flexix.com
- www.flexix.com



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GMV



GMV is a leading firm in the design, development, implementation and rollout of Intelligent Transportation Systems (ITS) based on IoT, mobile communications and GNSS, guaranteeing compliance with sector standards such as GTFS, SIRI, NeTEx and CAN bus. GMV offers all-in, turnkey, ready-to-go solutions, getting involved in the complete development of the project and incorporating its own inhouse hardware and software along the way.

With over 400 clients in 35 countries from 4 continents, our clients vouch for GMV as a worldwide trailblazer in the design and implementation of intelligent transportation systems.

▶ ahernandez@gmv.com

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ICON MULTIMEDIA

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ICON Multimedia, which has over 25 years of experience in the market, offers the development of Traveler Communication Solutions and Digital Signage, what we could applied to all transport areas, stations.

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One of our more important characteristic is the customizing capacity of our

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Its DENEVA platform has more than 40,000 emission points, and includes wayfinding systems, audience measurement, or the traveler experience measurement based on emotions. DENEVA offers the possibility of using these systems by third-party companies, reducing public infrastructures costs, and improving the return on investment obtained.

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Spanish company specialist in IT systems' development and deployment to plan the transport operations by using the most advanced optimisation techniques. Its main purpose is to solve the most complex planning problems, ensuring the highest profitability, competitiveness and sustainability of its clients.

To provide specific solutions for each sector, for public agencies and urban transport or long-haul transport companies, for passengers or goods transport, road, rail, boat or plane transport. It is specialized in vehicles and drivers planning, schedules creation, drivers' allocation, daily re-scheduling, and resources control and dispatcher.

• egrossin@goalsystems.com www.goalsystems.com/

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IKUSI



Ikusi, engineering and technology development for business digital trans-

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Ikusi is part of Velatia, an international technologically-driven industrial group whose activities are focussed in the field of electrical networks, electronics and communication networks, as well as in consultancy, security and aeronautics.

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MAFEX 51 50 MAFEX

IMPLASER 99



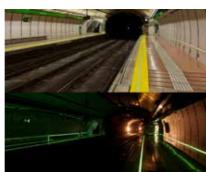
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IMPLASER is a Spanish manufacturer of a wide range of PHOTOLUMINESCENT products (signs, floor markers, tunnel and metro exit signing doors) with the highest and most competitive luminance levels in the market.

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Also, for all projects according NFPA 130 "Standard for Fixed Guideway Transit and Passenger Rail Systems" we have certificated our signs with UL.

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INDRA



Indra is one of the world's top technology and consulting and a technology partner for the key operations of its customers' businesses worldwide. It offers a comprehensive range of proprietary solutions and cutting-edge services with a high added value, and a unique culture of reliability, flexibility and adaptability.

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INDUSTRIAL DE TRANSFORMADOS (ITSA)



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ITSA is a Spanish company specialized in the design and manufacturing of turnkey Railway Interior Components. We optimize costs, weights and subcomponents through in-house engineering. When transforming different raw materials and creating products, ITSA uses a wide range of in house processes: FRP SMC, SMC + PIMC, RTM, PLASTIC INJECTION.

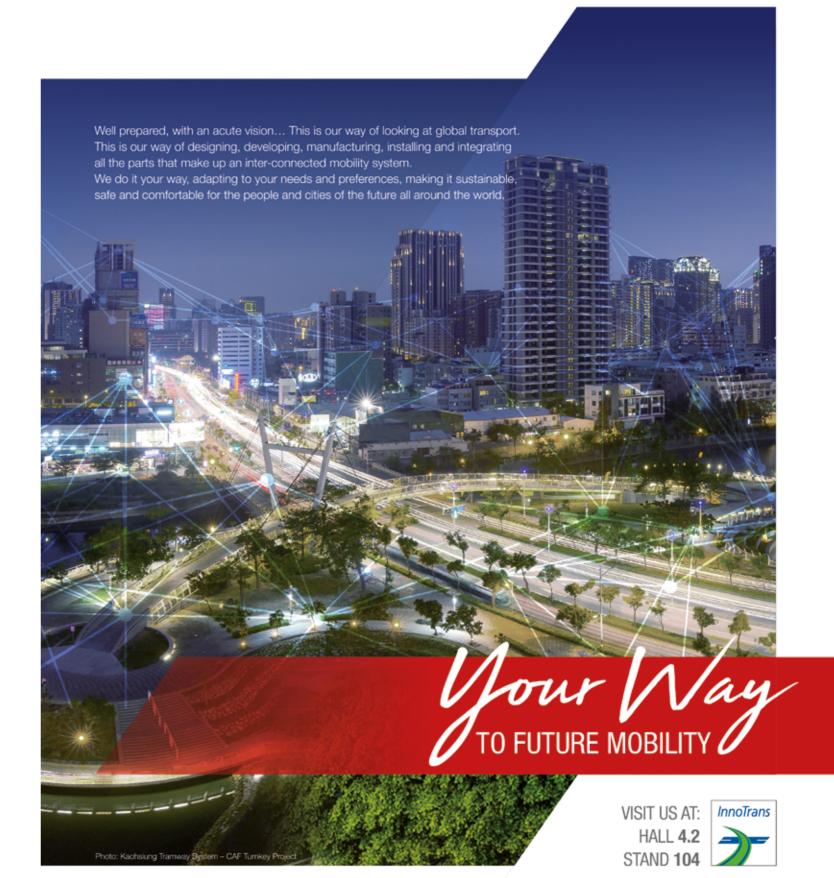
Additionally ITSA undertakes pultrusion, hand lamination, thermoforming, metal transformation and subcomponents processes through an expert panel of suppliers. We manage all phases of the project: Tool & Product design; Manufacturing; Finishing & assembly: Mechanizing, bonding, welding, painting, cabling; Packaging & delivery.



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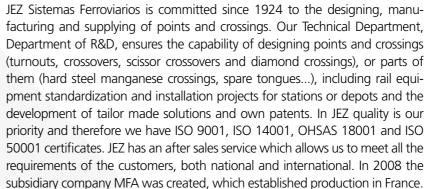
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Hall 5.2 / Stand 114

▶ JEZ SISTEMAS FERROVIARIOS



▶ infor@jez.es www.jez.es

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▶ INGETEAM POWER TECHNOLOGY

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NELOX



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We offers the full range of copper products and alloys for the catenary employed in the railway market (contact wire -CuETP, CuAg, CuMg, CuSn-dropper for messenger cable, messenger, electrical connection and static point cable), using an integrated process based on pure copper from the mine. Our service includes technical visits and assessment to our clients.

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urban mobility

interoperability

I ANDFR SIMULATION AND TRAINING SOLUTIONS



Lander Simulation & Training Solutions, S.A. specialises in designing, developing and implementing cutting-edge commercial simulation devices for training purposes.

On the basic premise of preventing accidents and loss of human life, LANDER works with each customer to build training simulators which meet the specific needs of each operation.

Lander was incorporated in 2002, and now operates in more than 20 countries across all 5 continents. Its solutions cover the entire range of railway operations - suburban trains, long-distance units, high-speed trains, freight, monorail systems, metros or light rail.

▶ aohlsson@landersimulation.com

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LIMMAT M&M

Smart maintenance solutions for infrastructures.



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Limmat Group is contributing with the digitization of modern railway detecting new needs in the sector and developing technological solutions, which generate added value to our clients.

Limmat Group will be present at INNOTRANS. Where it will present it's innovative IMAS platform based on 4.0 technologies that combines the use of big data analytics, machine learning and IOT solutions, visit us! we will be pleased to show you the latest technology in intelligent maintenance that will allow you to optimize the maintenance of your infrastructure.

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Hall 22 / Stand 804

MAFEX SPANISH RAILWAY ASSOCIATION



C/Ledesma 10Bis - 1°Izda 48001 Bilbao (VIZCAYA) Phone: +34 94 470 65 04

The Spanish Railway Association (Mafex) has as its purpose serving the Spanish railway sector, by helping its companies in their internationalisation processes and defending the general interests of their associated companies in order to achieve, through cooperation, the highest possible level of competi-

Its activities include the coordination of an agenda of trade delegations and missions to promote and open markets; the dissemination of information of interest to the partners, as well as the institutional communication with diverse national and international administrations. In order to respond to the new challenges of the sector and support the technological leadership of the industry, Mafex also has an innovation and competitiveness committee.

Mafex, is an official collaborating body of the Secretary of State for Trade of the Ministry of Economy and Competitiveness, has the support of the AGEX GROUP to which it belongs and other institutions such as UNIFE (Association of the European Railway Industry) and ALAMYS (Latin American Association of Subways and Subways).

mafex@mafex.es

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METALOCAUCHO



Polígono Erratzu, 253 20130 Urnieta (GUIPÚZCOA) Phone: +34 943 33 37 55

MTC is specialized in the design and manufacture of rubber-metal suspension systems for the railway sector. MTC is part of Wabtec Corporation, and currently has production plants in Spain (HQ), China, India and US.

Leading company in this sector, MTC works with the main manufacturers of global rolling stock, such as Alstom, Bombardier, CAF, CSR, CNR, Hyundai Rotem, Siemens, Talgo, Stadler. Also has earns the trust of Operators for the supply of spare parts for maintenance of their projects.

MTC main products are primary and secondary suspensions and different subsystems for bogies.



▶ info@metalocaucho.com

www.metalocaucho.com

Hall 1.2 / Stand105

► MGN TRANSFORMACIONES DEL CAUCHO



C/ Candelaria, 9 - Pol. Ind. Camino del Calvario 28864 Ajalvir (MADRID) Phone: +34 91 887 40 35

MGN was founded in 1957 and since then the company develops its activity designing and manufacturing rubber to metal components mainly for the railway sector.

We are committed with the research and innovation as a fundamental basis for the development of new components integrated into the new concepts either passenger or freight trains, by adopting the most modern technological advances in the world of rubber, vibration control systems.



▶ enp@mgncaucho.com

www.mgncaucho.com

Hall 9 / Stand 602

NEM SOLUTIONS



NEM Solutions offers data analysis solutions for the generation of normal machine behavioral diagnostics. In the current Innotrans edition, opt for translating knowledge obtained from raw data into services.

With the purpose of implementing predictive maintenance strategies closely linked to technological change, through our A.U. R. A platform NEM Solutions offers its in-depth knowledge of data analysis, as well as its dominant position in the Railway sector. With a customer accompanied service in order to extend the life cycle of train assets, in this way NEM Solutions manage to both improve availability conditions and reduce costs.

Paseo Mikeletegi, nº 54 - 1º planta 20009 San Sebastián (GUIPÚZCOA) Phone: +34 943 30 93 28



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www.nemsolutions.com

Hall 21 / Stand 408



At the forefront of Rails Solutions

ArcelorMittal Rails & Special Sections has rail production facilities in Poland, Luxembourg, Spain and the United States that offer a wide portfolio of products, covering rails for subways, trams, trains, light rails, crane rails, crossings and rail accessories. The company is a specialist in rails for high-speed rail networks, with over one million tonnes produced and is present in infrastructure projects in over 30 countries. Its high technologic quality allows ArcelorMittal to participate in the more demanding tenders all over the world.



ArcelorMittal's main trending topics for railway:

- Corporate Social Responsibility: ArcelorMittal has received the Ecovadis Gold rating.
- R&D: ArcelorMittal operates a dedicated rail research and development unit which includes
 pilot plants and prototyping facilities. Its Rail Excellence Centre also includes a dedicated welding centre
 which can provide advice and support for current and future grades for its customers.
- Digitalisation: ArcelorMittal Rails & Special Sections is extending its 4.0 transformation with the launch of several digital tools.
- Increasing the length of rails: in order to provide further track safety, welding, track laying and maintenance cost savings.
- Increasing the service life of rails: with the most appropriate solution related to different applications; LCV (Low Carbon Vanadium) for tramway or new hardness grades for heavy haul applications.

New ArcelorMittal rails calculation tool Available now for download in your app store





NEWTEK SOLIDOS



NEWTEK, founded in 1987, is a Company dedicated to the design of installations for the handling of bulk materials – dust and granule size solids – for different sectors of the industry.

It supplies complete facilities mainly composed by a storage silo, fixed or mobile sand filling systems and a dust suction system that allows a safe loading in an environmentally friendly way.

Newtek carries out specific designs adapted to each client to offer the best solution and it has a wide and varied catalogue, with proven performance in facilities worldwide.

▶ comercial@newteksolidos.com

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Hall 22 / Stand 704

■ REVENGA SMART SOLUTIONS



Revenga Smart Solutions offers end to end solutions for the Transport, Telecommunication and Security sectors.

With over 45 years of experience and with projects deployed in 24 countries, we are committed to technological innovation, through the development of our own equipment (hardware) and applications (software) and alliances with the cutting-edge technology partners.

TRANSPORT: Leven Crossing Systems; Railways Inspection Systems; Passenger Information; Point Heaters; Tunnels Safety Systems; Early Fire Detection

TELECOMUNICATIONS: F.O. Networks, SDH, PDH, DWDM; Telephony&Interphony; Public Address&Voice Alarm; Criptography

SECURITY&DEFENSE: CCTV&Video Analysis, UAVs, Scanners; Access Control; Fire Detection

▶ marketing@revenga.com

www.gruporevenga.com

C/ Fragua 6 28760 Tres Cantos (MADRID) Phone: +34 91 806 18 10



Hall 22 / Stand 706

PREMIUM

Chargers.



Dolors Aleu 19-21 08908 L'Hospitalet de Llobregat (BARCELONA) Phone: +34 902151720



The main advantages over our competitors are our low NRE costs and the short schedule to production. We can offer a reduced overall program cost, especially for low volume production requirements.

Premium is a world-class manufacturer of highly-engineered standard and

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Our extensive experience (more than 35 years) allows us to design, test and

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▶ sales@premium.es www.premium.es

EMC and so on.

Hall 17/ Stand 105

SEGULA



Segula Technologies is an engineering group with a global presence, helping boost competitiveness within all of the major industrial sectors: automotive, aerospace, energy, rail, naval, pharmaceutical and oil & gas.

Present in 28 countries and with 140 offices worldwide, the Group fosters a close relationship with its customers thanks to the expertise of its 11,000 employees.

A leading engineering specialist placing innovation at the heart of its strategy, Segula Technologies conducts large-scale projects, ranging from studies to industrialisation and production.

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Hall A - Stand 403

PRENFE



Renfe Operadora, a spanish public company (Ministry of Transport and Infrastructure, Government of Spain), is one of the most significant railways operators in the world because of its experience in high speed, regional and commuter services. Renfe runs more than 5.000 trains daily and it is a central actor in the transport system of the country, with more than 487 million passengers and 19,6 million tons of freight moved in Spain 2017.

With more than 25 years running high speed services, the company offers consultancy and knowledge in the international markets. Renfe has a long experience regarding cooperation, international trains with France and Portugal, and projects as Haramain, where Renfe has provided training on different levels, maintenance depot designs and will be operating High-Speed trains in Saudi Arabia connecting Makkah and Madinah.

Gerencia de Área de Cooperación Internacional y Relaciones Institucionales Avda. Pío XII, 110 28036 Madrid (MADRID)



Hall 22 / Stand 704

SICF



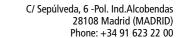
SICE is a multinational technology Integration Company operating in the fields of traffic and transport, energy, telecommunications and all types of industrial processes.

SICE's activity mainly focuses on providing added value services through the integration of a range of in-house and third-party technologies.

SICE is currently supplying fare collection and railways communications systems for Metro de Madrid (Spain), Metro de Santiago (Chile), Metro de Lima (Perú) and Metro de México.

We have also delivery Intelligent Transport Solutions in Australia, UK, New Zealand, USA, Canada, North Africa and Middle East (Saudi Arabia, Qatar and Emirates).

▶ sice@sice.com www.sice.com





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SIEMENS MOBILITY

SIEMENS Ingenio para la vida

Siemens Mobility offers answers to the current and future mobility demands with its comprehensive portfolio of solutions and services: Mobility Management, Turnkey Projects & Electrification, Rolling Stock and Customer Services, besides its wide competence in intelliget traffic solutions.

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www.siemens.es/railautomation

Hall 4.2 / Stand 201

■ TALLERES CORRAL MECANIZADOS TalleresCorral

TalleresCorral is a medium size company, which was founded in 1958. Its focus is on the production of high quality and security requirement components for the railway industry.

Our company is certified in accordance with the standards: ISO9000, EN15085 CL1, DIN 6701 A2, ISO3834 and DIN2303 Q3.

In production of pressure vessels, for brake and air conditioned systems, TalleresCorral is certificated in module H category I, II and III of PED 97/23/EC and 2014/68/EC and the manufacturing of tanks according EN13445 and EN286

Our principal markets are new projects as well as after-market parts.

- ▶ tallerescorral@tallerescorral.com
- www.tallerescorral.com

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Hall 22 / Stand 805

STADLER



Stadler provides a comprehensive range of products in the heavy and urban transport segments: High-speed trains, intercity trains, regional and commuter rail trains, metros, tram-trains and trams. Furthermore, Stadler also manufactures main-line and shunting locomotives, passenger coaches and it is the world's leading manufacturer in the rack-and-pinion rail vehicle industry. Discover seven unique innovations from Stadler at InnoTrans2018: from a Tailor-Made train composition to the innovative driverless metro; from the newly designed regional train to the last generation of 6-axle locomotives designed and manufactured by Stadler Valencia to optimize the rail freight transport

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throughout Europe.

Hall 7.1c / Stand 208 Hall 2.2 / Stand 103 y zona exterior 0/615

TECNATOM



Tecnatom is an engineering company created in 1957 to provide services to the nuclear industry, that has diversified its scope to other industrial sectors such as aeronautics and rail. The company has a large international component with subsidiaries in France, Mexico, Brazil, Emirates, USA and China. Its activity focuses on the development of automated systems for the inspection of components through non-destructive testing -manufacturing and in-service maintenance-, covering rolling stock -wheels, axles, bogies- and rail. Its products cover conventional NDT inspection and the new continuous monitoring technologies aimed at predictive maintenance.

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Hall 22 / Stand 704

TALLERES ALEGRIA



Talleres Alegría, s.a. is a family owned company devoted since 1900 to design, manufacturing and after sales assistance of turnout systems, as well as Design, manufacturing, repair and maintenance of self propelled vehicles and freight wagons.

C/ Peña Santa, 7 - P.I. Silvota 33192 Llanera (ASTURIAS) Phone: +34 985 26 32 95



Hall 26 / Stand 307

TECNIVIAL



TECNIVIAL is a specialist company in all kinds of FIXED SIGNALLING and MAR-KERS BOARDS, both conventional and high speed line. The main products in which TECNIVIAL is an expert are:

- Fiberglass, metal sheet or aluminum signs and signals, with modular mounting systems and reflective decorations, in accordance to Standard EN 12899-1 (CE MARKING). Now, the future signalling; NANOTEC COMPOSITE, the incorporation of cutting-edge materials (carbon nano particles) to the manufacture of signs.
- Luminous three-dimensional signs and opaque signs for transport building exteriors, station concourses and platforms.
- Provisional luminous work/vehicles signalling.
- Railway station signalling in accordance with corporate identity manuals. TECNIVIAL is the first marker boards company for high speed lines in Spain
- export@tecnivial.es
- www.tecnivial.es

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MAFEX 63 62 MAFEX

D TELICE



We design, install and maintain rail electrification, signaling and communication systems for the rail and industrial sector. Our mantra is "Technology on the field" which is consistent with our mission for providing state-of-the-art technology and experience at a competitive price.

At Innotrans we are not only showcasing our know how and expertise as main contractors or general subconcractors, but we are also featuring the results of our R&D efforts aimed at enhancing railway technology, including our revolutionary TCat Workstation for Overhead/Catenary lines.



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24391 Ribaseca (LEÓN) Phone: +34 987 22 10 04

telice@telice.eswww.telice.es

Hall 22 / Stand 309

TELTRONIC



With the combined objectives of innovation and the highest quality, Teltronic provides complete wireless communications solutions for transport sector, satisfying the most demanded needs in matters of voice and data, including integration with signalling applications.

The company offers TETRA, pure LTE broadband, as well as TETRA + LTE hybrid solutions that merge the highest reliability with a greater data capacity, an innovation guided by the availability and security required by mission critical users and that will enhance passenger experience, operational efficiency and maintenance activities. With more than 100 transport communication systems deployed worldwide, Teltronic has the expertise and the most complete portfolio of products to provide integrated solutions.

▶ fsanjuan@teltronic.es

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Hall 4.1 / Stand 325

▶ THALES Spain



Thales occupies a leading position in control systems for transport thanks to its more than 65 years' experience in Spain and its important contribution to modernising the Spanish railway network and to its participation in high-speed and main lines projects.

With the deployment of ERTMS and signalling systems in a large part of the Spanish high-speed network, it has managed to become a national and international reference point, contributing to maintain and improve the functioning of the second largest network in the world.

The Company exports some 40% of its total output, chiefly to markets in North Africa, the Middle East and Latin America.

) jose.villalpando@thalesgroup.com

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▶ UROMAC SYSTEMS



UROMAC SYSTEMS, S.A. is a company with a great experience in the manufacturing of 4x4 vehicles and machines for the railway sector, construction, mining, forest and military sectors.

UROMAC is specialized in road-rail vehicles and machines being the first complete manufacturer of this type of machines and vehicles specially engineered and designed for this function. UROMAC covers the whole process from design, manufacturing and delivery according to customer specifications and standard and regulations.

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▶ javier@uromac.com www.uromac.com

Hall 0 / Stand 425

VIRLAB TESTING LABORATORY



20159 Asteasu (GUIPÚZCOA) Phone: +34 943 69500

Pol. Ind. Asteasu Zona B.44

VIRLAB Vibrations Testing Laboratory is an Urbar Ingenieros Group company that was established in 1976. Virlab develops his activity inthe field of vibrations and shock testing of all kind of electrical, mechanical and I&C equipment of any economic sector.

More than 2,700 tests have been performed until June 2015, concerning to economic sectors such as Energy, Railways, Defense, Transport, Aeronautical or the Automotive.

The laboratory is accredited by ENAC, the Accreditation SpanishEntity and homologated by the Group of Spanish Nuclear Power Plants Owners.

dagote@virlab.es www.virlab.es



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NUBI ENGRANAJES



Xubi was found in 1956, and is currently one of the largest gear companies with a most diversified gear capacity. Xubi produces spur and helical gears, internal geared rings, bevel gears with spiral, helical or straight teeth.

Over 5 decades supplying to the railway industry worldwide, Xubi's experience and quality offers a reliable solution for all kind of transmission needs in the railway industry.

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Hall 22 / Stand 704





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- ▶ AKKA Technologies Spain
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- ▶ CAF Power & Automation
- ▶ CAF Turnkey & Engineering
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- Gantrex S A
- Idom
- Ineco
- Inserail, S.L.
- ▶ MB Sistemas, S.Coop.
- NEM Solutions, S.L.
- Newtek Sólidos, S.L.
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SECTOR

PER

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- Tecnalia
- ▶ Tecnivial Infraestructuras
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- ▶ Pretensados del Norte

Electrification

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- ▶ SEMI, S.A.
- **▶** Telice

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▶ TPF Getinsa-Euroestudios

Typsa

Fixed material: components and equipment

- Alstom Transporte, S.A.
- Amurrio Ferrocarriles y Equipos, S.A.
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- Arteche
- Duro Felguera Rail, S.A.U.
- Gantrex S.A.
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- Valdepinto, S.L.

Security

- Alstom Transporte, S.A.
- Ardanuy Ingeniería, S.A.
- DSAF. Dinámicas de Seguridad
- ▶ Ecocomputer S.L.
- Idom
- Ikusi
- Implaser 99, S.L.L.
- Ineco
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- ▶ Telice
- ▶ Tecnivial Infraestructuras
- ▶ Thales España GRP, S.A.U.

Signaling and traffic control

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- Ardanuy Ingeniería, S.A. ▶ Bombardier España
- ▶ Cables y Comunicaciones Zaragoza
- S.A. ▶ CAF Signalling
- DSAF. Dinámicas de Seguridad ▶ GMV Sistemas S.A.U.
- **Idom**
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- Implaser 99, S.L.L.
- Indra Sistemas, S.A.

- Ineco
- Luznor
- ▶ P40 Electronics, S.L.
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- Typsa

Maintenance

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- Azvi
- COMSA
- Danobat
- Duro Felguera Rail, S.A.U.
- Idom
- Ikusi
- Ineco
- Inserail, S.L. Instalaciones Inabensa
- **LADICIM**
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- ▶ Siemens Rail Automation, S.A.U.
- Telice
- ▶ Thales España GRP, S.A.U.

Stations

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- Ardanuy Ingeniería, S.A.
- Idom
- Ikusi
- Ineco
- Luznor
- Parrós Obras, S.L.
- ▶ Thales España GRP, S.A.U.
- Typsa

INFORMATION AND DATA SYSTEMS

Systems and equipment for collection and ticketing

- Alstom Transporte, S.A.
- Ardanuy Ingeniería, S.A.
- ▶ Calmell Group Ecocomputer
- Idom Ikusi
- Indra Sistemas, S.A.
- **SICE**

▶ Thales España GRP, S.A.U.

Communications, Information systems and passenger information equipment

- Alstom Transporte, S.A.
- Aoife Solutions, S.L.
- Ardanuy Ingeniería, S.A.
- ▶ Cables de comunicaciones Zaragoza, S.L.
- CAF Power & Automation
- Ecocomputer
- lcon Sistemas de Información y Datos
- Idom
- Ikusi
- Indra
- Ineco ▶ P40 Electronics, S.L.
- **SICE**
- ▶ Siemens Rail Automation, S.A.U.
- ▶ Tecnalia
- Telice, S.A.
- ▶ Teltronic, S.A.U.
- ▶ Thales España GRP, S.A.U.
- ▶ TPF Getinsa-Euroestudios Typsa
- Vicomtech

ROLLING STOCK

- Passenger car manufacturers Alstom Transporte, S.A.
- ▶ Bombardier España CAF - Construcciones y Auxiliar de
- Ferrocarriles, S.A.
- Cetest Inserail, S.L.
- Patentes Talgo, S.L.
- ▶ Stadler Rail Valencia S.A.U.
- ▶ Zfoam, S.L.

Manufacturers of freight wagons

- Alstom Transporte, S.A.
- ▶ Bombardier España CAF - Construcciones y Auxiliar de
- Ferrocarriles, S.A. ▶ Talleres Alegría, S.A.
- ▶ Stadler Rail Valencia S.A.U.
- Alstom Transporte, S.A. ▶ Bombardier España
- CAF Construcciones y Auxiliar de

Locomotive manufacturers

- Ferrocarriles, S.A.
- Patentes Talgo, S.L.
- Stadler Rail Valencia S.A.U.

EQUIPMENT AND COMPONENTS **ROLLING STOCK**

Traction and control systems

- Alstom Transporte, S.A.
- ▶ CAF Power & Automation
- Cetest
- **CITEF**
- ▶ Ingeteam Power Technology, S.A.
- P4Q Electronics, S.L.
- Patentes Talgo, S.L.
- Components

▶ Tecnalia

- Albatros, S.L. AL-KO Record
- Alstom Transporte, S.A. ▶ Arteche (Electrotécnica Arteche
- Smartgrid, S.L.) ▶ CAF Power & Automation
- Cetest
- Flexix Fundiciones Garbi, S.A.
- Funor, S.A.

Convenzar

- Gamarra, S.A.
- Hispacold Ikusi
- Indra
- ▶ Ingeteam Power Technology, S.A.
- Metalocaucho, S.L. ▶ MGN Transformaciones del
- Caucho, S.A. ▶ P4Q Electronics, S.L.
- ▶ Siemens Rail Automation, S.A.U. ▶ Tecnalia
- ▶ Teknorail Systems, S.A. Valdepinto, S.L.

Equipment and machinery for the manufacture of rolling stock

- Aguafrisch, S.L.
- Cetest Danobat

Interiors

- ▶ MB Sistemas, S.Coop.
- Alstom Transporte, S.A. Colway Ferroviaria, S.L.
- Convenzar

- Idom
- ▶ Kelox, S.A.
- ▶ Teknorail Systems, S.A.
- ▶ Valdepinto, S.L.
- ▶ Zfoam, S.L.

Security

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- Alstom Transporte, S.A.
- Ardanuy Ingeniería, S.A.
- Cetest DSAF. Dinámicas de Seguridad
- Idom Ikusi
- Implaser 99, S.L.L.
- Indra ▶ Lander Simulation & Training
- Solutions, S.A.
- Luznor
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- Maintenance
- Albatros, S.L.
- Alstom Transporte, S.A. Aguafrisch, S.L.

▶ CAF - Construcciones y Auxiliar de

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- Ferrocarriles, S.A.
- Cetest Danobat
- Goratu Ikusi
- ▶ Ingeteam Power Technology, S.A. ▶ Kelox, S.A.
- Luznor
- Metalocaucho, S.L. NEM Solutions, S.L. Newtek Sólidos, S.L.
- Patentes Talgo, S.L. ▶ Siemens Rail Automation, S.A.U.
- ▶ Talleres Alegría, S.A. ▶ Tecnalia
- ▶ Teltronic, S.A.U. ▶ Stadler Rail Valencia S.A.U.

▶ Teknorail Systems, S.A.

and certification

▶ Tecnatom

OTROS ▶ Encaix Comunicació Visual, S.L.

Lamaignere Cargo, S.L.

Quality control, inspection

- ▶ Bigda Solutions (Meteo for Energy, S.I.)
 - MAFEX 69



AKKA TECHNOLOGIES SPAIN. S.L.U.

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- www.akka-tecnologies.com

Akka Technologies Spain develops engineering and consulting projects with close to 400 consultants assigned to the main technological sectors. In the railway sector, they carry out projects related to rolling stock, track infrastructure and signalling. With regard to operational railway safety, the firm develops Certification activities, carrying out independent safety assessments (ISA) on multiple systems.



ALBATROS, S.L.U.

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- www.sepsa.es

Albatros is a Spanish company, with trademark SEPSA and subsidiary of the German group Schaltbau, specialized in the design, manufacture and marketing of equipment for trains, metros and trams. It consists of two engineering units: Power electronics (design and manufacture of auxiliary power converters and battery chargers) and On-board Systems (design and manufacture of PACIS, communication systems, control systems and other integrated systems).

SEPSA is a leader in providing of auxiliary components for trains and is one of the first supply companies in such competitive markets as Europe, the United States and Latin America. The headquarters are located in Spain, where a powerful engineering department is located. In addition, Albatros has factories in Pinto (Spain), New York (USA) and Sao Paulo (Brazil).

ALSTOM

ALSTOM TRANSPORTE, S.A.

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As a promoter of sustainable mobility, Alstom Transport is the only railway manufacturer present in the full spectrum of transport systems, equipment and services.

The company offers a complete range of high performance products: rolling stock, signalling, maintenance and modernisation, infrastructure and integrated solutions. In Spain, Alstom Transport employs around 2000 people in 19 working sites, has a manufacturing site in Barcelona and develops R&D programmes both for rolling stock and railway signalling and safety projects. The technological laboratory located in Madrid has become a benchmark for signalling projects throughout the world.



AMURRIO FERROCARRIL Y EOUIPOS, S.A.

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- info@amufer.es
- www.amufer.es

Amurrio Ferrocarril y Equipos, S.A. is one of the international market leaders in the design, production and installation of railway materials. Our rolling stock interchanges and crossings are installed in high-speed rail lines, underground lines, tram lines, and conventional railways throughout Europe, Asia, America and Africa.

In the area of metal foundry, we have the experience, the knowledge and the people to produce, process and mechanize machine tool parts and sets of great technical complexity in carbon steel manganese steel and other steel alloys.



AOIFE SOLUTIONS, S.L (GALGUS)

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www.galgus.net

The software developed by Galgus, whose trading name is CHT (Cognitive Hotspot Technology), may be installed in any WiFi access point, irrespective of the manufacturer and its technology.

Upon installation of the software in a WiFi access point, this will become "smart", thus being capable of easuring what is occurring in the environment and the WiFi network itself, of sharing this information with other CHT access points and making decisions in tandem to optimise the operational functionality of the WiFi network.

Measurements taken on trains display that the use of CHT technology in WiFi access points improves the performance of a WiFi network by between 4 and 8



AOUAFRISCH, S.L.

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Aguafrisch is a service oriented company. Our task is to provide our customers needs with reliable results.

Aguafrisch provides a wide offer in equipment and services in both working fields for the company:

- 1. Aguafrisch Rail: solutions for railway equipment in depots and workshops.
- 2. Aquafrisch Aqua: solutions for water treatment both in consumption and waste waters.



ArcelorMittal ARCELORMITTAL

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- P: +34 985 18 77 50

ESPAÑA, S.A.

rails.specialsections@ arcelormittal.com

www.rails.arcelormittal.com

ArcelorMittal is the world's leading steel and mining company and it is part of a small group of rail manufactures whose production has developed notably in the specialized high-speed, heavy- haul, metro, conventional lines and other applications are light rail and tram in the different qualities of normal carbon steel, micro alloyed and head hardened rails.

ArcelorMittal quality has been recognized by customers around the world, from Europe through Asia to Oceania, America and Africa.

Next time you travel by train, no matter the continent where you are, you may be doing it on rails manufactured by ArcelorMittal.

Ardanuy

ARDANUY INGENIERÍA, S.A.

- Avda. Europa, 34 28023 Madrid (MADRID)
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- F: +34 91 799 45 01
- madrid@ardanuy.com
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Ardanuy is a consultancy company that specializes in studies, designs, works management and technical consultancy pertaining to Rail, Metro, Tram and Cable Transport.

The company was founded in December 1992 and is made up of a team of over 100 Engineers and Architects. Other experts also act as consultants to Ardanuy staff on specific projects.

In Spain, Ardanuy carries out work from offices in Madrid, Barcelona, Valencia, Seville and Tenerife. It also has offices in Lithuania, Poland, India, Colombia, Algeria and USA.

Ardanuy has always had a marked international vocation. Currently over 90% of new contracts are won on the international market, in Western Europe: United Kingdom, Ireland and France; Central and Eastern Europe: Poland, Bulgaria, Latvia, Lithuania; America: Bolivia, Chile, Colombia, Mexico, Peru, USA; Africa: Morocco, Mozambique, Algeria, Egypt, South Africa; and Asia: India, Vietnam, Kazakhstan.



ARTECHE (ELECTROTÉCNICA **ARTECHE SMARTGRID, S.L.)**

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aol@arteche.com www.arteche.com

Arteche Group's business is focused on providing equipment, applications and solutions for the electricity and railway sector worldwide.

In power generation, transmission, distribution, industry, and railway technologies, the group has become a key player in the search for answers to new challenges.

A position maintained by a deep knowledge of the different international electricity systems, efficient client-oriented organization and remarkable investment in research and development.

This is shown by over 50% increase in the brand references in the past five years. Arteche's decisions over the years made our group a symbol of reliability, quality and trust, both in solutions and in corporate relations.

Corporate alliances have taken a key role in Arteches's history, becoming and asset which has contributed to our international growth and to the development of innovative solutions.

Azvi /\/

AZVI

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Azvi is a hundred-year-old Company specialised in Civil Works whose origins are in railways, forming part of the history and evolution of the railways and its infrastructures in Spain and abroad. Throughout these years, Azvi has participated in numerous construction, rehabilitation, conservation maintenance projects over more than 1,000 kilometres of track, of which almost 450 km have been High-Speed Rail built within the last 25 years.

Azvi also has a large and modern machinery park which allows the company to carry out works with its own machines and a Logistics Centre equipped with modern facilities and state of the art resources in order to centralize a variety of support services to railway activity, such as MachineryPark, materials, maintenance, checking and repairing shops. Research and Development is also an important issue for Azvi.

Through its own R&D department, Azvi invests in railway research and development, in collaboration with various public and private entities and investigation groups.



BIGDA SOLUTIONS (METEO FOR ENERGY S.L.)

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The company undertakes development projects involving Big Data and artificial Intelligence technology to optimise

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companies' productive processes and energy consumption. Amongst other endeavours, they carry out advanced analytical projects, data analysis techniques, to define scenarios in real time and predict future behavioural trends. On the other hand, through machine learning techniques, they make predictions, based on a set of data that is fed back and improved with new information.

BOMBARDIER

BOMBARDIER ESPAÑA

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Bombardier Transportation, a global leader in rail technology, offers the broadest portfolio in the rail industry.

Bombardier Transportation Spain is one of the leading exporters of the Spanish railway industry, employing more than 750 people in its plants and offices in Trápaga (Biscay), San Sebastian de los Reyes and Alcobendas (Madrid), Madrid and Barcelona, and taking part in some of the major railway projects in the country. Its Propulsion Systems plant located in Trápaga (Biscay) and its Centre of Excellence in Rail Signalling Engineering located in San Sebastian de los Reyes (Madrid) are world top technological centres, leading the requests for Bombardier's propulsion and signalling systems for Spain and for the rest of the world. Exports represent already more than 85% of its activity.



CABLES DE COMUNICACIONES ZARAGOZA

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Founded in 1971, Cables de Comunicaciones has been steadily building its reputation as a respected business in the field of communications cables. Cables de Comunicaciones has cemented its position and its products are now used in over 50 countries around the world.

The company has a wide range of products that are certified according to the standards of the leading telecomm and railway operators in the majority of countries in Europe. It is dedicated to designing and developing excellent telecommunications, signalling, instrumentation, data and fibre optic cables.



CONSTRUCCIONES Y AUXILIAR DE FERROCARRILES, S.A.

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- caf@caf.net
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CAF is a firm focused on investigation, development, design, production and maintenance of Rolling stocks for the railway industry. Our product range include from High Speed, to regional and suburban trains, articulated units, underground trains. LRVs, light underground trains and locomotives. Maintenance of the whole range. It boasts production premises throughout Spain (Beasain, Irun, Zaragoza, Castejón and Linares), as well as in the USA (Elmira NY), France (Bagnères de Bigorre), Mexico (Mexico Df) and Brazil (Sao Paulo) and Rail Technological Centres in Beasain and Zaragoza. CAF's projects are distributed in over 25 countries around the world in the five continents.



CAF POWER & AUTOMATION

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 Sebastián. Pso. de Mikeletegi, 58 -2°.
 20009 San Sebastián (GUIPÚZCOA)
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- F: +34 943 30 92 52
- info@cafpower.com
- www.cafpower.com

CAF P&A is a global manufacturer of electric power solutions as well as information and communications systems for the rail industry.

CAF P&A have equipped more than 5,000 vehicles world wide including, metros, light rail, locomotives and high-speed trains.

One of the main strategic lines is the development of its own technology. To do so, as a major asset, CAF P&A has a team of experienced, competent and dynamic specialists. CAF P&A develops, manufactures and deliver high reliability solutions adapted to each and every client's specific needs in compliance with railway standards.



CAF SIGNALLING

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- F: +34 91 661 37 51
- ▶ cafsignalling@cafsignalling.com
- www.cafsignalling.com

CAF Signalling, the technological subsidiary of the CAF Group, provides rail traffic signalling, both in Spain and abroad.

As such, it offers railway signalling solutions and remote control for Railway infrastructures. CAF Signalling, boats the Company's own in-house engineering and expertise to take on "turn-key" railway signalling projects with recognition from several Railway Administrations in Spain and other countries in Europe, America, Africa, Middle East and Asia.



CAF TURNKEY & ENGINEERING

- Parque Científico y Tecnológico de Bizkaia, Laida Bidea, Edificio 205. 48170 Zamudio (VIZCAYA)
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- F: +34 94 623 29 29

www.cafte.com

comercial@cafte.com

CAF Turnkey & Engineering was created in 2007 with its head office is in the Technological and Scientific Park of Biscay (Zamudio).

It began its business in Integrated Engineering of Transport Services and in 2015, after merging with the company CMFS (Mexico), it increased its portfolio of services with the inclusion of EPC projects for both civil works and subsystems. Following solid and constant growth, the company currently has a workforce of 200 with offices in Zamudio, Madrid and Mexico, providing service to both companies within the CAF Group and national and international private and public customers.

Calmell & Group

CALMELL GROUP

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 Montcada i Reixac (BARCELONA)
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The first company of the group, Calmell, S.A. was founded in 1970, focusing its activity on the manufacture or graphic products. Currently, the Calmell Group is the leader in access control and identification, through its companies Calmell S.A., Affix S.L., Idoneum S.A., which are respectively engaged in producing the supports (tickets, cards,...), developing specific software and hardware, personalization and security. In the public transport sector it works for integrators and operators supplying any kind of support for ticketing and reader/writer systems. With a strong international presence through its network of representatives and distributors, the Calmell Group is able to satisfy your needs on a global level.



- Lazkaibar, s/n 20200 Beasain (GUIPÚZCOA)
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- cetest@cetestgroup.com
- www.cetestgroup.com

Test and analysis services for:

- Design verification and validation.
- Full homologation of new products and vehicles.
- Failure analysis and optimization.
 Fully accredited test lab with more than 40

years of experience in railway testing.
Test services cover the following areas:

- Structural components.
- Running gear.
- Suspension systems.
- Vehicle dynamics.
- Noise and vibrations.
- Aerodynamics.
- EMC and energy consumption.
- Mechatronics.
- Special instrumentation (Instrumented wheelsets, instrumented pantograph).



FUNDACIÓN PARA EL FOMENTO DE LA INNOVACIÓN INDUSTRIAL

CITEF (FUNDACIÓN PARA EL FOMENTO DE LA INNOVACIÓN INDUSTRIAL)

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Tecnalia is a leading research and technological development centre in Europe. They offer a vision of innovation, developing alongside companies solutions that provide value through technology and competitive solutions that transform and grow businesses, improving the future of companies and society.



COLWAY FERROVIARIA, S.L.

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- acolomerf@colway-08.com
- www.colway-08.com

Colway Ferroviaria,S.L., company belonging to the COLWAY Group, specializes in the design, engineering, manufacture, supply, installation and commissioning of turnkey railway vehicle interiors. Through the integrated management of modular supplies, based on experience, knowledge, research and innovation, the company achieves the satisfaction of the needs and expectations of its customers: railway man-

ufacturers and public administrations. Colway capabilities include Modular System solutions for Rail Interiors as Toilet Modules, Front hoods, saloons, walls, Buffet, Restaurant areas, vestibules.



COMSA CORPORACIÓN

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- F: +34 913 504 954
- ialvarez@comsa.com
- www.comsa.com

COMSA is the company of COMSA Corporación specialised in the construction of railway infrastructures. Founded in 1891, the company provides a comprehensive service in the field of railway construction and maintenance, electrification, and control and communication systems of high speed rails, conventional rails, metros and tramways. In this business activity, it is leader in Spain, where has been involved in the construction of all high speed lines, and has permanent operations in Argentina, Brazil, Lithuania, Mexico, Poland, Portugal and Turkey. It has also taken part in a large number of projects in other markets such as Italy, the Philippines. Taiwan, Malaysia, India, etc. This extensive experience has been the key for its consolidation in the railway sector and has enabled it to become the leader in the railway construction industry.



CONVERZAR

- Pol.Ind.Malpica C/F Oeste Grupo Gregorio Quejido, Nave 64 CP 50016 – (ZARAGOZA)
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- sergio.boillos@converzar.com
- www.converzar.com

Desde 1975, Converzar es una empresa que se dedica a la distribución y convertido de cintas adhesivas, abrasivos y adhesivos líquidos.

Experiencia, calidad, flexibilidad, agilidad y compromiso con las personas y el medio ambiente, son los valores que mejor nos identifican.

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Nuestras principales líneas de negocio han estado siempre pensadas para aportar las mejores soluciones a las distintas necesidades de nuestros clientes y son:

- 1. DISTRIBUIDORES de cintas adhesivas, adhesivos líquidos y abrasivos. Contamos con el distintivo Preferred Converter de 3M, también trabajamos con marcas líderes del mercado de los adhesivos, lo cual una garantiza la calidad de nuestros productos y nos convierte en proveedores de confianza.
- 2. CONVERTIDO Y FABRICACIÓN de materiales adhesivos. Ante la necesidad de nuestros clientes de elementos adhesivos que optimicen su proceso productivo, Converzar ofrece soluciones integrales desde las fases de desarrollo, prototipos y series, hasta la fase de aplicación de nuestro producto ofreciendo también opciones de automatización.



CREATIVITIC INNOVA, S.L.

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- jrlopez@creativitic.es
- www.creativitic.es

Consulting, training and research and the development of products, systems and services based on emerging and innovative technologies using augmented, virtual and mixed reality, integrated with IoT and AI systems for technical support in industrial solutions...



DANOBAT

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- www.danobat.com

Danobat Railways business unit focuses its activity in the supply of turnkey solutions for the manufacturing and maintenance of railways rolling stock, incorporating own products of leading technology, together with those manufac-

tured by specialized companies. It gathers extensive experience and qualification in the rendering of services such as engineering services, equipment integration, complex project management, and collaboration with the customer all along the life of the project. Danobat has a strong international presence and references in the most relevant customers.



DSAF – DINÁMICAS DE SEGURIDAD, S.L.

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- www.dsaf.es

DSAF is a company structure devoted to People's Movement Safety. It is committed to providing new technologies applied to design and project implementation, as well as initiatives that guarantee an approved evacuation safety level in this generalized risk society.

Emergency signalling is DSAF's main application area; it develops photoluminescent, electroluminescent and LED signalling systems for people evacuation in risk situations and environments: tunnel evacuation safety, vessel evacuation safety, building evacuation safety...

DSAF safety applications are developed in three big areas: tunnel safety (road / railway), safety in vessels, and buildings.



DURO FELGUERA RAIL, S.A.U.

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- www.durofelguera.com

DF Rail is a Spanish company specialized at the design, manufacturing and supply of turnout systems and components for Metro, Conventional, Heavy Haul or High Speed Lines. Turnouts, single and double crossovers, diamond crossings, single and double slip crossings, single and double junctions, switch expansion joints, ..., on wooden or concrete sleepers; for ballasted or unballasted tracks; for single or combined gauges; with monobloc Mn steel crossings or with swing nose crossings; insulated glued joints; transition rails



ECOCOMPUTER S.L.

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- F: 34 985 56 83 17
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- www.ecocomputer.com

Ecocomputer S.L. is a technology firm based on North Spain (Asturias and Cantabria) and focused on the design, development and implementation of IT solutions on the railways industry (ie: ticketing, booking, passenger information system) and access control and time&attendance business. Founded on 1999, it holds a wide portfolio of own products as a result of years of evolution and adaptation to customer needs. Ecocomputer provides as well onsite IT maintenance services for the railways operators and administrator (Railway infrastructure companies Control and Regulation Centres, security infrastructure, IT equipment).



ELEKTRA-GRUPO ELEKTRA, S.A.

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- ▶ railway@elektra-sa.es
- www.grupoelektra.es

Grupo Elektra is a market leader in the field of electrical and electronic equipment distribution for manufacturers of rolling stock, maintenance and railway equipment manufacturers.

Being the leading company in the railway sector in the supply of electrical equip-

ment. Your solution provider in electrical products for railway, with specific tecnical support. Elektra Group is composed of an extensive Spanish national network and has companies in Romania, India and USA.



FLEXIX

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- www.flexix.com

Flexix develops, manufactures and sell worldwide injection and extrusion rubber parts, rubber-metal, rubber-plastic and assemblies.

We belong to Kächele-Flexix Group, with plants near Stuttgart and Munich (Germany), Zamudio (Spain) and a logistic warehouse in Houston (USA).

Our products for the railway sector, are mainly for infrastructures, absorption of vibrations under track, tie pads for sleepers, with different stiffness, new developments, materials, competitiveness, non-conductivity (or yes, if necessary), non-harmful gases.

Type of parts Flexix produces: Ducts, bellows, tubes, silentblocks, joints, bumpers, axles, links, valves, bearings.

Mixtures: nr, sbr, epdm, cr, nbr/hnbr, eco, aem, acm, vmq/silicone, fkm/fpm.



FUNDICIONES GARBI, S.A.

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- www.fundicionesgarbi.es

Founded back in 1972, Fundiciones Garbi has evolved from a traditional foundy to a Global Service Company for industry.

We offer a full catalogue of services starting from the casting or other materials till delivery of "ready to use" parts or assembly sets. With this aim, we have developed an organization oriented towards solid and competitive processes, ensuring quality from design phase using APQP tools. Well aware of customer satisfaction, we offer to our clients additional global services including a full range of heat treatments, machining, product inspection and testing (NDT's, etc), protection and finishing surface treatment (Painting, Metallization, Others...), including final assembly of different parts. For the Railway industry we are specialized on production of rolling stock material.



FUNOR, S.A.

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- F: +34 947 29 82 93
- info@funorsa.es
 www.funorsa.es

Castings in carbon steel, alloy steel and stainles steel.

Our products:

- Steel casting.
- Raw castings or fully machined.

Examples:

- Bogie components.
- Pivots.
- Motor housings.
- Pressure rings.
- Axle boxes.
- Links.



GAMARRA, S.A.

- Portal de Vergara, 6 01013 Vitoria (ÁLAVA)
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Gamarra, S.A. at a glance: Spanish steel foundry -located at Vitoria Gasteiz- annual production: 4,000 tons - customers: European State Railways, - producers of rolling stock and their subsuppliers - as

foundry and supplier homologated by DB AG (HPQ), ÖBB, SBB, SNCF (AFQ) (extract) as well as according to DIN EN ISO 9001: 2000 + DIN 6700 - 2. Products: brake discs, brake block shoe holders, buffers, spigots and essential steel castings for bogies.



GANTREX, S.A.

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Gantrex Spain, S.A. is the global market leader in specialty rail tracks fixation including design, production, supply of goods and installation of turnkey contracts. Rail fixation at train workshops, embedded rails accesses for Ports or logistic terminals and private rail installations together with other Subway's and Tram's required installations are some of Gantrex Spain's main activities.

Products:

- All sections of rails
- Metallic railway sleepers
- Rail fixing Clips
- Rubber pads for rails
- Steel columns for trains maintenanceEmbedded rail fixation systems (recycled rubber)
- Embedded rail fixation systems (polyurathana)
- Hydraulic buffers



GMV SISTEMAS, S.A.U.

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Since 1994 GMV provides Intelligent Transport Systems, offering turnkey solutions and specific products. GMV develops applications adapted to sector needs, including satellite navigation, mobile communications, passenger information, fare collection systems and monitoring-and-control centers. GMV's railway portfolio

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includes fleet management system, SAE-R®, providing operators with an all-in system for planning and management, and other products like CCTV, PA-Intercomm and Passengers Video Information, as well as electronic fare collection systems for railway sector.



GORATU

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- http://www.goratu.com

Under the trademark of the prestigious market leader GEMINIS, Goratu develops horizontal and multiprocess lathes of the highest technology.

We offer customized solutions for high specialization technologies.

60 years of experience and specialized knowledge in the Railway Sector have let us to the design and manufacture of lathes for manufacture and maintenance of axles, wheels and wheelsets.



HICASA - HIERROS Y CARBONES, S.A.

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- F: +34 985 26 09 05
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- www.hicasa.com

HICASA specialises in the storage, transformation, distribution and commercialisation of railway materials, rails and railway accessories of all types in accordance with both European (UNE EN), as well as American (ASTM) Standards, not to mention others such as AREMA, etc.

HICASA belongs to a private group of companies, GEVIR, which is made up of four enterprises in Spain, and is special in the sense that it combines its role of distributor with that of manufacturer, given that it possesses its own specialist light rail factory, a fact which endows it with a unique market profile. We can boast of a roofed surface area at our installations of over 13,000 m2, where we dispose of modern cutting and drilling machines that enable us to transform iron and steel and to supply orders of any format and measurement, in accordance with the specifications requested by our clients. We export over 50% of our products abroad.



ICON SISTEMAS DE **INFORMACIÓN Y DATOS**

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- www.iconmm.com
- www.denevads.com

Software development company specialized in passenger information systems, digital signage and advertising schedules, covering all areas of transport, either rail/metro, airports, bus or port. ICON Multimedia also has a significant presence in the world of commerce/retail, menuboards, and the banking sector, with worlwide reference clients with more than 40.000 points deployed around the world.

It stands out for the wide degree of customization of your product to suit the needs or requirements of any client or that may be contained in a statement of technical conditions.

IDOM

IDOM

▶ Zarandoa 23 48015 Bilbao (VIZCAYA)

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- oscar.rico@idom.com
- www.idom.es

IDOM is one of the european leading companies in the field of professional services in engineering, architecture and consultancy. It is an independent company established in 1957 and it has participated in over 30.000 projects in five continents. In 20 countries with 39 offices throughout regions (America: Argentina, Brazil, Canada, Chile, Colombia, USA, Mexico, Perú), Asia (India), Africa (Argelia, Lybia, Morocco), Middle East (Saudi Arabia, UAE), Europe (Belgium, Slovenian, Spain, Poland, Portugal, United Kingdom). More than 3.000 staff posseses the expertise and experience to cover all the phases of a railway project (high speed, conventional, freight, metro, light rail, tramway, stations, depot and workshops), from conception to commissioning and beyond. IDOM will accompany the client by providing the correct technical assistance required for the decision-making process: technical specifications for design, alternatives studies, demand and traffic studies, financial and socioeconomical analysis, basic and detailed design, operational and maintenance plans, works supervision, testing and commissioning.



IKUSI

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Ikusi offers integral solutions for exploiting the diverse means of urban public transport (Bus/BRT/Tramway/Light Rail/ Metro/Suburban), as well as in intermodal transport hubs. One proposal, backed up with a track record reaching back more than 20 years in the sector, has the main goal of improving passenger experience. guaranteeing safety, increasing revenue from secondary sources independent from the main activity, and streamlining operational efficiency.



IK4 RESEARCH ALLIANCE

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- P: +34 94 382 03 50
- otegi@ik4.es
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IK4 Research Alliance is a private and independent alliance of R&D centres, a benchmark in the European R&D context. It comprises 9 organisations in the Basque Country: AZTERLAN, CEIT, CIDETEC,

GAIKER, IDEKO, IKERLAN, LORTEK, TEKNI-KER and VICOMTECH.

The IK4 Research Alliance sets out to generate, capture and transfer scientific and technological knowledge mainly to the business framework. This way it contributes towards improving the competitiveness of companies and the progress of society. Nowadays it gathers a staff of 1275 and an income of 102M€ in 2014.



IMPLASER 99. S.L.L.

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- P: +34 902 18 20 22
- F: +34 902 18 20 22
- international@implaser.com
- www.implaser.com

Implaser is a Spanish company focused in developing innovative security signs for railway projects. Innovation and quality are our mainstays, as we were the first SME being certified in R+D+I in Spain. Implaser has all the range of products certified by AENOR with photoluminescent values of 150, 300, 580 and 720 mcd/m².

We are also specialized in the manufacturing of informative, security and accessibility stickers for coaches, to be used both indoor and outdoor. Hard work and great concern for innovation has allowed us to develop new products, such as photoluminescent systems combined with electroluminescent and guiding systems by LEDs.



INDRA

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- www.indra.es

Indra is a world leader and pioneer in the supply of technological platforms for railway operations management, control and supervision, having specific solutions already tested on high speed and conventional lines and metropolitan operations. Indra is also a leader in ticketing systems for transport operators

and has facilities and projects all over the world. Furthermore, Indra develops highprecision safety and signalling systems. At this moment in time, Indra's solutions are completely unique because of their high level of integration and adaptation to the current and future necessities of the railway environment whatever may be the most state of the art technological and operative options. Indra has managed to open a competitive market for the first time based on technological and economical competitiveness.



- Paseo de la Habana, 138 28036 Madrid (MADRID)
- P: + 34 91 452 12 00
- eva.pulido@ineco.com
- www.ineco.com

www.ineco.com

Global leader in transport engineering and consultancy, it has contributed to the development of transport infrastructures for over 45 years in more than 45 countries. Its high level technical specialisation allows its activity to diversify into new markets and reinforce its presence in those where it is already established.

Its participation in the whole railway system in Spain has led the company to develop important international projects like the Makkah-Madinah high speed in Saudi Arabia, the Ankara-Istanbul line in Turkey and the HS2 project in the United Kingdom.

Ingeteam

INGETEAM POWER TECHNOLOGY, S.A.

Edificio 702.

Parque Tecnológico de Bizkaia 48160 Derio (VIZCAYA)

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- F: +34 94 403 98 37
- ▶ traction@ingeteam.com
- www.ingeteam.com

Ingeteam is an expert leader in the development of electrotechnical and power electronics systems involving energy exchanges at large.

Our capacities and the experience on

the railways sector allow us to offer technological solutions that significantly contribute to reach our customers strategic objectives, leading to maximize operational efficiency. We strive towards on offering inhouse/ state-of-the-art developments for:

- Rolling Stock: Traction Systems and TCMS
- Infrastructure: Energy Recovery Systems.



INTERNACIONAL HISPACOLD, S.A

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- P: +34 954 677 480
- F: +34 954 999 728
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- www.hispacold.es

Hispacold is a World leader company for climate systems specialized in comfort for people with more than 30 years' experience. Hispacold designs and manufactures HVAC solutions for all rail vehicles: trams, metros, EMUs, DMUs, LRVs... with proven and reliable technology solutions. In Hispacold each activity is based on a solid quality culture and on a real commitment with the environment.

Ouality certifications ISO 9001, ISO 14001. OSHAS 18001 are only the smallest part of this working way.

Hispacold is a company of Irizar Group SC, which employees more than 3.000 people in the five continents and has a global turnover of more than 550 Million €.

This gives Hispacold the benefits from a multinational organization while maintaining an individual company spirit. Hispacold's presence in the five continents guarantees the best technical assistance at any place of the world.



INSERAIL, S.L.

- Alberto Alcocer, 46 3°A
- 28016 Madrid (MADRID)
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This is an engineering and consulting firm ounded in 1994 and focused on the railway,

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energy and building sectors, developing its activity in the different stages of planning, design, construction and exploitation of investments.



JEZ SISTEMAS FERROVIARIOS, S.L.

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- P: +34 94 672 12 00
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- www.jez.es

JEZ Sistemas Ferroviarios, S.L. is committed to designing, manufacturing, supplying and maintenance of all types of manganese steel switches and railway track systems, in addition to moulded cast steel parts for the general industry. Our Technical Department (Department of R&D) ensures we have the capability of designing and producing points and crossings (turnouts, crossovers, scissor crossovers and diamond crossings) or parts for them, such as hard steel manganese crossings or spare tongues. At JEZ Sistemas Ferroviarios, S.L. we fit our developments to meet clients needs.



KELOX, S.A.

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- marketing@kelox.es
- www.kelox.es

Kelox launched its railway activity in 1977, manufacturing catering equipment for dining cars on longdistance lines. The experience and knowledge acquired over the years have become Kelox specialist in the design and full supply of galleys and catering equipment for high-speed,

shuttle and regional trains. Our style of design is characterised by harmony; it is beautiful, ergonomic and functional, always according to the customer specifications.



LADICIM (UNIVERSIDAD DE CANTABRIA-LABORATORIO DE LA DIVISIÓN DE CIENCIA E INGENIERÍA DE LOS MATERIALES)

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- Fax: +34 942 20 18 18
- ladicim@unican.es / casadoja@ unican.es
- https://ladicim.es/

The mechanical laboratory LADICIM - UC transfers to society the knowledge available in the University, through continuous dvisory services and agreements with companies and institutions for the development of R&D+i, and captures the areas in which the knowledge must be further enhanced, to then offer a better service.



LA FARGA, S.A.

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- gustau.castellana@lafarga.es jordi.vilaro@lafarga.es
- www.lafarga.es

La Farga Yourcoopersolutions is a model company in the railway sector, with more than 200 years' experience in the copper industry. A solid international presence and continuous innovation in the search for new alloys have enabled it to produce high-service materials. La Farga Lacambra provides global solutions for copper materials and its

alloys such as CuMg, CuSn or CuAg, integrating the whole productive process and ensuring the maximum technical qualities.

These products satisfy the needs of the market for all kind of lines and speeds around the world.



LAMAIGNERE CARGO

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- Fax: +34 91 312 01 66
- ▶ fherrero@lamaignere.com
- www.lamaignere.com

Spanish company with a presence through its network of collaborators and with its own offices in different markets, dedicated to international air and sea transport services, assessment and customs management.



LANDER SIMULATION & TRAINING SOLUTIONS, S.A.

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- P: +34 943 21 74 91
- Fax: +34 943 21 74 91
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- www.landersimulation.com

Lander Simulation & Training Solutions, S.A., is a Company specialising in the design, development and implantation of state-of-the-art commercial simulation devices aimed at training professional drivers of all types of railway rolling stock (underground, tramways, regional, long distance and high-speed rail networks).

It boasts a powerful sales teams that has developed a direct sales technique to potential clients both in Spain and abroad.



LIMMAT M&M S.L.

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 40003 Segovia (SEGOVIA)
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- info@limmat-group.com
- www.limmat-group.com

Limmat Group boasts extensive experience in the rail infrastructures sector, supporting the processes and projects of its clients through comprehensive solutions aimed at engineering, consulting and technological and innovative products that maximise efficiency in their engineering and consulting operations: Limmat Group is a specialist in management and consultancy and engineering activities of all types of PPP projects, with maximum specialisation in railway infrastructures.



LUZNOR

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Luznor Company is specialized in the design, manufacture and commercialization of professional torches (for railway industry), emergency lighting (for industry and architecture) and other Electronic devices. Luznor offers you (in its factory in Vitoria) highly qualified technicians, a high standard of quality, an effective system development, manufacture and testing, and above all, a philosophy of commitment to our customers allowing us to offer innovative products equipped with advanced technology and recognized prestige.



MB SISTEMAS, S. COOP.

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- F: + 34 94 403 06 27
- amacias@mbsistemas.es
- www.mbsistemas.es

MB SISTEMAS is part of MONDRAGON CORPORATION. We develop turnkey "World

Class" engineering projects, implementing automation solutions into the Assembly and welding phases of manufacture process for car body structures of railroad passenger cars. We give "ad hoc" solutions for the customer's needs; having implanted successfully our facilities around the world. As engineering we develop both, robotic installations and special machines for any assembly process.



METALOCAUCHO, S.L.

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MTC specialises in the design and manufacture of anti-vibration and suspension solutions for Rolling stock. The Company was established in 1982 and currently has three manufacturing sites, located in Spain (HQ), China and India. In 2009 the company was awarded IRIS Certification. MTC, being among the leading companies in its sector, supplies to the main Rolling stock Constructors worldwide, including Alstom, Bombardier, CAF, CSR, CNR, Hyundai Rotem, Siemens, Talgo, Vossloh). We also collaborate with Operators for the supply of spare components for their overhaul projects. Our main products are rubber-metal primary and secondary suspensions, focusing on primary springs (conical or chevron type), guiding bushes, guiding links, secondary air springs and emergency springs, traction rods, elastic bushings, buffers, layer springs as well as a diverse range of associated rubber-metal solutions.



MGN TRANSFORMACIONES DEL CAUCHO, S.A.

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- www.mgncaucho.com

MGN was established in 1957 and since then it has been developing its activity both

designing and manufacturing rubber-metal components, mainly for the railway industry. MGN invests in research and innovation as a basis for the development of elements to be adapted in the new understanding of passenger and fright trains, taking the lastest technological advances of the rubber world, vibration control and damping systems.



NEWTEK SOLIDOS S.L

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 Zarautz (GUIPÚZCOA)
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- contact@newteksolidos.com
- www.newteksolidos.com

NEWTEK is mainly active in the manufacture of systems for filling sand in trams, trains and locomotives.

NEWTEK supplies installations composed of storage silos, fixed sand feeders, sand feeding mobile units, aspiration systems and dust collection devices.

The company also designs, manufactures and maintains custom installations according to the needs of each client.



NEM. NUEVAS ESTRATEGIAS DE MANTENIMIENTO, S.L.

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- F: +34 943 30 93 26
- Info@nemsolutions.com
- www.nemsolutions.com

At NEM Solutions we offer total control of business operations and maintenances for the railway industry. Our products and services project the assets' future from data generated daily. The objective is to give our client the possibility to control his/her own business and to avoid surprises.

Thanks to our expert knowledge we provide wheel life management, productivity improvement and O&M cost reduction.

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P4Q ELECTRONICS, S.L.

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- ialberdi@p4q.com
- www.p4g.com

At P4Q we are involved in the complete development of electronic devices and lean production services. We are structured as an integral supplier of electronics solutions, focused in flexibility and quick development. We design under customer specs and approval. Being a partner of our customers giving global support attending local production demands. Is the basis of our strategy. We have facilities in Albuquerque (NM), USA as well as in Spain.



PARRÓS OBRAS, S.L.

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- rocio@parros.es

www.parros.es Family business with over 25 years experience in civil construction and iron and steel industry for the railway sector. Parros Group which is specialized in pile driving and catenary foundations, has implemented the 80% of the foundations of the entire Spanish High Speed Network. Whether conventional railway network or Highspeed Railway (AVE), PARROS GROUP is distinguished by the versatility of our machines adapted "Ad hoc" for auxiliary civil works from the railway, with automatic switching to the three Spanish gauges. Also innovative is our implementing system of noise barriers from the

railway track and its foundations. Generic

activities of building and general construc-



PRETENSADOS DEL NORTE S.L.

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- P: +34 945 258 431
- F: +34 945 261 400
- pretenorte@pretenorte.com
- www.pretenorte.com

PRETENSADOS DEL NORTE produces the best prestressed wire for railway sleepers in the world. More than 30 years' experience, PRETENORTE only uses the best raw materials and we can supply any need required by the client.

We have supplied prestressed steel for several projects around the world and our material is considered the one with the best quality in prestressed WIRE world. We have the best and most modern machinery and a highly qualified team of experts and engineers. We also produce prestressed steel used in precast concrete parts and structures.



PATENTES TALGO, S.L.

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- F: +34 91 631 38 93
- marketing@talgo.com
- www.talgo.com

Talgo, leading High Speed rolling stock manufacturer in Spain, has over 70 years of experience manufacturing very high speed, high speed, intercity and regional trains, tilting passenger coaches and locomotives.

The company is also a pioneer in providing complete maintenance solutions to railway operators worldwide, and is specialized in the design and manufacture of maintenance equipment for any type of rail vehicles.

PRECON

PRECON: PREFABRICACIONES Y CONTRATAS, S.A.U.

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- F: +34 91 359 12 46
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- ferroviario@precon.cemolins.es
- www.cemolins.es

PRECON is the Spanish leader in design and supply of precast concrete products for railway tracks, either ballasted and ballastless tracks.

PRECON has supplied solutions based on monoblock, twinblock, block, slabs and sleepers for switches and crossings. Either for high speed, conventional lines, heavy haul, subways and tramways. PRECON from its two Spanish factories has supplied more than 15 millions twinblock sleepers, 5 millions monoblock sleepers, 500,000 ml sleepers for switches and crossings and currently manufacture most of the slab track systems in use in Spain.



SEMI, S.A. (GRUPO ACS)

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- F: +34 915 218 597
- ferrocar@semi.es
- www.semi.es
- www.grupoacs.com

A society in international expansion. With the adaptability of a small business, the infrastructure of a big company and the financial backing of a large group. SEMI is encompassed in the major companies of Industrial Services sector of the ACS group. Focused in the industrial field, SEMI build infrastructures for energy, transport, communication, environment and nonresidential building. Activity in the railway area: Electrification and Traction

Substations for AC and DC, Auxiliary Electrical Equipment, Engineering and Consulting, Maintenance of Catenary and Substations, Infrastructure for Railway Signaling and Communications.



SEGULA

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- F:+34 917 991 113
- www.segula.es

SEGULA Technologies is an international engineering consultancy group specialised in cutting-edge innovation.

Since 2002, SEGULA Technologies is present in Spain. We are an engineering services company with more than 1.000 professionals working in Staffing, Consultancy, PLM and Fixed Price Projects.

It is based in 12 locations in Spain: Madrid, Barcelona, Vitoria, Zaragoza, Bilbao, Pamplona, Vigo, Valladolid, Vigo, Valencia, Sevilla and Cartagena close to the main customers. In 2016, SEGULA Technologies turnover in Spain was more than 54 million Euros. More than 60% of our collaborators are university graduates. Our customers include leading companies in leading sectors: aeronautical, automotive, energy, industry, IT, rail, etc...



SENER INGENIERÍA Y SISTEMAS, S.A.

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- dep.infraestructurasytransporte@ sener.es
- www.ingenieriayconstruccion.sener

Sener is one of the leading engineering and technology groups in Europe with over one billion euros of annual turnover, more than 5,000 professionals and a continuously growing international presence with offices in more than 15 countries.

In the field of railway engineering, Sener count on an extensive experience in metros, light rail trains systems and tramways, conventional railway line, freight transport and High Speed Lines. Sener's activities range from preliminary, conceptual and feasibility studies, basic and detailed engineering to project management services, supervision of works, value engineering or ICE services.



SICE TECNOLOGÍA **Y SISTEMAS**

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- www.sice.com

SICE Tecnología y Sistemas, (SICE TyS) is a multinational group of Companies, technology and systems integrators operating in the fields of traffic and energy, transport, environment and telecommunications and all types of industrial processes.

SICE TyS's transport activities are focused on meeting the needs of users, operators and transport operation concessionaires in the transport sector.

As a systems integrators and systems suppliers, they offer unique technological solutions tailored to all kind of installations. Design of the Centralized management of all services that complement any form of public or private transport and integrates different solutions and systems:

- Security&Safety Systems for Metros and Railways
- Telecommunications Systems for Metros and Railways
- Signaling: (Interlocking, Level Crossing, CTC)
- Electric BRTs
- Ticketing
- Public transport prioritization
- Consulting Engineering (OFITECO): Railways lines, Tunnels, Load test (railways bridges).

SIEMENS

Ingenio para la vida

SIEMENS RAIL AUTOMATION S.A.U.

- ▶ Ronda de Europa, 5 28760 Tres Cantos. (MADRID)
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- www.siemens.es/railautomation

Siemens Rail Automation is the resulting Company after the acquisition of the Invensys Rail Dimetronic group by Siemens. The new division offers integrated mobility solutions through the most advanced technologies for railway signalling and train control. Our main purpose is the supply of "turn-key" projects, including all the phases of design, development, supply, manufacturing, installing, testing, commissioning and maintenance of railway signalling systems and automatic train control systems for either mass transit applications as main line and high speed lines.

The solutions and systems of Siemens Rail Automation allow railways and metropolitan networks to improve the safety of their railway application; increase the capacity of the lines; reduce operating costs; optimize maintenance works; obtain a better usage of its rolling stock, having at the same time lower energy consumptions rates and to decrease energy consumption.

STADLER

STADLER RAIL VALENCIA S.A.U.

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- F: +34 96 141 50 02
- info@stadlerrail.es
- www.stadlerrail.com

The new Spanish División of Stadler has a long history as rail vehicles provider. Stadler Rail Group completed the purchase from the Vossloh Group of its Spanish business unit of manufacture of locomotives and light rail vehicles at the end of 2015. This acquisition falls within the long term growth strategy of the Stadler and reinforces its position as one of the leading manufacturers of

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railway vehicles with new products and the access to new markets.

Technology and quality are the key points of the entire range of products developed and produced in the Valencia plant. Closely linked with the industrial heritage of railways and with the benefit of more than a century of experience, Stadler Rail Valencia designs and manufactures stateof-the-art locomotives as well as passenger trains and provides a comprehensive range of services such as the maintenance of the vehicles, spare parts logistics, technical support or training.



Talleres Alegría, s.a.

TALLERES ALEGRÍA, S.A.

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- F: +34 985 26 60 1
- ▶ talegria@talegria.com
- www.talegria.com

Talleres Alegría with more than 100 years at the service of railway's networks, offers to its customers a wide range of fixed track equipment with the best quality and service conditions. Following its own technical design or its customer's, Talleres Alegría manufactures among other turnouts for High Speed Lines, conventional Lines, subway and Tramway lines, as well as End Forged Switch Points and Track Vehicles. Being aware of the relevance of comfort within the railway sector, Talleres Alegría has collaborated with leading companies developing and applying technical solutions for mitigating noise and vibrations during the crossing over the turnouts.



TECNALIA (FUNDACIÓN TECNALIA **RESEARCH AND INNOVATION)**

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- www.tecnalia.com

CITEF was created in 1998 as part of the F2I2 (Foundation for the Promotion of Industrial Innovation) for the purposes of development, innovation, experimentation, study and training in the railway knowledge area. This is a non-profit organisation that pursues general interest aims within any relevant rail transport technology sector.



TECTATOM

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- P: +34 91 659 8600
- F: +34 91 659 8677
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- www.tecnatom.es

Tecnatom has more than 50 years of experience in the application of Non Destructive Testing (NDT) to the inspection of components.

It also offers its high technological level in the development and application of inspection systems and techniques to the railway market, where security and quality control are increasing required.

Tecnatom can provide its depth knowledge on materials currently used or tested in the railway sector (metals or new materials carbon-fiber based), taken advantage of its activities in the nuclear and aerospace sectors.

The main fields where it is carrying out activities in the railway sector are:

- Inspection services for infrastructures and rolling stock
- Development of inspection techniques and procedures
- Development of inspection equipment and systems (ultrasonics, eddy currents) for rail transport components (track, axles, bogies, wheels)
- Training of operators on Non-Destructive Testing (NDT) techniques ■ Development of training simulators for train drivers.



TECNIVIAL

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Created in 1973, Tecnivial is the Spanish reference in traffic safety. It contributes giving solutions regarding Airport, Railways, and Road Signaling and marking.

The challenge for a permanent evolution, technological innovation, and customer's satisfaction are our identity signs. In Tecnivial we specialize in all types of fixed signalling for roads, both conventional and high speed lines; in this last section are one of the companies approved by the Railway Infrastructure Administrator (ADIF). We have extensive experience in railway stations signalling, carefully following the specifications of the corporate identity manuals. We develop comprehensive and customised signage projects, from project design to final installation and maintenance service.

Tecnivial has always been committed to the I+D+i, which has allowed it to be a reference in the fixed railway signaling, high-speed and conventional network, while being present in the most relevant projects at the national level: this is the case of the Madrid-Figueras or Olmedo-Orense sections, and internationally, Ave Medina-La Meca.



TEKNORAIL SYSTEMS, S.A.

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Teknorail Systems, S.A. is a company belonging to the EUROFINSA Group, whose activity focuses on the development of railway interior projects, aimed both for the refurbishment of existing vehicles and also for new rolling stock, with a scope of supply

that ranges from the design and engineering to the industrialization and material supply. including the technical assistance to the car commissioning.

Teknorail's main goal is to provide its customers with high-quality solutions for railway interiors by means of innovation, global project management, modular supply and flexible solutions.



TELICE

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www.telice.es

Telice is a Spanish company with 39 years of experience in several fields of technology installation, especially for the railway sector.

Our activities cover design, installation maintenance for Electrification Systems, Railways Safety and Signalling, Optical Fiber, Industrial Automation and Electrical Installations Our extensive experience has made Telice a preferred partner for carrying out work and providing services for important railroad administrations and major construction and technology companies in the railroad industry.



Teltronic, S.A.U.

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Backed by over 40 years of experience in

the design, manufacturing, and deployment of Professional mobile radio projects worldwide, Teltronic presents a broad portfolio of critical communication solutions for transport sector, providing complete solutions: network infrastructures, control centres, and end-user equipment, including specialized onboard systems specifically designed to meet train, metro, tram and LTR

The company's technical independence and willingness to customize its solution to each specific project allow Teltronic to fulfil the most demanding requirements in both communication and security systems. Besides voice and data transmission solutions, the company offers a wide portfolio of integration services with other subsystems, such as interconnection with PA and intercom systems, applications to manage and control fleets and for operating aid, real time CCTV in trains and stations or communications support for signalling systems ETCS, CBTC, PTC, among others.

THALES

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Thales is a World leader in Mission Critical Solutions for Land Transportation. Thales Spain, with more tha 60 years of experience, has been pioneer and leader in the technological development of the Spanish railways, beein one of the main suppliers of safety and telecommunication systems for the Spanish Railways Administrations and present in countries as Turkey, Mexico, Algeria, Malaysia, Egypt and Morocco. Its activity goes from the development, manufacturing installation, commissioning to the maintenance of equipments and systems for railway signalling, train control, Telecommunication, Supervision ticketing and critical infrastructures security.

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With more than 50 years of experience, TPF GETINSA EUROESTUDIOS has grown into a leading business group in Spain and an international benchmark in the engineering sector of transportation infrastructures and the environment. The projects and studies required to develop public works and linear infrastructures are achieved thanks to our human and TYPSA material resources.

We are experts on the comprehensive management of infrastructure in all its phases, P: +34 91 722 73 00 starting from the preliminary design up to the operation and maintenance, including all the intermediary steps as profitability analysis, studies, projects, works control and supervision, as well as financial management. These activities are developed both in Spain and abroad. Our international delegations have been established in different countries and our experience extends over 40 countries in Europe, Asia, America, Middle East and Africa. We are currently working international projects in 30 countries.At present, the TPF Getinsa-Euroestudios employs more than 1200 professionals, two thirds of whom are university graduates.



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TRIA empezó como empresa especializada en soluciones para las tecnologías de cambio de ancho automático. Nuestros clientes nos demandaban un abordaie EPC que incluvera el diseño y desarrollo de la solución tecnológica, la construcción de las obras civiles, la fabricación de las estructuras y mecanismos, la instalación mecánica, eléctrica, de vía, de catenaria, comunicaciones, señalización ferroviaria y la puesta en marcha como solución terminada v funcionando. De esta manera nos convertimos en expertos en las distintas tecnologías ferroviarias. Tenemos nuestros talleres de fabricación, nuestra maquinaria ferroviaria y por encima de todo contamos con equipo altamente cualificado y motivado.



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Typsa Group is one of the most important European consulting groups and leader in the fields of civil engineering, architecture and the environment. Since its creation, in 1966, Typsa Group's ever-increasing activities, having focused both on preliminary assessment and on design, as well as supervision and/ or management of construction projects in Europe, the Americas, Africa and the Middle East. Typsa is one of the most experienced Spanish consulting firms in the field of railways and metro systems. We have been involved in more than 4,700 km of High Speed lines (HSL), 2,600 km of conventional lines, 390 km of conventional metro and 450 km of tram and light-rail transits.



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Valdepinto, S.L. was established in 1986 and focuses its activities in the Railway sector. We have four main product lines:

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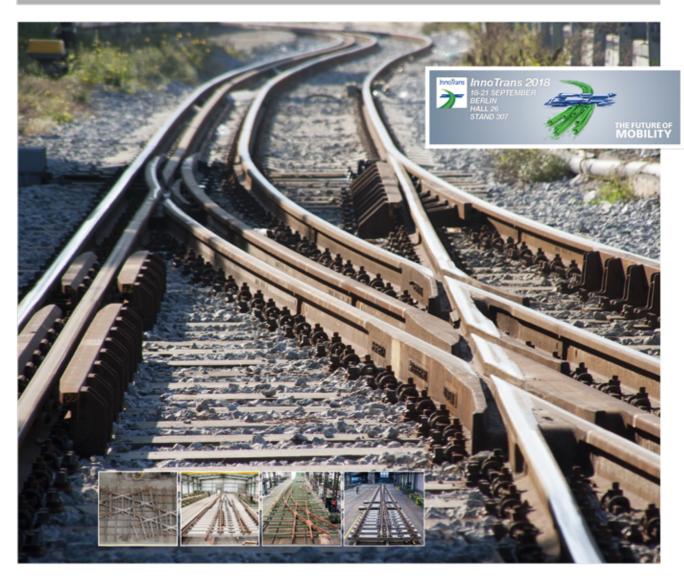
Vicomtech is an applied research centre, founded in 2001 and located in the San Sebastián Technology Park, which develops technological olutions in the fields of Computer Vision, Data Analytics, Computer Graphics, Advanced Interaction, and Language Technologies. The results of their research projects are applied to various sectors such as automotive, rail, intelligent transport systems, industry and advanced manufacturing and energy, amongst others. All of its activities are regulated with the R& D+I management system, such as the continuous improvement of results and its measurement, the optimisation of technological innovation processes, as well as the transfer and generation of knowledge, thus ensuring that it uses methodologies of the very highest quality.

ZFoam

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