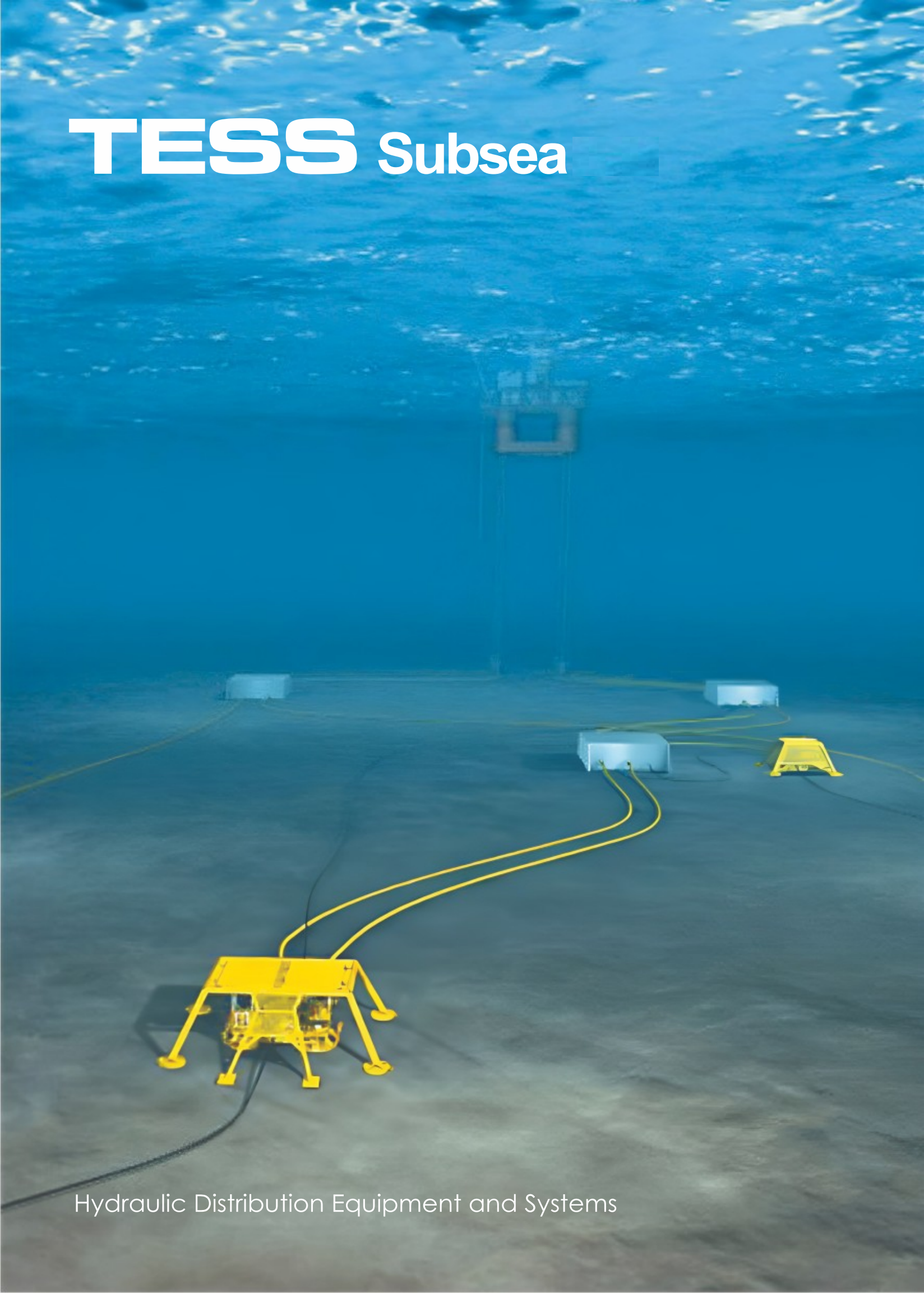


TESS Subsea



Hydraulic Distribution Equipment and Systems

History

TESS Subsea was founded in 2014, initially a part of TESS AS technical and production department. TESS Subsea continues the organization's efforts within the subsea industry, as well as undertakes some activities that were previously provided by TESS Production.

In 2008, a strategic decision was made within TESS to put more focus on in-house technical value creation. This strategy was named "TESS goes technical". After several years of involvement with the subsea industry and the later expansion of the production capacity for certain types of subsea equipment, the first major framework agreement for subsea hydraulic distribution equipment was entered into in 2009. The company currently produces and delivers hydraulic umbilicals, flying leads (multi-line cable products) and mechanical-hydraulic assembly



TESS facts

TESS was established in 1968 and is a company owned by the same interests as the founders.

Today TESS is Norway's leading company for supply of hoses and fittings to all applications. The company coordinates more than 110 service centers in Norway. TESS has also established service centers in Denmark, UK, USA, Brazil and Singapore.

Our clients are within subsea, offshore, shipbuilders, contractors, traditional land based industry as well as public service activities.

What is TESS Subsea Brazil?

It is a Subsea department that was founded in 2021, from partnership with TESS Subsea Norway. We are specialized in project deliveries for the subsea industry where high demands for quality of materials and services are received, and where on time delivery for materials and documentation and HSE are vital.

TESS Subsea has a strong focus on collaboration and responsiveness to support our clients in all ways required and to ensure a smooth and efficient project execution, either it is a small or large project to reduce lead time and secure on time delivery. At TESS Subsea we provide the capacity and capability to produce most types of hydraulic distribution solutions which involves either thermoplastic hoses or stainless steel tubes or just mechanical hydraulic assembly.

We can provide products based on:

- Customer designs with free issued components.
- Customer design where TESS procures all incoming materials from specified sources.
- Components from existing OEM suppliers.
- New design and qualification to meet project specific requirements.

We can also provide service and repair work both in-house and on-site at client or requested location.

Location

We are located strategically in Macaé, Rio de Janeiro, Brazil. Our facilities include a 7.000 m2 assembly and test area for mechanical/hydraulic assembly and test of both single items as well as hydraulic distribution systems.

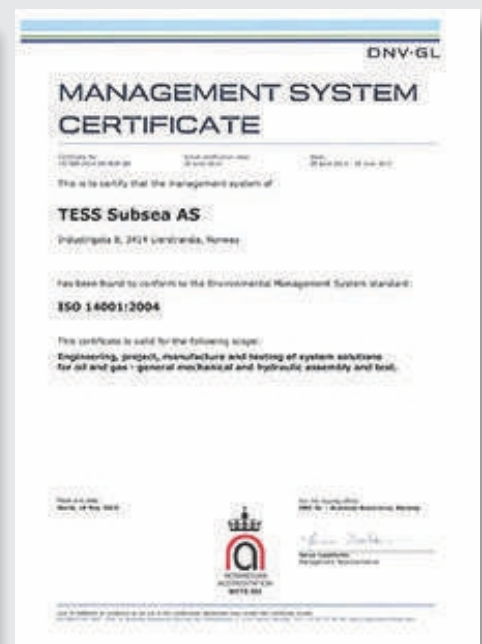


Quality, Health, Environment & Safety

Commitments to QHSE are of vital importance in all aspects of our activities.

Quality and HSE management is an integral part of our business philosophy and everyday work. We are currently qualified according to:

ISO 9001:2015 /
NS-EN ISO 3834-2:2006
and ISO 14001 certifications.



Products & Services

Hydraulic Flying Leads / Hose bundles

- Typically parameters are 1-18 lines and lengths up to 300 meters.
- Helically twisted or parallel layup. Sheathed or with spiralguard wrapping.
- Lightweight or heavy duty solutions with or without bend restrictors/ stiffeners.
- ROV-friendly installation solutions.
- Termination solutions with threaded connections or “all welded” solutions were all threaded connections between hose and hydraulic coupler are eliminated.
- Thermoplastic hoses fully compliant with ISO 13628-5 as well as steel wire reinforced thermoplastic hoses qualified and tested according to ISO 13628-5.



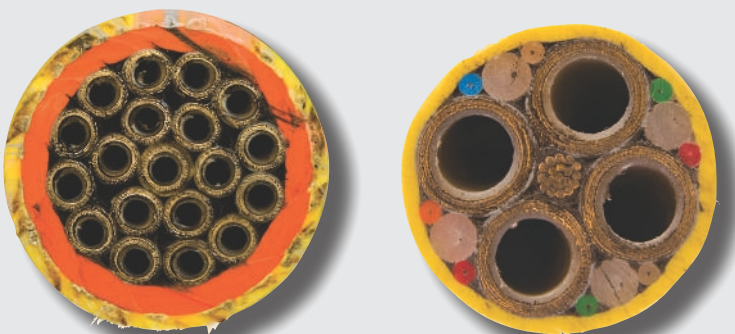
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Steel Flying Leads

- Customized products to meet client requirements.
- Customized cobra head / termination head.

Infield / Workover umbilicals

- Customized products to meet client requirements.
- Electro and hydraulic lines (thermoplastic hose, steel tubes, electrical cables).
- Customized subsea or topside terminations.
- Lengths' up to 3 - 4 km.



To be able to ensure a continuous and services, we have linked up with and manufacturers in each product components are designed, qualified to the proper quality standards.

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high quality on products
with the "best in class" suppliers
in the area to ensure that all
products are designed, manufactured and tested

Stabplates and hydraulic couplings

- Multi and single line stabs for subsea and topside applications.
- Hydraulic couplings with metal or elastomeric seals.

Metal Expansion Joints and Metal bellows

We can offer all sorts of flexible elements to compensate movement in machines, pipes, apparatus caused by thermal expansion, pressure, inertial forces, misalignment and settlement of foundations.



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Thermoplastic hose assemblies

- TESS Subsea holds a wide range of standard high performance and ISO 13628-5 qualified thermoplastic hoses in stock.
- High collapse resistant or non-HCR.
- Aramid fibre reinforced hoses fully compliant to ISO 13628-5.
- Steel wire reinforced hoses tested and qualified acc.to ISO 13628-5.



Our in-house capability includes general mechanical-hydraulic assembly, manual and CNC tube bending, orbital welding and high pressure testing and flushing. All of these can be provided as separate services.

In-house production - capabilities and services



Welding

We can provide complete mechanized welding services for small bore tubing with high quality, low cost and competitive lead time. TESS Subsea has qualified welding procedures for welding of 316L, Super Duplex, and Inconel 625 materials.

CNC tube bending

Our tube bending department features a Unison Breeze "All Electric" left & right hand tube bending machine which provides high accuracy and repeatability, suitable for both small and large series. We have qualified bending of small bore tubing in materials such as 316L, Super Duplex, and Inconel 625 in ranges from 3/8" OD to 3/4" OD. However, other or project specific materials, sizes and bend radius are possible at request.

Hydraulic & Mechanical Assembly

Our in-house hydraulic/mechanical assembly facility provides an efficient and flexible assembly of both products and systems. By delivering both welding, assembly and testing services we can offer complete deliveries cost and time efficiency.

High Pressure Testing & Flushing

Our testing department is equipped with purpose built high pressure testing and flushing units suitable for testing of single items and more complex systems.



Our test department features several test and flush units for pressure testing up to 4000 BAR with fluid types such as water/glycol mixtures, mineral oil and water based hydraulic fluid.

The units are combined pressure testing and flushing units for time efficient testing operations. All measurements and monitoring systems are fully integrated and electronic recordable.



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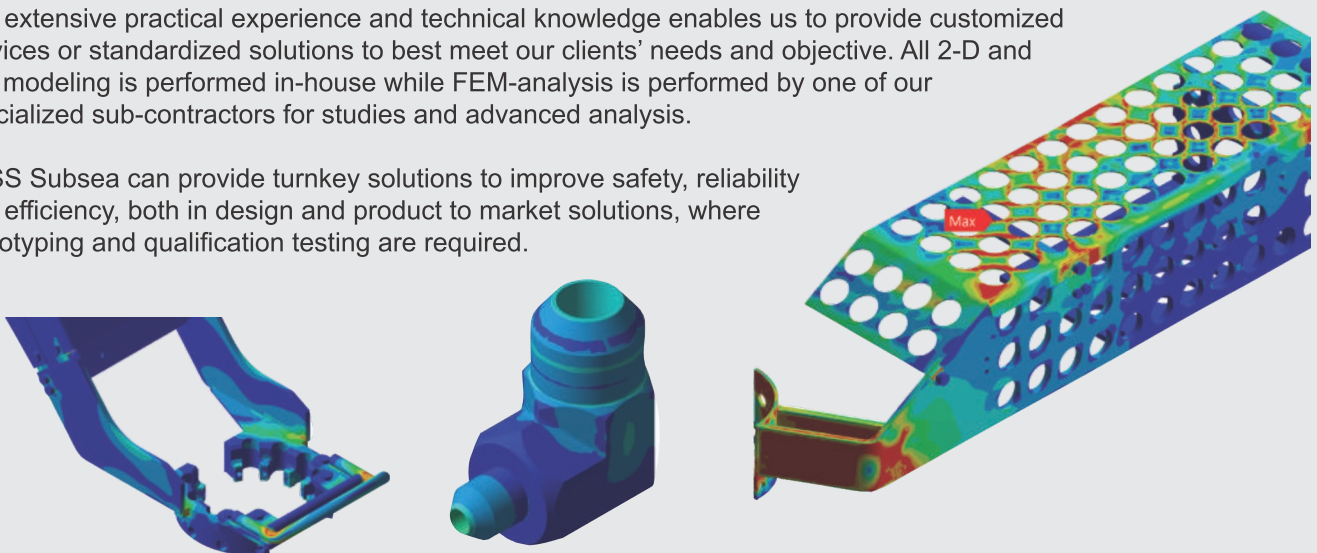


Engineering - Our knowledge

We can provide supportive services such as R&D activities, contract engineering work, product improvements and qualification of products.

Our extensive practical experience and technical knowledge enables us to provide customized services or standardized solutions to best meet our clients' needs and objective. All 2-D and 3-D modeling is performed in-house while FEM-analysis is performed by one of our specialized sub-contractors for studies and advanced analysis.

TESS Subsea can provide turnkey solutions to improve safety, reliability and efficiency, both in design and product to market solutions, where prototyping and qualification testing are required.





TESS Locations

