



SUCCESS STORIES

FOREIGN INVESTMENT IN ASTURIAS

ARCELORMITTAL India

ArcelorMittal is the main world producer of iron and steel. Asturias is home to the only iron and steel plant in Spain where the entire steel production process is undertaken.

ArcelorMittal produces 5 million tonnes of steel in Asturias. Each year it produces approximately a fourth of the steel produced in Spain.

The company has an acclaimed R&D&I Centre in Asturias.

Gregory Ludkovsky, vice-president of ArcelorMittal: "Asturias undoubtedly offers the ideal conditions for housing the best R&D technological activities due to its intellectual capacity and work ethic."

THYSSENKRUPP Germany

The thyssenkrupp group has company representation in Asturias:

- thyssenkrupp Norte: world leading company in the manufacturing of escalators, moving and acceleration walkways.
- thyssenkrupp Airport Systems: airport walkway production.
- thyssenkrupp Elevator Innovation Center, the company's world innovation centre.

In Asturias, a real-scale prototype of the innovative project MULTI has been developed and presented worldwide: the world's first rope-free elevator.

PMG POWDER METAL Germany

A leading company in the manufacture via sintering of components and systems for vehicle gearboxes.

PMG, a leader in technology, has strengthened its R&D unit in Asturias and its clients include practically all the major automobile manufacturers.

PMG Asturias has been awarded with the "General Motors Supplier Quality Excellence Award" prize for the excellent quality of its products.



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METAL AND ADVANCED MANUFACTURING

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THE METAL AND ADVANCED MANUFACTURING SECTOR IN ASTURIAS

The Metal Industry in Asturias is a clear example of pioneering technologies in use, with new productive processes, safety systems in the workplace and environmental management. Furthermore, the importance given to continuous training is reflected in the region's highly-qualified workforce.

MAJOR ASTURIAN COMPANIES

GRUPO DANIEL ALONSO

A leader in sectors such as renewable energies and heavy boiler-making.

The Group has been the winning tenderer, among other projects, of one of the largest international contracts in **offshore marine wind power** to be developed in German waters in the Baltic Sea.

DURO FELGUERA

Specialised in the execution of "turnkey" projects for the **energy, industrial** and **Oil & Gas** sectors; service provision for industries and the manufacturing of capital goods for the **petro-chemical** industry and the **railway** sector.

DF has manufactured the largest semi-submerged tanks (**bullets**) in the world for a gas storage terminal in the Netherlands.

TSK

This leading corporate group in engineering and facility supplies has developed a solid strategy for international expansion, currently present across the world.

The company has been the winning tenderer for the construction of the largest **solar park** in the Middle East, within the framework of international alliance.

IMASA

IMASA is one of the main Spanish Engineering companies. It develops and carries out cement plant projects, handling facilities and handling minerals, coke batteries, petro-chemical product storage, etc.

Particularly outstanding is the company's construction of the largest **cement plant** in Bolivia.

The **manufacturing of metal products** is the most representative activity in the Asturian manufacturing sector in Asturias, along with electrical energy supply activity.

Asturian metal activity amalgamated 33 % of companies from the industrial sector, concentrated 40.20 % of turnover and 52.55 % of employment from the Asturian industrial sector in 2016.

Source: INE

In 2016, the productive activity of metal increased **2.47 %** as a result of good performance of the manufacturing sub-sectors of electrical material and equipment, along with transportation material.

Source: FEMETAL

Year	No. of companies	Employment	Turnover Figure (millions €)
2016	1,126	25,207	5,068

The metal sector contains around 1,100 companies and 25,000 direct jobs. Its turnover surpasses 5,000 million.

Source: FEMETAL

The volume of exports from the metal sector in 2017 represented 65 % of the region's total exports, reaching 2,700 million €.

Source: ICEX

FEATURES OF THE SECTOR

- Deep-seated industrial culture, a result of its history as a mining and iron and steel works region.
- Solid local base of goods and service providers for industrial activities (engineering, assembly, maintenance, sub-contracting).
- Main iron, steel and metallurgy area in Spain.
- Low workforce rotation and higher than national average productivity rate.
- 14,000 students of engineering and technical degrees registered at the University of Oviedo and in Vocational Training. Over 600 students each year take advantage of an Erasmus grant and over 1,000 international students are received annually.
- Highly qualified HR available: 1,100 new graduates in different higher and technical engineering and 1,500 new graduates in Vocational Training technical studies each year.
- Industrial ports of Gijón and Avilés. Ports specialised in iron and steel works and energy transportation, handling solid bulk and merchandise in general, in containers, conventional vessels as well with Ro-Ro services.
- Internationally acclaimed R&D institutions and agencies for materials and industrial design.
- Ideal geographical location for access to the European market.
- Industrial land availability.

INNOVATION & TECHNOLOGY

TECHNOLOGY CENTRES AND R&D&I INSTITUTIONS, CLUSTERS.

IUTA. UNIVERSITY INSTITUTE OF INDUSTRIAL TECHNOLOGY OF ASTURIAS UNIVERSITY OF OVIEDO

Research Centre of the University of Oviedo which **develops R&D&i activities** in the following fields:

- Mechanical design and manufacturing
- Materials technology and structural calculation
- Environment and energy
- Organisation of companies, economics and statistics
- Electric, electronic and control systems
- Information and Telecommunication Technologies

PRODINTEC. TECHNOLOGICAL CENTRE OF INDUSTRIAL DESIGN AND PRODUCTION

Technological Centre specialised in industrial design and production. Its main lines of research are based around the design and development of Pilot Lines for the **advanced manufacturing** of high-added value products and therefore focuses its interest on Factory of the Future technologies.

CLUSTER METAINDUSTRY4

FEMETAL launches the Cluster of Advanced Manufacturing of the Metal Industry of Asturias, aligned with the smart specialisation strategy of Asturias and oriented towards companies and global value chains related to advanced manufacturing. MetalIndustry4 groups scientific-technological, logistical and entrepreneurial agents of Asturias.

CINN. NANOMATERIALS AND NANOTECHNOLOGY RESEARCH CENTER

A joint research centre established by the Spanish Scientific Research Council (CSIC), the Government of the Principality of Asturias and the University of Oviedo.

One particularly outstanding line of research is called "Controlled Design of Multifunctional Materials on a Multi-scale" which aims to develop, characterise and understand the behaviour of new multifunctional materials on a nano, micro and macro scale.

It has sintering equipment for hybrid plasma, which is unique in the world for its size (over 13 metres high), with the ability to sinter components of up to 400 mm so-called "ultra-materials".

EDUCATION

The University of Oviedo offers new degrees adapted to the European Area for higher education with qualification that cover most areas of knowledge. Some 30 % of its more than 21,500 registered students are following technical courses.

The University of Oviedo has three campuses from which it offers technical training, with engineering degrees and master's degrees in different subjects (industrial and automatic electronics, mining and energy resources, electrical engineering, mechanics, industrial technologies, etc.).

The following Degrees from the University of Oviedo related to the metal and advanced manufacturing sector are noteworthy:

International Master's Degree in Mechatronic Engineering

Master's Degree in Automation Engineering and Industrial Computing

Master's Degree in Energy Engineering

Approved Vocational Training with 14,800 registered students, more than the 35 % in technical degrees, completes the technical qualification of the Asturian workforce, combining theoretical training with work experience in companies.

ITMA FOUNDATION. ASTURIAN MATERIALS TECHNOLOGY CENTRE

Technological Centre specialising in research and development projects in Advanced Materials for high-added value products and technological laboratory services and conformity assessment.

Its speciality fields are steel and metallic materials, plastics, nano-materials, ceramics, refractories and primary materials and photonics.

ITMA coordinates the **Cluster of Refractories** in Asturias, composed of the main companies in the sector.

AINER. ENERGY TECHNOLOGY CONSORTIUM

A cluster formed from companies with a strong specialisation in the energy sector and coordinated by FAEN, the **Asturian Energy Foundation**.

Its areas of work are Electricity, Fossil fuels, Building and Renewable Energies.

TRAINING AND HR

FEMETAL. FEDERATION OF METAL AND RELATED BUSINESSES OF THE PRINCIPALITY OF ASTURIAS

A metal sector association in Asturias with a long-standing corporate tradition.

A key institution in the regional promotion of the sector, FEMETAL is a member of the Spanish Confederation of the Metal Business Organizations (CONFEMETAL) and participates in the Asturian Metal Foundation.

METAL FOUNDATION

Foundation for Training, Qualification and Employment in the Metal Sector.

The Asturian Metal Foundation offers an integral service for the on-going qualification of HR in Asturias, providing advice on an international level for capturing human capital in the sector.

IAPRL. ASTURIAN OCCUPATIONAL HAZARD PREVENTION INSTITUTE

The IAPRL aims to manage policies in the field of safety, hygiene, the environment and occupational health and safety in Asturias. It targets the elimination or reduction of the root cause of occupational hazards.



The Society for the International Promotion of the Principality of Asturias (Asturex) convenes the **Metal Forum** in collaboration with FEMETAL, with the aim of showing the potential of this sector in our region. Over 130 potential clients for the sector's companies are to participate in the 2017 edition, from over 34 locations.

FLASH SECTORIAL

IRON, STEEL AND METALLURGY

The Asturian iron and steel industry, represented by ArcelorMittal, is an international benchmark. It has the only integral iron and steel plant in Spain, manufacturing flat products (hot pickled, galvanised and painted coil, tinplate and thick plate) and long metal products (rails and rods).

It is worth noting that ArcelorMittal manufactures high-speed railway rail in Asturias, as well as thick plate for shipping construction, offshore and capital goods, not to mention its position as the top Spanish supplier of sheet metal for the automobile sector and the only Spanish manufacturer of tin plate for food and drink packaging.

Along with steel production, Asturias is also home to metallurgy industries in aluminium and zinc.

ALCOA, a world leader in aluminium production, has a primary aluminium manufacturing plant in Asturias for ingots and billets for smelting and extrusion.

Likewise, Asturiana de Zinc (Glencore Group) produces electrolytic zinc ingots and zinc alloys in Asturias.

OUTSTANDING PRODUCTIONS

ARCELORMITTAL

Production of 5 million tonnes of steel in its plants in Asturias.

It has the only thick plate rolling mill in Spain.

ASTURIANA DE ZINC

Production of 510,000 tonnes of electrolytic zinc of which 99.995 % uses its own manufacturing technology.

The plant in Asturias is the largest electrolytic zinc plant in the world and one of the cheapest in terms of operating cost.

ALCOA

Production of 145,000 tonnes of primary aluminium for smelting and extrusion.

SHIPPING INDUSTRY

Asturias has a long-standing history in the shipping sector and its industry has reacted to adapt to market demands and strong international competition, equipping itself with the most advanced technologies. Traditionally, Asturian shipyards have made up a high percentage of sector activity in Spain, occupying leading positions on a national and European level.

ENGINEERING AND "TURNKEY" PROJECTS. CAPITAL GOODS AND INDUSTRIAL SUB-CONTRACTING

Asturias has engineering specialised in the design, construction, assembly and maintenance of "turnkey" projects and with manufacturers of capital goods under the specifications of clients for high-demand sectors.

To mention but a few of the client sectors; iron and steel works, chemical, petro-chemical, energy, industrial, defence, oil & gas, nuclear, environmental sectors, etc.

UNIQUE PROJECTS UNDERTAKEN IN ASTURIAS

ARCELORMITTAL

Manufacture of 459 kilometres of railway rail for the Medina-Mecca High Speed train.

ASTURFEITO

Manufacture of the structure and integration of the operation and control of 25 ALMA antennas (Atacama Large Millimetre Array). A Major world Project of astronomical ground research.

IDESA

Manufacture of the base of cryostat which will hold the future JT-60 SA experimental fusion reactor (Japan), a satellite with important international projection ITER.

GONDAN

Construction of the first vessel in the world to have a STRIL LUNA unified bridge, with the aim of supporting petroleum platforms.

Construction of the luxury yacht SEA CLOUD II for tourist cruises (117 m total length).

THE FIRST 50 COMPANIES IN THE METAL AND ADVANCED MANUFACTURING SECTOR

ALCOA | ALEASTUR | ALEGRIA | APERSA | ARCELORMITTAL | ARMON | ASLA | ASTHOR | ASTURFEITO | ATOX | AUXNAVAL | AZSA | DANIMA | DAORJE | DELFIN TUBES | DURO FELGUERA | FERQUI | FLUOR | FUNDYSER | GONDAN | GRUPO AGALSA | GRUPO DANIEL ALONSO | HIASA | IDEAS EN METAL | IDESA | IMASA | IMSA | INDASA | INDUSLA | INMER | ISASTUR | ISOTRON | KLIK | MECALUX | MIVISA | MOREDA RIVIERE | OLMAR | OROVALLE | PHB | PMG | SANTA BARBARA | SAMOA | TALLERES LLANEZA | THYSSSENKRUPP | TRESA | TSK | VEROT | VETROTOOL | WINDAR | ZITRON

