



**Weatherford®**

## Tubular Inspection and Maintenance Services



**Tomorrow's tubular goods ready today**

Specialized inspection and repair by experts who understand the well's life cycle





## Specialized Inspection

Periodic inspection is vital to preventing tubular failure. Using precise diagnostics, we can document equipment condition, monitor string utilization and provide a plan to extend the lifespan of the asset.

Our team is trained and certified in the most precise inspection techniques in the industry. We can perform inspections compliant with API, DS-1, NS-2 and other industry standard requirements.

### Our inspection services include:

- Visual inspection
- Dimensional inspection
- Electromagnetic inspection (EMI)
- Magnetic particle inspection (MPI)
- Ultrasonic inspection on end areas and upsets (UT)
- Liquid-dye penetrant inspection on non-mag
- Black light inspection

“Our services can extend the lifetime of the asset.”

“Your tubulars ready for the next job.”

Weatherford is a multinational oilfield service and technology company and one of the largest global providers of innovative tools, technologies and services for the drilling and production sector. We know that internal pipe corrosion, plastic coating problems, damaged threads and leaks are significant issues that can lead to time-consuming work and additional expense.

Located in Macaé, our Tubular Inspection and Maintenance Center combines Weatherford's global expertise with localized knowledge of Brazilian operations. We provide specialized inspection, thread repair, bucking services and hardbanding overlay to refurbish drillpipe and casing strings. Weatherford's experienced staff and certified processes will have your tubular goods ready for the next job.







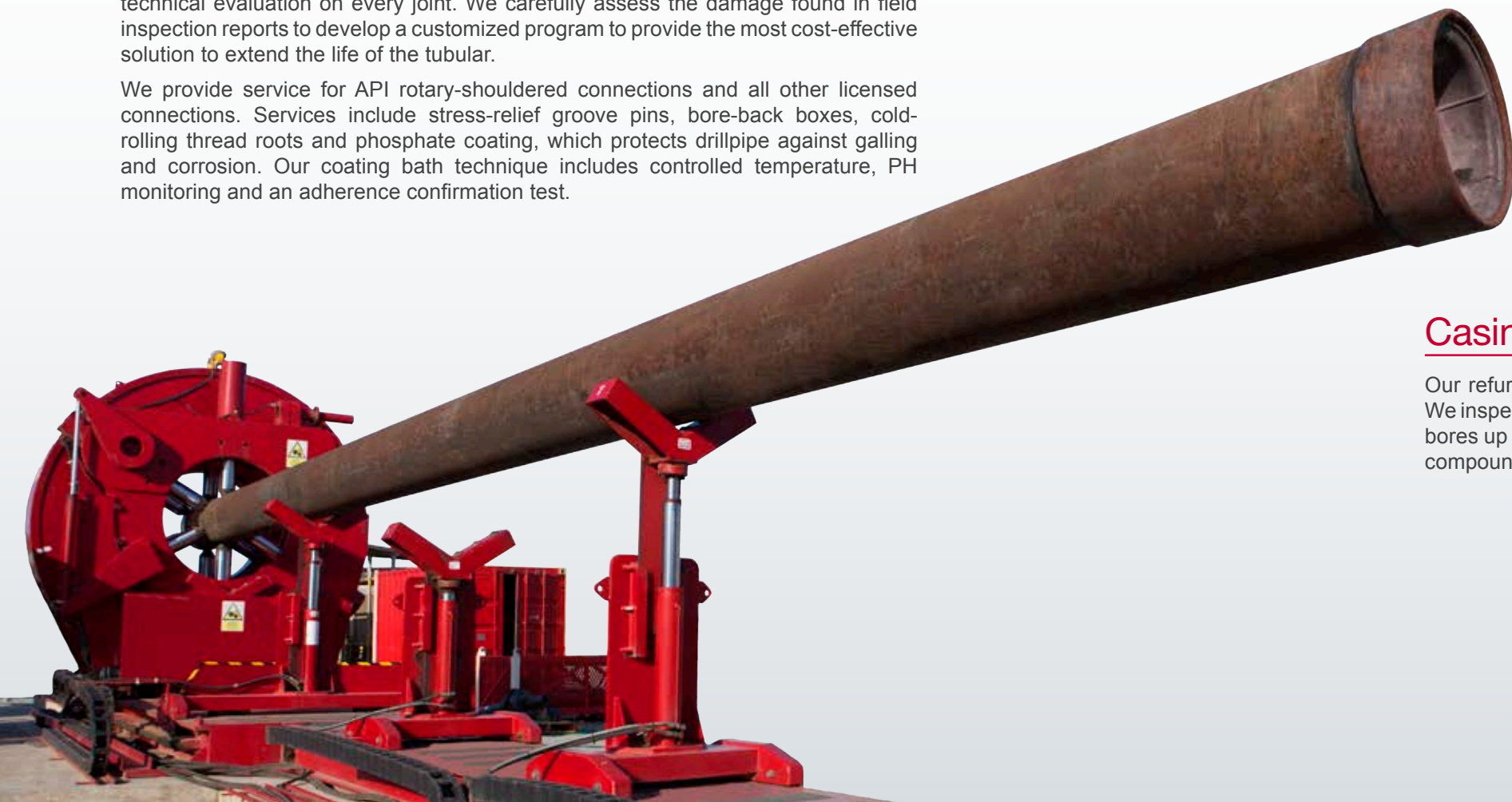
# Machine Shop Services

Weatherford’s machine shop in Macaé is fitted with state-of-the-art lathes and is staffed by experienced technical professionals. Our facility provides a full array of services to keep drilling and casing tools operating at peak performance and in compliance with API, DS-1, NS-1 and all industry standard connections.

## Drillpipe Repair

Used drillpipe receives special attention in our shop. Our experts perform a preliminary technical evaluation on every joint. We carefully assess the damage found in field inspection reports to develop a customized program to provide the most cost-effective solution to extend the life of the tubular.

We provide service for API rotary-shouldered connections and all other licensed connections. Services include stress-relief groove pins, bore-back boxes, cold-rolling thread roots and phosphate coating, which protects drillpipe against galling and corrosion. Our coating bath technique includes controlled temperature, PH monitoring and an adherence confirmation test.



“ We keep drilling and casing tools operating at peak performance.”

## Drillstring Accessories

Our technicians can repair or refurbish a wide range of drillstring accessories including crossovers, bit subs, lift subs, top-drive subs, pup joints and rotary-shouldered tools.

## Casing Repair

Our refurbishment capabilities include complete casing-thread repair services. We inspect each thread, make and break couplings, recut the threads with spindle bores up to 22 in. (56 cm), apply phosphate, re-dope with the appropriate thread compound, and finally pack according to client safety and quality standards.







## Hardbanding

Weatherford's hardbanding solutions for drillpipe, heavyweight drillpipe, drill collars and other drilling tools provide wear protection and extend equipment life. Our welding process is automated and gas shielded, providing an excellent weld quality with controlled pre-heat and post-heat conditions. The process we use is customized for each case. Our technicians determine whether existing hardbanding should be removed with a specialized grinding technique or if new hardbanding can be applied over the old. We are certified by Postle Industries in addition to other hardbanding manufacturers.



## Hardfacing

Our welders are qualified for oxyacetylene welding with tungsten-carbide microspheres and crushed-tungsten carbide, commonly used on stabilizers and fishing tools. All areas affected by our welding process are subjected to a full examination to assure tool integrity. We also have the ability to rebuild damaged blades or completely refurbish a tool.

# Operational Excellence and Performance System

Weatherford has an integrated management approach that emphasizes safety and operational integrity. This client-focused, center-led and globally deployed Operational Excellence and Performance System (OEPS) offers non-negotiable service standards and uses a systematic approach to manage quality, health, safety, security, environment (QHSSE), reliability and essential business practices. This process is being implemented progressively in our locations worldwide.



Our machine shop in Macaé is certified by API Q1, API 7-1, ISO 9001:2008 and OHSAS 18001:2007. Our Tubular Inspection and Maintenance Center is licensed by NOV Grant Prideco™ and VAM® Services for manufacturing their connections, and is capable of cutting all API, FJWP and buttress casing connections.

\*VAM is a registered trademark of Vallourec Mannesmann Oil & Gas France Corporation





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