
EnerMech
Energizing Energy
INTRODUCING...
PIPELINES
& SUBSEA

EXPLORE OUR WORLD...

GLOBAL CAPABILTY, LOCAL DELIVERY

From construction to installation and hook-up, our extensive global presence ensures consistent service delivery worldwide.

We provide ongoing support throughout your asset's life-cycle, applying a standardized approach to service delivery that maximizes uptime and minimizes operational risk.

95%
LOCAL CONTENT across the business in Africa, Caribbean, South America, Caspian, and SE Asia

26
OPERATING FACILITIES & OFFICES to provide local service delivery wherever there are global enegy hubs

56
COUNTRIES where we have successfully executed projects

SMEs
GLOBAL COMMUNITY of subject matter experts

WHY ENERMECH...

1 **We are specialists**
We deliver and self-perform a broad range of specialist services discretely, bundled, or as an integrated package.

2 **We are trusted**
We deliver specialist services reliably and safely, utilizing our custom fleet of equipment and enabling technologies.

3 **We are global**
We share lessons learned, adopt best practices, and engineer innovative solutions on a local level where no supply chain exists.

4 **We are solutions-oriented**
We drive commercial efficiencies through smarter technical solutions, delivered with the highest regard to safety and quality.

5 **We are knowledgeable**
We have the technical capability and scale to efficiently manage across the full asset life cycle.

WHERE EXPERTIZE MEETS INNOVATION ON A GLOBAL SCALE

At EnerMech, we take pride in leading the way in pipeline and subsea solutions. Our team of experts utilizes innovative technologies and practices to offer a comprehensive suite of pipeline and subsea services.

From onshore pipelines to deepwater projects, we provide integrated solutions across all asset life cycle stages – construction support, pre-commissioning, completions, ongoing maintenance, and decommissioning. Our goal is to deliver tailored solutions worldwide.

Collaboration, attentive listening, and cost-effective turnkey solutions define our approach. What sets us apart is our commitment to providing a range of innovative technologies that match your specific needs. Whether adapting existing technologies or developing new ones, we work closely with you to determine the optimal solution for your project requirements.

Our dedicated teams, including project management, engineering, and multi-disciplined technicians, ensure a seamless and efficient process, minimizing interfaces and enhancing project delivery.

At EnerMech, safety and quality are non-negotiable. With our 'target zero' mindset, we offer a partnership that blends industry-leading expertize, innovative solutions, and an unwavering commitment to safety and quality. Your success is our top priority, regardless of the complexity or location of your pipeline or subsea project.

Integrated Service Offering

- Project management and engineering
- Pre-commissioning and commissioning
- Conventional flooding, pigging, gauging, cleaning, and testing
- Subsea remote pigging, flushing and testing
- Chemical injection and pumping services
- Pipeline dewatering, conditioning, and drying
- Nitrogen packing and pressure equalisation
- Conventional umbilical pre-commissioning services including electrical and fiber optic testing
- Remote subsea testing of umbilicals, both hydraulic and electrical
- Riser annulus testing
- Pipeline decommissioning

EMPOWERED EXPERTS INNOVATIVE SOLUTIONS

Leveraging our deep industry expertize, EnerMech's skilled pipeline and umbilical team provides cost-effective, innovative, and turnkey solutions.

We prioritize asset reliability, safety, and reduced project risk through close collaboration and attentive listening.

Our experienced team excels in pre-commissioning, commissioning, cleaning, and decommissioning, ensuring your pipelines, umbilicals, and fiber optics maintain peak efficiency with minimal downtime. When decommissioning is required, we execute it efficiently and effectively.

Pipeline Pre-Commissioning and Commissioning

EnerMech offers a comprehensive suite of pipeline pre-commissioning and commissioning services, seamlessly managed by a dedicated project management team. Our empowered teams utilize innovative equipment and technologies for the safe and timely delivery of both onshore and offshore pipeline projects, regardless of size.

- Water winning
- Pipeline flooding, gauging, and cleaning
- Hydrostatic and pneumatic testing
- Leak testing
- Dewatering
- Air drying
- Air cleaning and drying
- Nitrogen drying
- Chemical conditioning
- Vacuum drying
- Baseline ILI survey
- Nitrogen packing
- Subsea leak detection
- Turnkey pre-commissioning vessel support

Pipeline Maintenance

Ensuring the optimal performance of pipelines is critical for your asset. Maintaining a clean pipeline is key to maximizing flow rates, enhancing asset longevity, improving reliability and safety, and reducing overall risk. Our diverse range of maintenance solutions addresses common challenges, including:

- Subsea pumping of hydrate inhibitors and production chemicals
- Pipeline cleaning using chemical, gel, or mechanical methods
- Revalidation testing employing water, air, or nitrogen
- Custom pumping and nitrogen solutions for propelling ILI tools in low-flow or low-pressure situations
- Revalidation testing employing water, air, or nitrogen
- Purging pipelines before repair or modification
- Pig tracking

Umbilicals and Fiber Optics

EnerMech's seasoned team, using our specialized equipment fleet, offers comprehensive support in hydraulic, electrical, and fiber optic testing, wireless monitoring, and umbilical cleanliness management and flushing.

- FAT testing per client requirements
- SIT testing tailored to client specifications, with the provision of a temporary HPU
- Load-out monitoring
- Post load-out testing
- Transit and installation monitoring
- Post installation/ hook-up testing
- Fluid change out/displacement
- Fluid management
- Specification and build of topside systems

Late Life Pipeline Support and Decommissioning

We understand the importance of extending the life of your assets. Our expert team collaborates to manage your assets throughout their life cycle, enhance efficiency in late life, and, when the time comes, prepare for production cessation. Services during late life or decommissioning encompass:

- Subsea pumping of hydrate inhibitors and production chemicals
- Pipeline cleaning using chemical, gel, or mechanical methods
- Custom pumping/nitrogen solutions for propelling ILI tools in low-flow/low-pressure situations
- Revalidation testing using water, air, or nitrogen
- Purging of pipelines prior to abandonment
- Pipeline decommissioning
- In the decommissioning phase, we offer the capability to flush and clean pipelines for in-situ abandonment or removal.

Service Excellence and Continuous Improvement

At the foundation of our operations lies an unwavering commitment to service excellence and continual improvement. We achieve sustained service excellence by fostering an environment of continuous transformation, engaging the hearts and minds of our team members. Through this ongoing commitment to improvement, we cultivate a workforce of highly engaged individuals who not only deeply understand your unique needs, but also consistently deliver superior performance.

This approach ensures that our services are not only exceptional but continually evolving to exceed your expectations.

Delivering Value across The Asset Life Cycle

SUBSEA TECHNOLOGIES

UNDERSTANDING THROUGH EXPERIENCE – DELIVERING THROUGH INNOVATION

EnerMech's pre-commissioning subsea technologies consistently deliver remarkable cost savings exceeding 50% on both equipment and personnel. Compared to traditional vessel-based approaches, our innovative solutions also significantly reduce vessel schedule days.

Over the past decade, we've pioneered a suite of subsea equipment tailored for operations in water depths ranging from 20m to 3,000m. Our industry-leading technologies have been deployed successfully over 150 times, making a significant impact on more than 30 projects worldwide. Experience efficiency and savings with EnerMech's proven subsea solutions.

Key Benefits

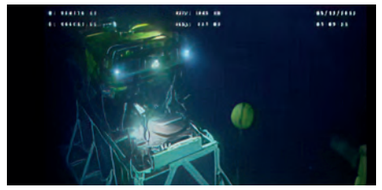
- Cost reduction
- Schedule reduction & flexibility
- Reduced vessel POB
- Reduced desk space requirements
- Less environmental impact
- Option to deploy small vessels
- Reduced potential weather risks
- Remote subsea collection

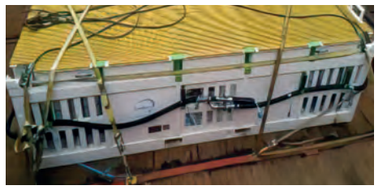
Remote Flooding Console (RFC)

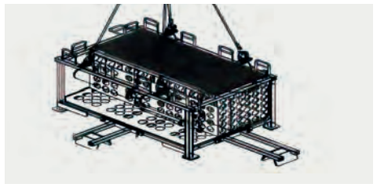
Our Remote Flooding Console (RFC) operates by utilizing natural hydrostatic seawater pressure to fill and pig subsea pipelines. It incorporates technology and hydraulically powered subsea boost pumps, effectively avoiding differential pressure.

Key features of the RFC include no down-line requirement, the ability to deploy and recover with smaller vessels, complete ROV compatibility, reduced crewing needs, a smaller deck space footprint, and a quicker thermal stabilization time for hydro-testing. The vessel can also be used for other tasks while the RFC is in operation.

Working seamlessly with the RFC, the Optical Link (OL) facilitates real-time data and historical data upload from the Subsea Test Pump and Manifold (STPM) to a nearby ROV without the need for a hard connection. This integrated system enhances the efficiency and effectiveness of subsea operations.







Bespoke Subsea Flooding Solutions

We understand that different situations need different solutions, and one size doesn't fit all. This is why we engineered the RFC to be scalable, and produced variations such as the RFC Lite and the RCF Ultra Lite (RFC UL) to ensure that we had a solution suitable for all of our clients' needs. Our bespoke subsea flooding solutions are ideal for deep and shallow projects, be it flooding during lay, flushing, and fluids collection and treatment.

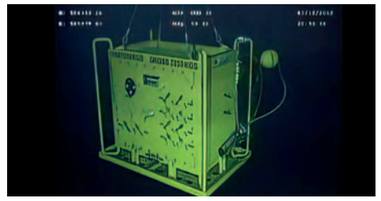
The RFC Lite provides all of the filtration and dosing benefits but without the integrated boost pump and instrumentation package, which makes it ideal for pipe lay. The RFC UL was created for chemical dosing during lay down of the initiation heads where buoyancy issues are present and require immediate flooding during lay.

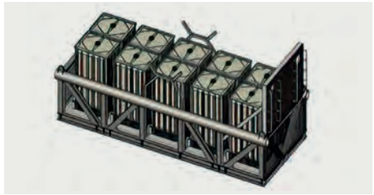
Subsea Test Pump And Manifold (STPM)

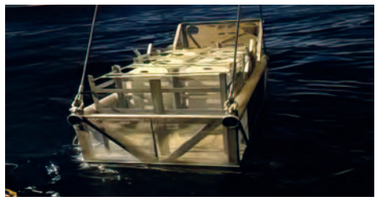
The STPM uses the ROV's hydraulic power to run the onboard pump and perform pipeline and umbilical hydro or leak testing without the use of downlines, as well as recording and monitoring multiple tests utilizing its onboard data systems.

The STPM's ability to hold and depressurize subsea without the need for a downline allows the pipeline and umbilical to be tested without the vessel, which means the vessel availability and flexibility is increased significantly for other tasks as the manifold continuously logs.

Chemicals can be stored on board for pressurisation fluid treatment, and all fluid entering the system is guaranteed to be filtered to 50 micron. Optical Link (OL) also works hand in hand with the STPM, providing real-time data and historical data upload from the STPM to a nearby ROV without a hard connection, eliminating the need for vessel time as there no need to retrieve the manifold during operations.







Subsea Storage/Collection Tank

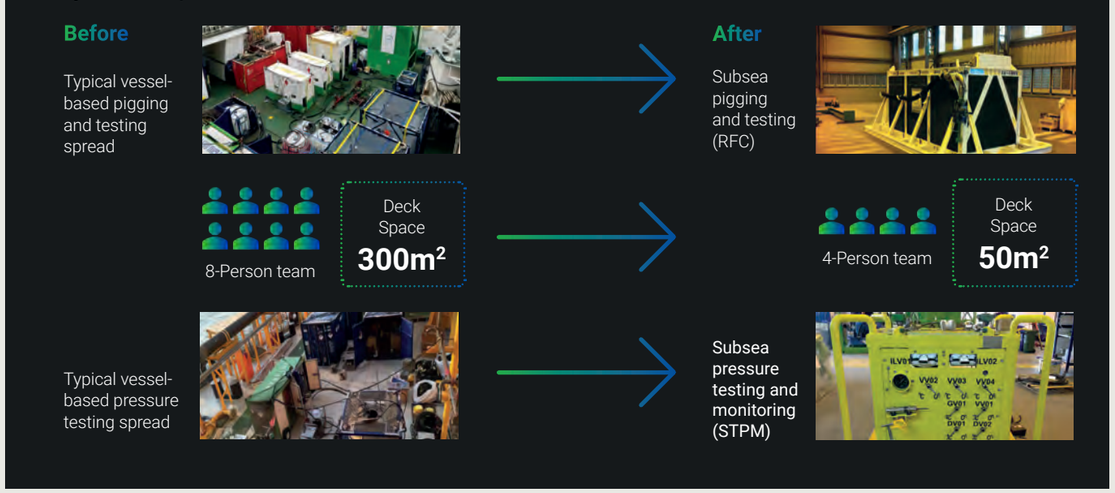
Our team holds a record of accomplishment in the design and build of unique solutions for subsea storage and collection tanks to suit specific client requirements.

As an example, we have provided a bespoke subsea bladder collection tank with the ability to collect 10 different chemicals with varying toxicities that is capable of holding up to 25,000 liters and to operate at 1,200m water depth preventing any chemical discharges. Similarly, we worked in partnership with a client to provide a subsea chemical basket.

This particular basket featured a MEG bladder to supply the MEG to our RFC and STPM which allowed for a MEG flush and tests of subsea structures at a depth of 1,500m. This unit allows us to safely deploy fluid volumes in excess of 20,000 liters entirely subsea.

These technologies can be used in combination or individually to suit specific requirements. They can also be utilized on a full project or alongside your existing contractor which will deliver efficiencies immediately.

Project Comparison



CASE STUDIES

Saipem Payara EPC3
Subsea and Pipeline Pre-Commissioning Services

The Payara project is a deep-water oil and gas development 200km offshore Guyana in 1,900m–2,120m water depth. EnerMech was contracted to provide critical subsea and pipeline pre-commissioning services to Saipem. This included project management services, including QHSE, HAZID and project meetings, FCGT to the production, water and gas injection systems.

Scope Of Work
- Project management and engineering of pre-commissioning services
- Subsea flooding
- Hydro testing
- Umbilical testing and monitoring
- Nitrogen dewatering

Equipment Used
- EnerMech remote flooding console (RFC and RFC-UL)
- EnerMech/Pipeline Innovations calliper pig
- EnerMech subsea hydrotest manifold and subsea test pump
- Nitrogen membrane units, compressors and air boosters

Key Benefits
- Close collaboration with the client to deliver safe, adaptive, and flexible solutions
- Utilized transferable design and engineering skills, drawing on experience from other regions employing subsea equipment
- Ensured effective interfaces at all levels, driving scopes in a timely fashion and maintaining consistent communication throughout the project
- Leveraged an integrated service offering and inter-company experience in Europe and the Gulf of Mexico to support projects in Guyana.

BP Mad Dog Phase 2 (Argos)
Pre-Commissioning Services

Mad Dog Phase 2 is a deep-water development located in the Southern Green Canyon region, Gulf of Mexico in approximately 1,370–2290m water depth. The Argos FPU hosts the processing facilities. EnerMech provided project management services including QHSE, HAZID, and project meetings, subsea flushing/flooding, topsides pigging, and dewatering of the gas export pipeline.

Scope Of Work
- Project management and engineering of pre-commissioning services
- Subsea pipeline pre-commissioning
- Umbilical & SFL pre-commissioning
- Topside leak testing, flange management, and bolt torqueing
- Topside flushing, chemical cleaning, hydro-blasting, and hydro-testing
- Well Commissioning
- Product & new-build sales

Project Delivery
- EnerMech delivered various topside and subsea scopes, as well as onshore and offshore support

Pre-FPU Subsea Flushing
- Subsea flushing with 500ppm of RX-5227 and 1.75ppm of rhodamine WT concentrate
- Production 1 through 4 Lines
- Oil export and gas export pipelines

Subsea Flooding
- Subsea flooding of WI lines with an initial slug 490ppm RX-5227/10ppm RX-9022; remaining flooding with 160ppm RX-202/10ppm RX-9022
- Water injection 1 and 2

Key Benefits
- Good safety culture with 120,000+ safe working hours
- Integrated service offering from onshore pig assurance to offshore pigging and dewatering for a comprehensive solution
- Ensured effective interfaces at all levels, driving timely scopes and maintaining consistent communication
- Utilized RFC subsea pump to displace raw seawater, to preserve pipelines
- Design and engineering capability enabled separate flow paths for dual chemical injection without RFC recovery.

Shell Powernap
Pre-Commissioning Services

Shell Powernap is a deep-water development located in the south-central Mississippi Canyon area, Gulf of Mexico in a water depth of approximately 1,280m. EnerMech provided a range of pre-commissioning services for the facility's production/gas lift system and umbilicals. This included project management and engineering, along with the provision of equipment and personnel.

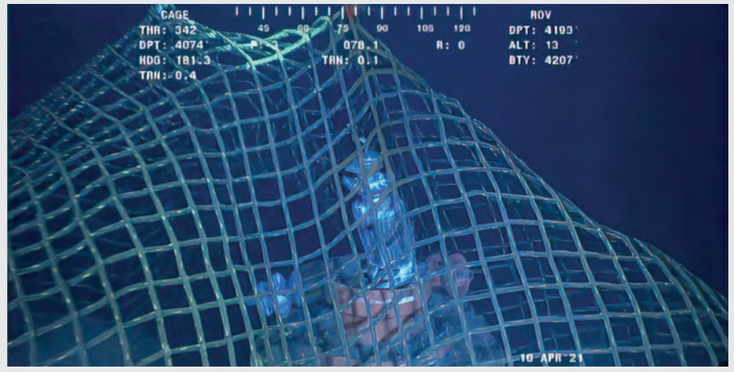
Scope Of Work

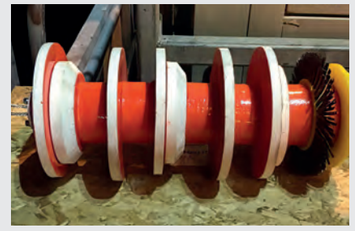
Production/Gas Lift System
- Hull piping testing
- Flowline hydrotesting
- Flowline flushing
- Flowline dewatering
- Hull piping remediation

Umbilical Pre-commissioning
- Loadout monitoring
- Post-loadout testing
- Transport monitoring
- Installation monitoring
- Post-installation testing

Project Delivery
- EnerMech strategically deployed cross-functional teams to manage both flowline and umbilical scopes, offering timely solutions for emergent issues, with a particular focus on corrosion mitigation and inhibition. Supporting these additional scopes, we efficiently delivered extra equipment on short notice and swiftly provided additional personnel required during COVID events
- Despite the project's challenges, more than 20,000 working hours were expended, exceeding the original budget by threefold

Key Benefits
- Close collaboration with client team during detailed engineering
- Presentation of multiple potential solutions to mitigate corrosion concerns
- On-site input for hydrotesting leak detection efforts
- Close coordination with client to address difficulties with closing spool installation
- Key input to process improvement and on-site MOC throughout the scope
- Flexibility in response to multiple schedule changes/delays.





VALUED PARTNERSHIP COLLABORATIVE APPROACH

For more than 10 years EnerMech has worked with a major subsea contractor providing a range of integrated services including:

- Umbilicals
- Pipelines
- Crane operations
- Crane maintenance
- Hydraulic services
- Hydraulic products
- Refurbishment
- Procurement
- Mechanical, electrical, and instrumentation
- Training

Since 2015, EnerMech has delivered 211 projects across just four of these services lines, expending 100,000 work-hours. We have worked together with our client to achieve zero harm to our people and to the environment in which we work, as well as to continually focus on service quality and minimize downtime.

How It Works

Our process begins by closely collaborating with you to gain a deep understanding of your requirements and identify areas where we can add significant value to your organization.

Using this understanding, we construct a tailored framework of services, aligning them with your assets and projects. This framework highlights specific areas where we can maximize benefits and operational efficiencies.

Our integrated approach, coupled with a multi-disciplined workforce, minimizes interfaces, improves communication, and guarantees the delivery of a solution that precisely meets your needs. This ensures a seamless and effective implementation that addresses all aspects of your requirements.

Key Tools

Our commitment to getting things right every time is inherent, and it reflects in our continuous pursuit of excellence. Our long-term partnerships serve as learning platforms, fostering a transparent relationship that progressively benefits each project.

Central to maintaining this transparency are key tools such as audits, Synergi Cases, and UORs (Unplanned Occurrence Reports), all contributing to our overarching Continuous Improvement Plan. These tools not only reinforce our commitment to excellence but also facilitate a collaborative environment where shared insights drive continual enhancement in our operations.

Focus on Pipelines and Subsea Services

Over a five-year period, our collaboration with a crucial subsea client markedly enhanced their pipeline and subsea services. EnerMech's offshore team seamlessly integrated with their vessel crew, while our onshore engineering support team generated all necessary documents and procedures.

Our ability to adapt was evident as we modified, developed, and manufactured various subsea technologies to precisely align with the distinct requirements of their projects. This successful partnership underscores our dedication to delivering customized and efficient solutions in the field of pipeline and subsea services.

27
Projects including five inspection, repair, and maintenance initiatives

>250
Documents and procedures produced by our onshore team

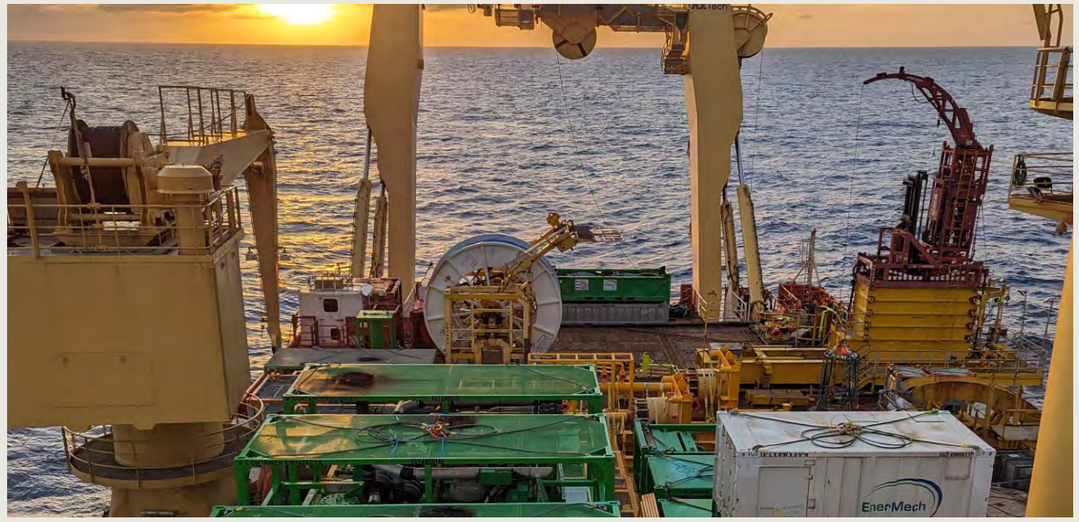
150
Mobilizations for both onshore and offshore activities

>65,000
Work-hours expended on this single pipelines and subsea frame agreement over the last five years

A TRUSTED PARTNER

You need a partner you can rely on, which is why we pride ourselves on our excellent customer service.

In fact, we have a track record of long-term partnerships – testament to our unwavering commitment to every customer. We don't just promise results. We deliver them safely and effectively – every time.



WANT TO FIND OUT MORE ABOUT OUR **PIPELINE & SUBSEA SERVICES?**

For general enquiries contact us at **sales@enermech.com**

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