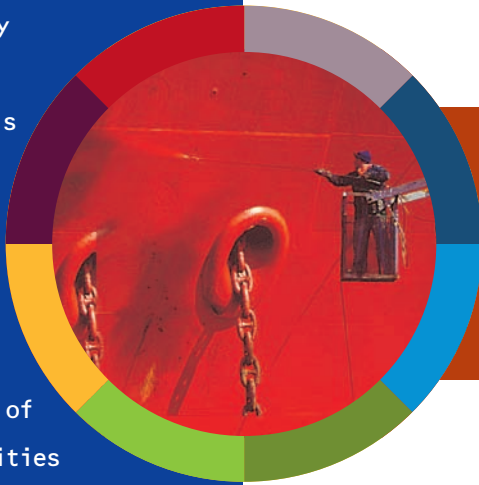




Metallurgy is a flagship industry in Brittany involving over 2 000 companies and almost 70 000 jobs. This sector has successfully learned from 4000 years of metallurgy history. Today it is a dynamic industry which, enriched by the diversity of its activities and professions, has established centres of excellence in a number of fields.



In the Pays de Brest, activities linked to defence and civil contracts and the presence of major procurers such as DCN, Thales, SDMO, Alcatel, etc, have created fertile conditions for the growth of sub-contracted SMEs which are in turn developing complex skills and technology in several fields.

Metallurgy industry

INDUSTRIAL CAPACITY AND SUB-CONTRACTING

> The construction and repair in Brest of heavy tonnage ships – from the nuclear-powered aircraft carrier, Charles de Gaulle, to two command and control vessels – and the presence of major component manufacturers requires a vast range of skills from boiler-making to nuclear technology and including surface treatment, precision mechanical engineering, automation, fluid technology, electronics, software engineering and engineering.

Any new industry setting up business in the Brest region can rely on this exceptional network of sub-contractors and suppliers who possess all the necessary quality assurance certifications.



FRANÇOIS MEUNIER

Chairman of the board of directors of the Meunier Group

"The Meunier Group has always found conditions in Brest right for the success and development of its activities – Etablissements Meunier providing industrial maintenance, Meunier SA offering specialist machinery and precision engineering, Sobrena undertaking ship repairs and SDMO Industries manufacturing generators. Technical expertise and reliability are the basis of this success."

From employing a total of 7 staff in 1948, the Meunier Group has today reached a workforce of 1 800 and achieves a turnover of 460 million euros. Having put it to the test, I can honestly say Brest means business!"

HERVÉ MOULINIER

Director of the Centre Thalès Systèmes Aéroportés

(Thales airborne systems centre) in Brest

"The activities of the Centre Thalès Systèmes Aéroportés in Brest are on the one hand focused on airborne maritime surveillance and patrol and on the other on electronic naval warfare involving electro-magnetic protection of submarines, surface vessels and also air and sea platforms. We are also a centre of expertise in product development and integration and client support relating to such products. The ultimate success of these activities as a whole requires calling on a diverse range of trades and professions – engineers and business management specialists certainly but also specialised technicians and operators, administrative and financial support staff, and so on. One of the Pays de Brest's major strengths lies precisely in the quality of the highly trained workforce. There is no recruitment problem here as the region is an "exporter of grey matter" with demand outstripping supply. What is also noticeable is the high degree of commitment which drives our workforce to respond to challenges faced by us in fiercely competitive markets. The resultant increasingly close collaboration with research bodies, higher education establishments and technology SMEs also plays a significant role. This is a virtuous circle which we aim to develop. Finally, the quality of the environment, ease of integration and sense of solidarity are invaluable assets for those already settled in Brittany.

They are a factor too in the region's appeal which we try to promote in order to compensate for its peripheral location and to overcome preconceptions when attracting colleagues here from other centres."

Shipbuilding and repair are historic activities here given the region's maritime vocation.

The two key sources of industrial procurement – DCN for military and Sobrena for civil contracts – are at the centre of a network of more than forty businesses involved in construction and maintenance. Brest is France's leading ship repair dockyard employing 10 270 people which represents 7.5% of the Pays de Brest working population. (These figures are for the total number involved in the metallurgy industry according to the French industries classification codes (NAF codes) and not just those in the ship repair sector, the latter figures making even more impressive reading).

Principal activities on site

- Operational maintenance of strategic ocean-going fleet submarines and their strategic missiles,
- Maintenance and modernisation of surface vessels,
- Support and logistics for the French navy,
- Development and construction of heavy tonnage combat ships,
- Repair and maintenance of Atlantic coast merchant fleet for vessel types such as methane tankers, ferries, shuttle-tankers and offshore oil platforms,
- Manufacture of light tonnage hulls.

Principal skills

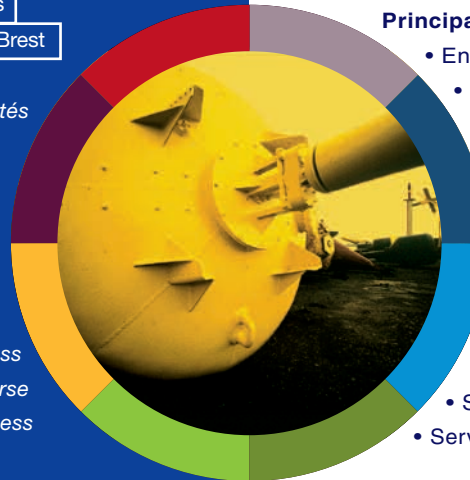
- Engineering and technical documentation,
- Boiler-making and manufacture of metal structures,
- Metallurgy and metals processing,
- Electrical engineering and electronics,
- Mechanical engineering,
- Piping,
- Surface treatments,
- Design and manufacture of on-board and underwater instrumentation,
- Supply of equipment and machinery,
- Services such as logistics, IT and health and safety.

Companies

- DCN Services Brest – Operational maintenance and repair, modernisation and construction of naval vessels
- Sobrena - Ship repair for heavy tonnage merchant shipping
- Thales Airborne system – Electronic weapons systems and airborne radar
- Thales Underwater System – Sonar systems
- CIB – Sheet-metal production and boiler-making
- SMNB – Sheet-metal production and boiler-making
- Meunier ets – Ship repair and maintenance
- Groupe Snef – Electrical engineering, sheet-metal production and boiler-making
- SLPN – Surface treatments
- Opteor – Electrical engineering
- SPTMI – Fitting
- Assystem études – Engineering, project consultancy
- Sofresid engineering – Engineering, project consultancy

Infrastructure

- **Docks** : 11 docks in Brest from 66 to 420 metres long and 11 to 80 metres wide
- **Lifting capacity** : 24 quayside cranes of 20 to 200 tonnes
3 floating cranes of 15 to 250 tonnes, 1 gantry crane of 450 tonnes
- **Workshops** : Numerous workshops possess sizeable, high-tech facilities relating to the prefabrication of metal structures, assembly, pipe machining, electrical engineering and hydraulics.



> Metallurgy is the key to everything in 2005!

It is involved at every stage from design through to manufacture.

- All methods of transport from cars to planes,
- Everything required for fitting out businesses in all sectors of activity from production line to computers, telephones to lifts and including microchip cards and electronic systems,
- Everything required for equipping homes from boilers to CCTV surveillance and washing machines to digital cameras.

The following main industrial sectors are represented in the Pays de Brest –

• **Mechanical engineering, metalworking and hydraulics**

Meunier SA, precision engineering, **EGMO**, mechanical engineering, machining, assembly and electrical engineering

• **Boiler-making, air conditioning and piping**

Cofreth, air conditioning and maintenance, **ETT/VIB**, ventilation and air conditioning, **CVB**, heating, ventilation and white rooms

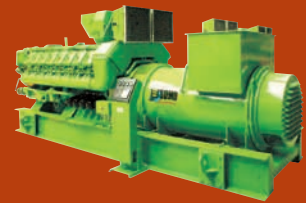
• **Industrial equipment, metal construction and farm machinery**

SDMO, generator manufacturer, **Le Pape**, steel frames and construction, **Rolland**, farm machinery and trailers,

Pichon, farm machinery metalworking and welding

• **Industrial supplies**

Bellion, **Hartereau**, **Kiklos**.



ELECTRICAL ENGINEERING, ELECTRONICS AND PRECISION INSTRUMENTS

The sector includes 207 businesses in the Pays de Brest (2003) and has grown 3% since 1998, employing 2 245 people today.

• **Companies**

Thales, airborne detection systems

Alcatel, research, development and training

Jabil circuits computerised call centres

Nextream equipment and networks for audiovisual communications

Groupe Traon

Dourmap Electricité, panels, consoles and boxes

Cabasse Electroacoustique, Hi-fi equipment

SPIE Trindel, automated networks

Novatech technologies, electronics

Some highly specialised SMEs operate as spin-offs to these companies in the following main sectors –

Electronics

- R&D consultants – Printed circuit installation, testing, software testing, etc
- Electronics manufacture – Professional equipment and systems, printed circuits, assembly, cabling, telecommunications, telephony, video-communications, maritime electronics, underwater electronics, instrumentation, regulation, measuring, electro-acoustics
- Maintenance – Maintenance, after-sales and inspections
- Technical data sheets
- Training

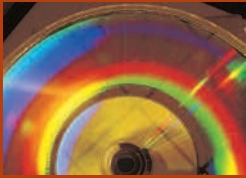
Production

- Software development – Computer-assisted design and manufacture and production management
- Automated processes – Research and production
- Real-time process management
- Technical manuals
- Training

TRAINING

Intense industrial activity has generated a well-developed education and training structure for basic and continuing education and leading to all levels of qualification from basic certificate (CAP) to engineering diploma.

- Brest DGA training centres,
- Network of state and private education providers,
- Network of agencies most notably Brest Chamber of Commerce and Industry,
- The U.I.M.M. (Union of metallurgy industries) and its training networks – C.F.A.I. (apprenticeships), A.F.P.I. (continuing vocational training) and I.T.I.I. (engineers),
- The Université de Bretagne occidentale (University of west Brittany),
 - > Research centres
 - > Technology training institutes – I.U.T. and I.U.P. and vocational degrees
- Engineering HE colleges and research centres
 - > Ecole nationale d'ingénieurs de Brest (ENIB – Brest national engineering college)
Training of general engineers in field of electronics, IT engineering and mecatronics
 - > Ecole nationale supérieure des ingénieurs d'études et techniques d'armement (ENSIETA – National advanced engineering college for weapons technology)
Training of engineers for multidisciplinary professions in the field of electronics, informatics and mechanical engineering
 - > Ecole nationale supérieure des télécommunications de Bretagne (ENST Bretagne – Brittany national advanced telecommunications college)
Training of engineers in the field of new information and communications technology
 - > Institut supérieur de l'électronique et du numérique, Brest (ISEN Brest – Brest advanced institute for the study of electronics and digital technology)
Training of general engineers in electronics and information processing



USEFUL CONTACTS

**TECHNOPÔLE BREST-IROISE
(TECHNOLOGY
AND ENTERPRISE AGENCY)**
+33 (0)2 98 05 44 51
contact@tech-brest-iroise.fr

**BREST CHAMBER OF
COMMERCE AND INDUSTRY**
+33 (0)2 98 00 38 00
info@cci-brest.fr

**UNION DES INDUSTRIES
ET MÉTIERS DE LA MÉTAL-
LURGIE DU FINISTÈRE
(FINISTÈRE UNION
OF METALLURGY TRADES
AND INDUSTRIES)**
+33 (0)2 98 02 54 79

**BREST MÉTROPOLÉ OCÉANE –
URBAN COMMUNITY COUNCIL**
+33 (0)2 98 33 50 50
contact@brest-metropole-oceane.fr

**ASSOCIATION DES FILIÈRES
DE L'ÉLECTRONIQUE,
DE L'INFORMATIQUE ET
DES TÉLÉCOMMUNI-
CATIONS DE BRETAGNE
OCCIDENTALE
(AFEIT – ASSOCIATION OF
WEST BRITANNY ELECTRO-
NICS, INFORMATION TECH-
NOLOGY AND TELECOMMU-
NICATIONS INDUSTRIES)**
+33 (0)2 98 02 95 87
contact@afeit.asso.fr

RESEARCH

- Mechanical behaviour of materials and structures
- Hydrodynamics
- Rheology of complex fluids
- Plastic and composite materials

Laboratories and research units provide services within their fields of expertise, e.g. –

- > Ifremer tests any material which has to be submerged or be resistant to corrosion
- > Institut français de la corrosion (French corrosion research institute)
- > UBO (IUP mechanical engineering)
- > Ensieta

KEY STATISTICS

METALLURGY

- 2 200 companies in Brittany
- 70 000 jobs representing 1 job in 10
 - Metalworking 21 %
 - Industrial equipment 18 %
 - Electronics and telecommunications 20 %
 - Precision instruments 10 %
 - Car manufacturing 18 %
 - Ship building and repair 13 %

Finistère represents 27 % of Brittany's metallurgy industry

SHIPBUILDING

- 10 270 jobs being 7.5 % of the Pays de Brest working population