

Ardanuy



CONSULTING ENGINEERS AND ARCHITECTS



PRESENTATION



Josep-Maria Ribes
PRESIDENT & CEO

- ◆ **Railways**
- ◆ **Undergrounds**
- ◆ **Tramways**
- ◆ **Construction**
- ◆ **Telecommunications**
- ◆ **Energy**
- ◆ **Industry**
- ◆ **G.I.S.**

- ◆ **Feasibility studies**
- ◆ **Planning**
- ◆ **Design and projects**
- ◆ **Work supervision**
- ◆ **Technical assistance**
- ◆ **Safety and Certification**
- ◆ **Engineering**
- ◆ **Purchase Management**
- ◆ **Project Management**
- ◆ **Consultancy**

Ardanuy Ingenieria S.A., is an **engineering and architectural** consulting firm specialised in **studies, projects and technical assistance** for railways, metros, trams, buildings, electromechanical installations, power: electrical engineering and hydrocarbons, telecommunications, environment, waste and industrial management.

The company was founded in December of 1992 and is made up of a permanent team of **120 engineers and architects**. Additionally, specialists collaborate with the team to provide assessment for specific projects. The turnover is **9 million euros** and from the beginnings of the company to the present day over 850 projects have been carried out.

Ardanuy Ingenieria S.A., carries out its main activity in **Spain** from its offices in Madrid, Barcelona, Valencia and Tenerife, and in other countries in the Americas: **Argentina, Chile, Cuba, USA, Puerto Rico, Peru, Mexico and Colombia**; in Africa: **Morocco, Egypt, South Africa, Algeria and Tunisia**; in Asia: **Vietnam, India, Oman, Saudi Arabia** and in Europe: **Lithuania, United Kingdom, Ireland, Poland, Romania, Hungary, Bulgaria, Latvia and the Czech Republic...** Currently, Ardanuy Ingenieria S.A. has six subsidiaries: **Lithuania (UAB Ardanuy Baltic), Poland (Ardanuy Polska Sp. z.o.o.), United States (Ardanuy Engineering Corporation), Algeria and India**. Some of the projects have been executed within the Ispa, Phare and Tacis programmes of the European Union and the European Bank for Reconstruction and Development (EBRD) with the support of the business satellite office in Brussels. Currently, **Ardanuy Ingenieria S.A.** has an **ISO 9001:2000** quality certification as well as the international environmental standard **ISO 14001** and the **OHSAS certificate 18001 (Occupational Health and Safety Management Systems)**. The company is a member of the European Federation of Engineering Consultancy Association (EFCA) and Spanish engineering consultancy association (TECNIBERIA – ASINCE) as well as of FIDIC; likewise, the company is a member of the RAILGRUP (Association of Railway Companies) and collaborates as a sponsor of the IESE. **A portion of its profits are invested in its R&D programme and toward some NGOs.**



Headquarters in Madrid



RAILWAYS, UNDERGROUNDS AND TRAMWAYS



In this field, **Ardanuy Ingeniería, S.A.** carries out projects and works supervision on High Speed Lines (up to 350 km/h) regional lines (160-220 km/h) and suburban rail lines (Metros, Trams, Trolleybuses, etc.). **Ardanuy Ingeniería, S.A.** has a high degree of specialisation in infrastructure projects, rolling stock, as well as superstructure and installations: **track, signalling: ERTMS, CBTC, ATP, ATO, etc., mobile telecommunications (GSM-R), digital transmission systems, radiocommunications; electrification: power studies, catenary, direct current and alternating current electrical traction substations (1x25 kV and 2 x25 kV), electromagnetic compatibility assessments;** remote control systems and **traffic control centres (CTCs)**. Likewise, the company prepares safety dossiers, independent safety assessments (**ISA**) and **RAMS** assessments.



The company has prepared numerous studies, projects and works supervision for new high speed railway line infrastructure (350 km/h), renewal or duplication of conventional line tracks (220 km/h), new stations electrification, signalling and communications. A good example are several projects from the Barcelona – Madrid, Madrid – Toledo, Madrid – Valladolid High Speed Line and the Guadarrama Tunnel (27 km), the Cadiz railway station, the supervision of ERTMS installation works between Utrera and Jerez; the supervision of the construction work on the trackbed of the Andoain, on the Urnieta and Urnieta-Hernani sections of the “Basque Y” (Y Vasca) and the Vera-Los Gallardos section of trackbed on the Mediterranean Corridor, etc..



In the urban transport field, **Ardanuy Ingeniería, S.A.** has carried out numerous projects for metro lines and stations, light rail, trams and cable transport and trolleybuses in various cities: Barcelona, Madrid, Valencia, Bilbao, Granada, Seville, Malaga, Alicante, Tenerife, San Juan (Puerto Rico), Valparaiso (Chile), Riyadh, Poznan and Silesia. In addition to railway installations, the company specialises in electrical and mechanical installations in tunnels and stations: mid and high voltage, lighting, ventilation, air conditioning, pumping stations and fire protection systems, among others. Of note among these works are the supervision of the signalling works on Barcelona Metro Lines 2 and 5 (without interrupting service) and the works supervision for Barcelona Metro Line 9, fully automatic and driverless.

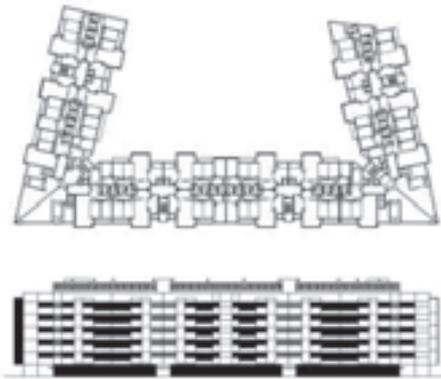
Additionally, **Ardanuy Ingeniería, S.A.** has developed, employed in multiple projects and obtained certification by different organisms for several software tools such as: **RailPower** for the calculation of currents, voltages, etc., which allows for a determination to be made of the correct placement of electrical substations, autotransformer centres and electrical circuit composition; **Autoelec**, and automatic catenary design assistant tool; **Conrail**, an application for preparing operation and maintenance studies reliably and quickly, etc.; **Earthingsoft**, which allows for the design of earthing in special conditions and the determination of the best solutions for protecting against stray currents.



The clients in this area are Public Administrations, Local Corporations and both Spanish and foreign Railways and Metros as well as construction and installation companies. As a specialised company, Ardanuy collaborates in these projects with other large engineering firms (SENER, IDOM, TYPESA, PROSER, ACCIONA INGENIERÍA, etc.).



ARCHITECTURE, BUILDING AND URBAN PLANNING



The Department of Architecture, Building and Urban Planning of **Ardanuy Ingeniería, S.A.** offers a wide variety of services in this field: placement sites, feasibility studies, technical studies, designs and projects, supervision and administration of works (on behalf of the owner), technical assistance and assessment, integrated project management, pathology studies, safety and health assessments, etc.. The company participates in projects for **Hotels, Residences, Hospitals, Shopping Centres, Office Buildings and Homes, Smart Buildings, Industrial Buildings, Development of Industrial Zones, Remodelling, Building Rehabilitation and Restructuring**, etc.

The department carries out the entirety of the works related to the construction of the new buildings, including **architectural and artistic design** and issues related to engineering: soil mechanics, **structures**, topographic liftings, **evacuation assessments** for buildings and stations, etc.. These projects also include high technology services and the corresponding **mechanical and electrical installations**: integrated control, climate control, air conditioning and heating, fire protection, transformer centres, low voltage and lighting, electrical equipment, telecommunications, drinking water, domestic hot water, communications, anti-trespassing installations, etc.



Among the company's references in this area are the execution of numerous projects: remodelling of over 150 railway and metro stations, urban complexes, universities, hotels, offices, residential buildings and restoration of historic buildings. Among the most representative projects are the new Navarra University Library (15.000 m²), the new ADIF terminus station in Cadiz, supervision of the installations in the new hospitals (North, South and Santa Cruz) on the island of Tenerife, remodelling of Xativa station on the High Speed Spanish Levant Line, project for installations in the Headquarters of the State Council, etc.

In these projects Ardanuy Ingeniería, S.A. has collaborated with the construction companies: OHL, ACS, FCC, Isolux, Acciona, etc. and with some administrations like the Institute of Social and Healthcare Assistance (Instituto de Atención Social y Sociosanitaria) of the Tenerife Council Government.



CIVIL ENGINEERING, G.I.S.



Civil Engineering

Civil engineering represents an important field of activity within **Ardanuy Ingeniería, S.A.** where a high degree of competence and specialisation has been achieved in the design of solutions compatible with sustainable development.

The company is present in the development of multiple transport infrastructures: railways (**High Speed Lines, Conventional Lines, Metros, Trams, etc.**) and roads, encompassing, from their conception onward: feasibility studies, informational studies, preliminary designs, basic projects, construction projects and up to the works supervision and execution phase itself.

We are experts in the most common specialisations in linear civil works (**alignment, geotechnics, drainage, structures, tunnels, road surfaces and environment**), both for new projects and for rehabilitation and improvement, and develop specific methodologies to carry out these tasks.

The department of civil engineering at **Ardanuy Ingeniería, S.A.** has participated in the design and/or management of the execution of works for more than 950 km of railway trackbed and more than 150 km in various alignments.

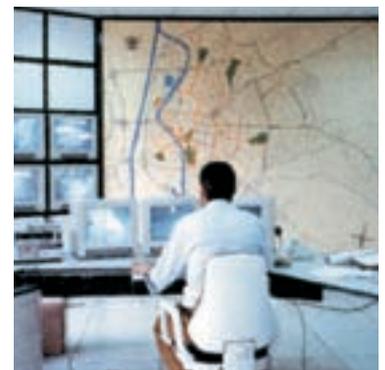


Geographical Information System (G.I.S)

Ardanuy Ingeniería, S.A. offers development of applications using the GIS format for public administrations, logistics, distribution and transport companies, emergency services, commercial chains, large utility companies: water, gas, electricity, telecommunications, railways, factories and industrial plants, etc.

In this area the **Rail-KM** (Rail Knowledge Management) package must be highlighted, which allows for integration into a single program of all of the information and documentation related with railway lines. This software has been developed entirely by the **Ardanuy Ingeniería, S.A.** R&D department and partially financed by the Madrid Institute for Development (Instituto Madrileño de Desarrollo).

A geographical information system (GIS) called SIGGLO has also been developed to manage **CLH**'s over 4,000 km of oil pipelines.





ENERGY



Energy

Ardanuy Ingeniería, S.A. has wide experience in the field of power generation and distribution having carried out numerous electrical engineering projects: Substations, High Voltage Lines, Distribution Centres and Transformer Centres for voltages of 11 kV to 400 kV.

The company has executed projects and works supervision for more than 200 substations with a combined total installed power of more than 3,600 MVA. As for high voltage lines, over 1,800 km of lines with voltages from 11 kV to 400 kV have been designed.

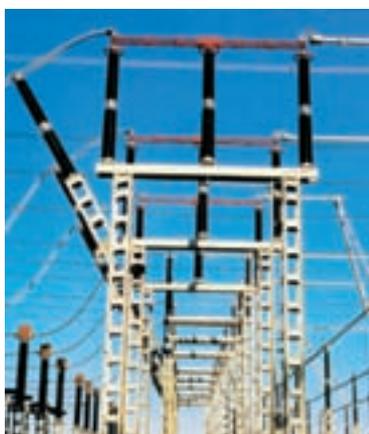
These projects have been executed in Spain, Morocco, Chile, Bulgaria, Poland, South Africa, Lithuania...

In this area the company takes care of both electrical engineering and associated mechanics and building and auxiliary civil works (earthworks, access pathways, drainage, etc.).

Hydrocarbon treatment in refineries and other points is another activity for which several projects have been carried out. For the petrol companies CEPSA and SBA (Lithuania) freight stations were planned for petrol distribution: pipelines, control systems, tanks, etc.



Ardanuy Ingeniería, S.A. offers its consulting services and technical assistance in the field of renewable energy. Among them wind, solar, photovoltaic and hydroelectric power are notable as well as co-generation systems for industrial plants and other centres. The company is a member of the Spanish Power Club (Club Español de la Energía).





SAFETY ENGINEERING

Safety Engineering

In the railway sector, **Ardanuy Ingeniería, S.A.** has carried out numerous projects in the field of Safety Engineering. The firm works for construction companies, rolling stock and equipment manufacturers and installation companies participating in the Safety Cases for the product or application (generic and specific), as well as in the preparation of Independent Safety Assessments (ISA) for said companies and for Railway Administrations, all in accordance with the CENELEC EN 50128 and EN 50129 standards.

Among these projects are the RAMS analyses (reliability, availability, maintainability and safety) for different specialisations: infrastructures, signalling, electrification, communication, power supply, etc..

Additionally, **Ardanuy Ingeniería, S.A.** is specialised in coordinating safety and healthy during the execution of works. It is also in the process of implementing an occupational risk prevention management system as per the OHSAS 18001:2007 standard.



Ardanuy Ingeniería, S.A. clients

Public Administrations

International Cooperation Agency, European Bank of Reconstruction and Development (EBRD), Autonomous Community of Madrid, Asturias Water Consortium, Biscay Transport Consortium, Administrador de Infraestructuras Ferroviarias (ADIF), Eusko Jaurlaritz/Basque Government, Generalitat de Catalunya/Catalonian Government, Generalitat Valenciana/Valencian Government, Gestió d'Infraestructures, S.A. (GISA), ETS (Basque Railway Network), Tenerife Island Council, Ministry of Public Works, Mintra, European Commission (Ispa, Phare, Tacis), GTP, MAUR Vietnam, Israeli Ministry of Transport, etc.

Railways

ADIF, Renfe, Madrid Metro, Ferrocarrils de la Generalitat de Catalunya (FGC), Barcelona Metro, Ferrocarrils de la Generalitat de Valencia (FGV), Ferrocarril Metropolitano de Bilbao, FEVE, EuskoTren, Bilbao Metro, Valencia Metro, Seville Metro, Malaga Metro, Metropolitano de Tenerife, Trambaix-Trambesós, BDZ (Bulgaria), EFE (Chile), MERVAL (Valparaiso, Chile Metro), MAV (Hungary), ONCF (Morocco), SNCFR (Romania), LDZ (Latvia), LG (Lithuania), PKP (Polish Railways), Tren Urbano de Puerto Rico, BART (San Francisco), etc.

Engineering and Consulting Firms

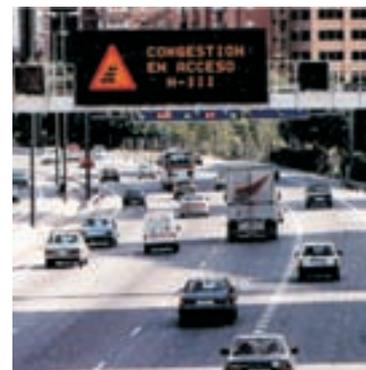
ALATEC, ACCIONA INGENIERÍA, ARCADIS, AUDING INTRAESA, BBJ, CLOTHOS, COWI, DB INTERNACIONAL, EPTISA, ETTP, EUROESTUDIOS, EUROPROJECT, GETINSA, GPO, GOC, IDOM, INECO, INFRAES, INITEC, INOCSA, INTECSA-INARSA, LIBRA, OVE ARUP, PAYMACOTAS, PEYCO, PROSER, QUALITY SYSTEMS, SECOFISA, SENER, SGS-TECNOS, SYSTRA, TEC-4, TIFSA, TRAIN, TRANSURB CONSULT, TYPASA, ATKINS, etc.

Construction and Concessionary Firms

OHL, ACS, IRIDIUM, FCC, ACCIONA, FERROVIAL, COMSA, ISOLUX, ALDESA, AZVI, etc.

Industrial Companies

ALSTOM, SIEMENS, CYMI, ELECINOR, BACH ELECTRANS, KAPSCH, CEPESA, CLH, ENDESA, EFACEC, MONTREAL, RETEVISIÓN, TRAPSA, ZARDOYA OTIS, PGE, RST, SAB, SICE, etc.





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