



Naval



ElectroRayma has been following a strategy of constant diversification and development, with a clear commitment towards its incorporation in the civilian and military naval sector. It applies a policy of continuous training and specialisation, through investment in its Research and Technological Development Departments.

Its extensive experience in design, manufacturing and repairs in the industrial sector, together with the highly reliable results obtained in terms of the quality of its customer service and competitiveness, have won **ElectroRayma** recognition from companies located in the city of Ferrol and its area of influence, who are international leaders in the civilian and military naval sector.

ACTIVITIES

Civilian Engineering | Design and documentation | Regeneration systems | Manufacture of electrical switchboards

FISHING VESSELS

- Manufacture of operator desks
- On-board installation
- Main winches
- Probe cable winches
- Net drums
- Auxiliary capstans
- Automatic fishing systems
- After-sales service

OCEANOGRAPHIC VESSELS

- Manufacture of operator desks
- On-board installation
- Oceanographic winches
- Hydrographic winches
- Made-to-measure automatic drive systems
- Auxiliary capstans
- Multi-purpose elements

MERCHANT VESSELS

- Manufacture of operator desks
- Pipe tracing
- Mooring winches
- Auxiliary platform winches
- Automatic mooring system
- Auxiliary capstans
- Made-to-measure automatic drive systems
- After-sales service

TUGS

- Manufacture of operator desks
- On-board installation
- Torque and speed control systems
- After-sales service

Navy Engineering | Manufacture | Installation | Commissioning | Maintenance

- Development of engineering for mooring and anchoring systems, electric propulsion and for controlling gear units.
- Design of primary and secondary conduits, cable routing, connection and positioning of equipment.
- Study and preparation for work at sea before entering shipyard.
- Manufacture of power and control panels for electric propulsion, control panels for gear units, and control panels for mooring and anchoring system.
- Connection of fibre optic cables, including testing and measurement of losses, laying, connection of cables and installation of electrical equipment.
- High voltage installations: laying, connection and verification of dielectric strength of cables.
- Metering of radar waveguide system.
- Installation of MIL connectors.

- Electric boilers, installation and sealing of watertight walkways, installation of heating cable (electrical tracing).
- Corrective maintenance (air conditioning equipment, UPS, electrical motors, battery chargers, lighting, loudspeaker systems, fire detection systems, supply and boat winches, electrical panels, general orders systems, alarm panels, power supplies, etc.).
- Preventative maintenance, including thermographic imaging and subsequent reports.
- Continuity and insulation testing for control, power and lighting cables.
- Electrical tests for demagnetisation and lighting equipment.
- Operating and commissioning tests for low and high voltage electrical equipment.

Industrial



Based on its extensive experience in the industrial sector, specifically in the fields of design, manufacture and repairs, and having obtained highly positive results, ElectroRayma has specialised in the areas of high and low voltage installations, PLCs, instrumentation, electrical tracing, and the installation, measurement and certification of communication networks, amongst other activities.

Providing a quality service to its clients combined with a competitive approach forms the cornerstone that has allowed ElectroRayma to become firmly established and recognised in the sector, thanks to a programme of gradual diversification and development since its creation, including a policy of on-the-job training and specialisation, together with constant investments in R&D&I.

ACTIVITIES

Iron & Steel Industry | Petrol Industry | Thermal Power Stations | Nuclear Power Stations | Solid Urban Waste Treatment
Biodiesel & Bioethanol Treatment | Water & Waste Water Treatment | Paper | Wood | Foodstuffs | Oxygen Plants | Industry in General

ENGINEERING

- Project design and management
- Development of control systems for lifting equipment:

NEW EQUIPMENT

Engineering, design and documentation, manufacture of electrical panels, manufacture of operator panels, on-site assembly, weighing systems, technical service, commissioning, after-sales service.

RETRO-FIT

Engineering, study of energy efficiency, design and documentation, manufacture of electrical panels, manufacture of operator panels, control systems, supervision systems, on-site assembly, technical service, commissioning, after-sales service.

- Programming of PLCs and SCADA systems
- Commissioning
- Technical service

MANUFACTURING

- Assembly of electrical panels for:
 - Overhead cranes, gantry cranes and shipyard cranes
- Power and control equipment
- Distribution panels
 - Transformation centres and power plants
 - Distribution for secondary installations

INSTALLATION AND ASSEMBLY

- High & low voltage
- PLCs
- Instrumentation
- Electrical tracing
- Measurement and certification of communication networks:
 - Fibre optics and structured cabling.

ELECTRONICS AND COMMUNICATIONS

- Repair of electronic equipment
- Repair of high power electronic equipment
- Standard and special connections

- Fibre optics:
 - Fusing
 - Connectorization
 - Loss verification
- Verification and adjustment of instrumentation

MAINTENANCE

Electrical and mechanical

- Elevating equipment:
 - Overhead cranes, gantry cranes and shipyard cranes
- Self-propelled cranes
- PLCs, PCs, CNC, HMI:
 - Programming adjustments and modifications
- AC/DC adjusters:
 - Programming and commissioning
- Installation of high and low voltage systems and DC systems:
 - Thermographic analysis of equipment and connections
 - Refurbishment of panels, cabling and equipment
 - Detection and correction of faults
 - Dry cleaning and cryogenic cleaning of panels
 - Verification of connection point torque
 - Verification of cabling condition and replacement
- Study, analysis and registration of power networks

Rotary machinery

- Predictive and preventive maintenance:
 - Vibration analysis
 - Intensity analysis
 - Shockwave test
- Corrective maintenance:
 - Windings
 - Dynamic rotor balancing
- Tests:
 - Vibration analysis
 - Intensity analysis
 - Shockwave test
 - Insulation resistance
 - Dielectric stiffness

Renewable Energies



ElectroRayma applies a strategy of constant growth and expansion, which has led it to firmly support the use of renewable energy sources, as a part of the company's natural development since its origins in the industrial and naval sectors. Backed by its experience in both sectors, **ElectroRayma** implements a policy of specialisation and constant improvement, which together with investments in research, development and

innovation and the company's major technical capacity, has allowed it to consolidate its position in the renewable energy sector –wind power, biomass, thermal and photovoltaic solar power, geothermal power and hydraulic power– with facilities throughout the whole of Spain, offering an integral service that includes planning, design, installation and maintenance.

ACTIVITIES

Wind power | Photovoltaic Solar Power | Thermal Solar Power | Biomass | Hydraulic Power | Geothermal Power

ENGINEERING

- Project design and management
- Preparation and processing of administrative licences and permits
- PLC and SCADA programming
- Commissioning
- Technical assistance

MANUFACTURING

- Assembly of electrical cabinets:
 - Wind farms, solar plants,...
- Control and power equipment
- Distribution cabinets:
 - Transformation centres and electrical power plants
 - Distribution for secondary installations

INSTALLATION AND ASSEMBLY

- High and low voltage
- Programmable controllers
- Instrumentation
- Electrical tracking
- Measurement and certification of communications networks:
 - Fibre optics and structured cabling

ELECTRONICS AND COMMUNICATIONS

- Repair of electronic equipment
- Repair of electronic power equipment
- Standard and special connections
- Fibre optics:
 - Fusing
 - Connectorization
 - Loss verification
- Verification and adjustment of instrumentation

MAINTENANCE: PREDICTIVE, PREVENTATIVE AND CORRECTIVE

Electrical and mechanical

- Predictive:
 - Ferrography, vibration measurements and endoscopy videos
- Controllers, PCs, CNC, HMI:
 - Programming adjustments and modifications
- AC, DC variators:
 - Programming and commissioning
- High/low voltage installations and DC systems:
 - Thermographic analysis of equipment and connections
 - Refurbishment of cabinets, cabling and equipment
 - Fault detection and correction
 - Dry cleaning / cryogenic cabinet cleaning
 - Verification of torque at connection points
 - Verification of cabling condition and replacement
- Study, analysis and registration of power grids

Rotary machinery

- Predictive and preventative maintenance:
 - Vibration analysis
 - Intensity analysis
 - Shockwave test
- Corrective maintenance:
 - Windings
 - Dynamic rotor balance
- Tests:
 - Vibration analysis
 - Intensity analysis
 - Shockwave test
 - Insulation resistance
 - Dielectric strength

SECTORS

NAVAL

- ▶ Civil
- ▶ Military

INDUSTRIAL

- ▶ Iron & Steel Industry
- ▶ Petroleum Refining
- ▶ Power Stations
- ▶ Nuclear Power Stations
- ▶ Treatment of MSW
- ▶ Treatment of biodiesel and bioethanol
- ▶ Water treatment, purification plants and waste water plants
- ▶ Paper
- ▶ Wood
- ▶ Foodstuffs
- ▶ Oxygen plants
- ▶ Industry in general

RENEWABLE ENERGIES

- ▶ Wind power
- ▶ Photovoltaic
- ▶ Biomass
- ▶ Hydraulic
- ▶ Solar
- ▶ Geothermal

CAPABILITIES

ElectroRayma currently commands an infrastructure located at the Río do Pozo Business Park in Narón (A Coruña, Galicia), with facilities covering a total surface of 4,600 m², including offices, the switchboard factory and motor workshop. It is a strategic location with exceptional communication infrastructures by land (with motorway entrances and exits), by sea (with a direct connection to the outer port of Ferrol by road) and by air (40 minutes from the airports of A Coruña and Santiago).

ElectroRayma offers integral services and solutions, always following the policy of specialisation of its employees and continuous improvement through investment in R&D&I, which has led to the company's turnover rising to more than 16 million euros in 2010.

ElectroRayma currently employs a staff of 120 technicians and specialists, provided with human, productive and technological resources that guarantee competitiveness and customer service.

ACTIVITIES

ENGINEERING

- ▶ Design of projects and direction of works
- ▶ Development of control systems for lifting equipment:
 - New equipment
 - Retro-fit
- ▶ Programming of PLCs, PCs, CNC and HMI
- ▶ Programming of AC/DC Variators
- ▶ Roll-out
- ▶ Technical Support
- ▶ After-Sales Service

PRODUCTION

- ▶ Manufacture of control and power equipment
- ▶ Manufacture and assembly of electric cabinets for:
 - Overhead travelling cranes
 - Gantry cranes
 - Shipyard cranes
- ▶ Manufacture of distribution boxes:
 - Transformation centres and power stations
 - Distribution for secondary facilities
- ▶ Manufacture of secondary and lighting cabinets

INSTALLATION AND ASSEMBLY

- ▶ Installation of high and low voltage supplies
- ▶ Installation of PLCs
- ▶ Installation of instruments
- ▶ Installation of electrical tracing
- ▶ Installation, measurement and certification of communication networks:
 - optical fibre and structured wiring

ELECTRONICS AND COMMUNICATIONS

- ▶ Repair of electronic equipment
- ▶ Repair of electronic power equipment
- ▶ Standard and special connectorization
- ▶ Optical fibre:
 - Fusion splicers
 - Connectorization
 - Loss testing
- ▶ Instrumentation testing and adjustment

MAINTENANCE

PREDICTIVE, PREVENTIVE AND CORRECTIVE

- ▶ Lifting Equipment:
 - Gantry cranes, shipyard cranes and overhead travelling cranes
- ▶ Self-propelled mobile cranes
- ▶ Static and rotary machines:
 - Windings
 - Dynamic balancing of rotors
 - Vibration analysis
 - Intensity analysis
 - Shock wave testing
 - Insulation Resistance
 - Dielectric strength
 - Testing laser equipment alignment
- ▶ PLCs, Variators, PCs, CNC, HMI:
 - programming adjustment and modifications
- ▶ High and low voltage installations, and direct current systems:
 - Thermographic analysis of equipment and connections
 - Improvements to cabinets, wiring and equipment
 - Detection and correction of failures
 - Dry and cryogenic cleaning of cabinets
 - Verification of torque settings and switch points
 - Verification of wiring conditions and replacements
- ▶ Report, analysis, and record of networks



EXPERIENCE

ElectroRayma is a company that was founded in 1990. From the beginning, the firm has paid special attention to the technical and technological needs of companies to build and maintain electronic equipment and systems.

With this aim in mind, we have focused on the development of our Technological Research and Development Departments to meet the requirements of the industrial, naval and renewable energy sectors.

ElectroRayma's facilities are based in the Río do Pozo industrial estate in Narón, A Coruña (Galicia, Spain) covering an area of 2,600 m².

Quality is our starting point, and therefore stringent controls are a key factor for our company. For this reason, ElectroRayma's operating procedures have been certified by AENOR since 1998, in compliance with the ISO 9001 standard.

Respect for the environment also forms an important part of our activities. As proof of this, ElectroRayma has established an action plan to comply with the ISO 14001 Environmental Management Standard.

