



Flexibras Tubos Flexíveis Ltda

A world-class facility for the highest quality flexible pipe to the Brazilian market



Technip

take it further.

Technip profile



A world leader in engineering, project management and technologies, serving the energy industry for more than 50 years

A regular workforce of 30,000

Confirmed leadership and proprietary technologies in 3 business segments:

Subsea

In subsea hydrocarbon field development, Technip's activities include the design, manufacture and installation of rigid and flexible subsea pipelines and umbilicals. Thanks to its portfolio of technologies and industrial and operational assets, Technip offers a unique vertically integrated model in the industry.

The Group has 3 flexible pipe manufacturing plants, 4 umbilical production units, 9 logistics and pipeline assembly bases, and 1 construction yard. Technip's worldwide leadership is supported by a modern fleet of vessels for subsea construction, pipelay development (rigid and flexible pipes using S-Lay, J-Lay or Reeled technology) and heavy lift applications.

Offshore

In the Offshore business segment Technip performs engineering, procurement, construction, installation, commissioning and the refurbishment/upgrading of offshore facilities for the oil & gas industry.

Technip provides these services for fixed platforms in shallow water with conventional sub-structures and self installing platforms such as the TPG 500 and for deepwater facilities including Spar, semi-submersible, TLP, FPSO and FLNG units. Technip is a world leader in floatover installation of topsides and its R&D effort is focused on technology transfer for local content and new frontier areas such as ultra-deepwater and the Arctic.

Onshore

Technip covers the full range of onshore facilities for the oil and gas chain, petrochemicals and other energy industries (nuclear, renewables including biofuels and offshore wind). It holds many proprietary cutting-edge technologies and is the leader in the design and construction of LNG and gas treatment plants as well as ethylene, hydrogen and syngas units.

Technip is also one of the key actors in refining and petrochemical units, and has developed a leadership in the fertilizer industry. Moreover, the Group is very active in non-energy activities such as mining and metals, life sciences, buildings and infrastructures.

Manufacturing in Brazil since 1986



Vitória, Brazil

Vitória - Flexible pipe manufacturing facility

Flexibras, Technip Brazil's flexible manufacturing plant, is strategically located in Vitória, near the main Brazilian offshore oil and gas field developments. It not only manufactures and sells the highest quality flexible pipe to the Brazilian market but it is also a world-class facility.

Vitória, capital city of Brazil's Espírito Santo state, is also an international harbour with convenient shipping routes to the Gulf of Mexico, Africa, Europe and Asia. Flexibras has created a leading position for Technip, through high responsiveness and best-in-class products and services.

In operation since 1986, Technip's manufacturing plant in Brazil has supplied more than 3,600 km of flexible pipe, serving the local and South American market as well as Africa, the United States and other international markets. Through their reliability, technological sophistication and innovation, our flexible products have provided the basis for highly successful offshore oil and gas field developments. The site also houses R&D (Research and Development) test facilities, an after sales team, hose manufacturing, a cold rolling unit and offshore base activities, allowing the load of flexible products directly onto installation vessels (reels or basket) or on shipping vessels by means of a floating barge crane.

History

1986	Start of operations
1992	ISO 9001:1987
1992	BV.QI Type approval
1999 - 2000	Capacity upgrade
2001	Capability upgrade
2003	API 17J Certification
2003	ISO 14001:1996
2005	New hose plant
2006	OHSAS 18001:1999
2007	Capacity upgrade
2008 - 2009	Fabrication of flexible pipes tested in 3,000 mwd
2010	Upgrade for deepwater export lines
2010	R&D Test center



High national content

An organisation dedicated to client satisfaction



Armouring machine



400-bar hyperbaric chamber

Manufacturing Unit

Flexibras pipe and umbilical manufacturing unit and support activities such as QHSE (Quality, Health, Safety and Environment), Logistics, Maintenance, Packing and Engineering.

Offshore Loading Base

Offshore base to support loading, inspection and pre-commissioning of flexible products.

After Sales Team

After sales team well qualified for flexible repair and end-fitting mounting (including electrical cable connectors).

Cold Rolling Unit

Zeta profiles manufacturing unit.

Hose Manufacturing Unit

Thermoplastic high pressure hose manufacturing unit for producing control umbilicals.

R&D Test Facility

Responsible for qualification tests, (bending, dip tests, collapse, hose burst, among others) of flexible products.

CTF - Flexibras Test Center

- Qualification for pre-salt
- Flexible pipes
- Hyperbaric chamber 400-bar for curved collapse tests

A project-oriented engineering and manufacturing facility ready for pre-salt

The production process used in the construction of flexible pipes includes the following equipment:

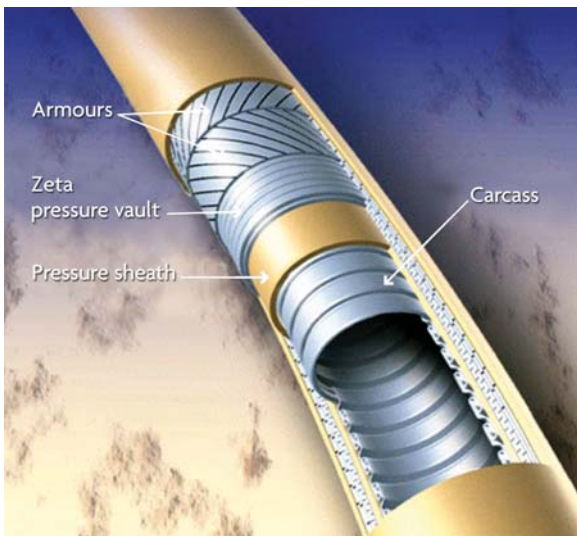
- Latest generation machines (profiling machines, plastic extruder, spiraling and armouring machines) and end-fitting mounting equipment (monitoring tests, machining, etc.).
- For specific applications (umbilicals, ISU®, IPB), the facilities include a bundle S-Z assembly machine.
- Lifting devices are also available to handle end-fittings and reels loaded with flexible pipe.
- Test facility for client's qualifications (CTF) or prototype tests in cooperation with the Brazilian Product Engineering Department and Corporate R&D Department.
- Vertical integration (cold rolling unit and hose manufacturing) and relevant local content for raw materials supply.



Dynamic fatigue tests



Tension to tension tests



Flexible flowline: static application - rough bore



Extrusion machine

Production capacity

Product range:

Flexibras manufactures approximately 450 km of flexible pipe per annum (based on a nominal 4" bore pipe).

- Flexible pipes: from 2" to 14.5" ID (Internal Diameter), up to 15,000 psi design pressure and 130°C design temperature.
- Umbilicals: up to 60 functions with thermoplastic hoses and electrical cables.
- ISU® (Integrated Service Umbilical).
- IPB (Integrated Production Bundle).

Flexibras manufacturing capabilities can also be demonstrated by the transformation of the following raw materials:

Metallic components:

- Carbon steel (sweet or sour service)
- Ferritic / Martensitic steel
- Stainless steel

Polymeric components:

- Medium & High density polyethylene
- Dead oil or water up to 60°C
- Rilsan®: Crude oil/gas up to 100°C
- PVDF: Crude oil/gas up to 130°C
- Insulation: PVCC, synthetic foam

Other facilities include:

- Storage capacity: up to 300-ton storage reels and 1 x 900-ton carousel
- Commissioning: 150 days at quay for 80 vessels per annum
- Cold rolling unit to manufacture Zeta
- Thermoplastic hoses manufacturing unit
- A new profiling machine for larger diameters in deep-water carcass up to 3.5mm thickness

*Isu® is a registered trademark of Technip.
Rilsan® is a registered trademark of Arkema SA and its affiliates.*



Profiling machine for thick carcass



Extruding machine



Spiralling machine

Committed to delivering the best products



Flexible pipe reels



Spiralling process

Dedicated, motivated and highly skilled workforce whose primary objectives are the pursuit of QHSE, client satisfaction and technical excellence.

Flexibras is capable of handling large as well as smaller fast-track projects:

Most experienced company in Brazil

- Garoupa: first subsea engineering project in 1976
- more than 3,600 km (2,050 miles) of flexible pipe manufactured since 1986

Roncador contract: first integrated project

- Manufacturing: over 300 km deepwater lines and umbilicals
- Export system: Free Standing Hybrid Riser (FSHR) new technology
- Offshore facilities: P52 platform

Some African references:

- Exxon Mobil Ekanga Notch project
- Okono I & II project
- AVOUMA project

Pre-salt reference:

- Tupi Piloto (2010)

GoM references (Gulf of Mexico)

- OPDS project (Chouest)
- Walter Green Canion project

Versatile and adaptable production equipment capable of accommodating design and manufacture of an extensive product range.

Ability to employ a large variety of raw materials enabling proposals of optimum engineering solutions.

Highly skilled technical corporate experts who can assist the project teams in the business unit.

Successful Total Productive Maintenance Program for continuous improvement, enabling Flexibras to attain excellence and high quality.

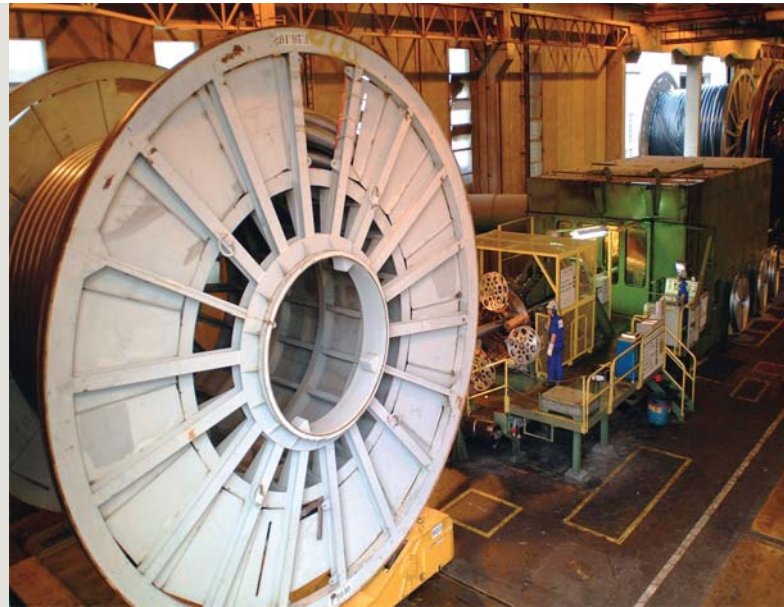
Strengths

Best records

- Manufacturing : 1,384 days without LTI (*)
- Base: 3,058 days without LTI

* LTI = Lost Time Injury

Longest continuous line: 7,500 m for 4"
Deepest prototype test: 9" ID, 3,000 mwd
Largest umbilical: 60 functions



QHSE certifications

An organisation dedicated to QHSE

Pipe design and manufacture are fully certified in accordance with the QA/QC requirements defined by international regulations and standards.

Flexibras is certified ISO 9001:2000, ISO 14001, API 17J and OHSAS 18001.

Product quality

Latest technology for the quality control of our products:

- X-Ray for on line monitoring of extrusion pipes
- Phased Array Ultrasonic System for bubble detection inside thermoplastics sheets
- Ultrasonic System for the control of the thermoplastic thickness, spark tests
- Quality control lab for moisture, video measuring of profiles, surface finish control, viscosity, mechanical properties



Social responsibility

Flexibras is committed to social responsibility and has integrated the basic concepts of human and environmental rights into its business. As a member of the Technip group, it is also a participant in the Global Compact, one of the most important forces of corporate responsibility in the world.

Flexibras set a new operating benchmark in social responsibility by assisting several charity organisations and is fully committed to promoting sustainable development, business social and civic responsibility.



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