RED Engineering

# TESTING SERVICES GUIDE



RED
Engineering

*“As a supportive and progressive engineering powerhouse, we have recently expanded our test facilities to allow the provision of a wider range of testing services to global clients.*

*Red Engineering's enhanced testing services mirror its other services, with the fast track provision of turnkey solutions; from test programme development, through the rapid design and build of bespoke test equipment to completion of testing and the analysis of results against industry or specific client requirements.*

*We look forward to working in partnership with you to develop and qualify industry leading products and solutions.”*

***Joe Orrell, MD of Red Engineering***

# Our Service - Testing with Intelligence

Working as an extension of a client's team and drawing on its first hand experience of offshore operations and equipment design, Red Engineering can develop and deliver bespoke test programmes to meet specific project requirements. Key features of the Red Engineering service are the ability to rapidly design and manufacture first of kind test equipment and the in-house engineering resources to fully analyse and extract maximum value from test results.

## Pipe and Cable Lay Tensioner Pad Testing

- Crush and Tension Testing
- Friction Co-efficient Testing
- Cyclic Testing

## Product Qualification Testing

- Fatigue Testing
- Prototype Testing
- Pressure Testing
- Lifetime Testing to TRL 3

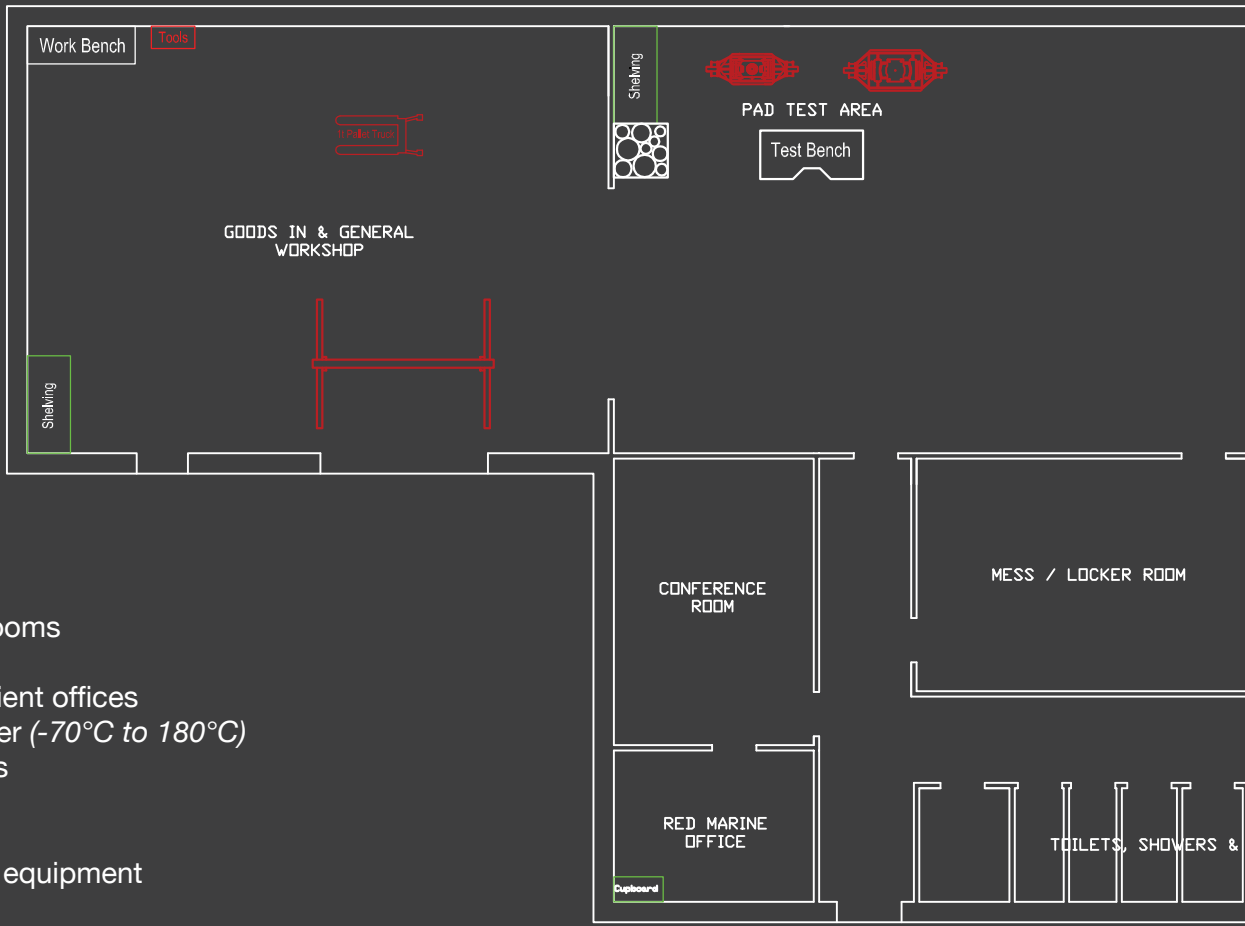
## Procedure Qualification Testing

- Down Hole Operations
- Pigging Operations
- ROV Tool Testing

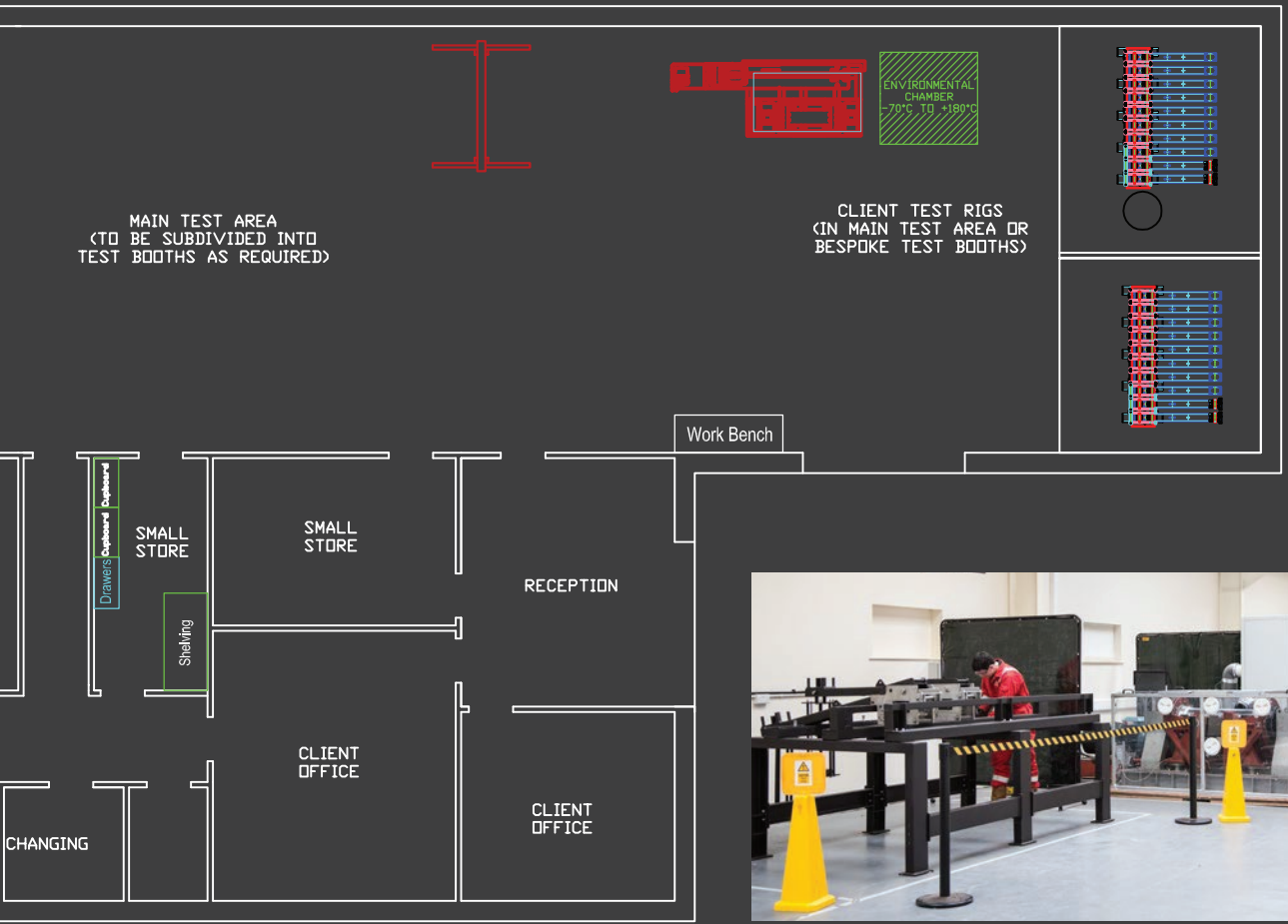
# Testing with SPIRIT

| | | | | | |
|---|---|---|---|---|---|
| S | SAFETY | P | PROFESSIONALISM | I | INNOVATION |
| R | RESPONSIVENESS | I | INDEPENDENCE | T | TRUST |

# Our Facilities




- 550m² Test Facility
- Overhead Craneage
- Project specific test rooms
- Secure storage areas
- Conference room & client offices
- Environmental chamber *(-70°C to 180°C)*
- Tensioner pad test rigs
- Drop test rig
- Pressure equipment
- Calibrated monitoring equipment
- 24-hour tech support

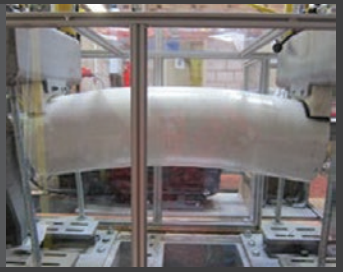

ENVIRONMENTAL CHAMBER
-70°C TO +180°C
MAIN TEST AREA
(TO BE SUBDIVIDED INTO
TEST BOOTHS AS REQUIRED)
CLIENT TEST RIGS
(IN MAIN TEST AREA OR
BESPOKE TEST BOOTHS)
Work Bench
SMALL STORE
SMALL STORE
Drawers
Cupboard
Cupboard
Shelving
RECEPTION
CLIENT OFFICE
CLIENT OFFICE
CHANGING


RED

# Our Track Record

## FATIGUE TESTING

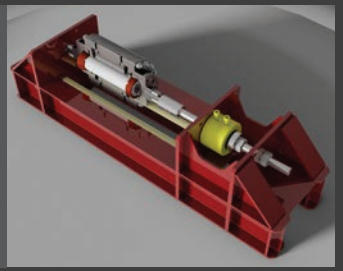
Red Engineering has developed and operated a number of rotational test rigs (from mid to large scale) to evaluate the fatigue life of subsea pipelines. 24 hour sample testing has been completed in controlled environmental conditions from 30°C to -20°C.



*"We have been using Red Engineering for testing services for over 2 years and have been consistently delighted with their responsiveness and ability to quickly deliver successful test equipment and test programmes that provide high value results."*
***- J Latto, GE Oil and Gas***

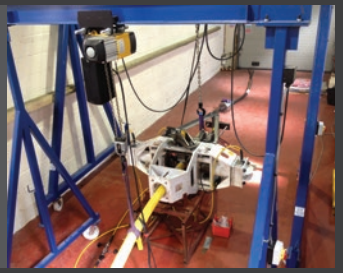
## SUBSEA COMPONENT TESTING

The testing and qualification of subsea components at operating pressure and temperatures against client requirements and industry standards such as ISO13628-6:20006, API 6A and SAE AS-4059. Red Engineering's scope has included the design and build of bespoke pressure vessels (rated up to 30,000 psi) in accordance with DNV codes and the Pressure Equipment Directive.



## TENSIONER PAD TESTING

Using our in-house test rigs, Red Engineering has completed a wide range of tensioner pad testing and evaluation for international clients. This has included determining friction properties and pad stiffness characteristics in different environmental conditions and the development of new pad designs to meet specific product or project requirements.



## CONCEPT EVALUATION TESTING

The rapid design and build of proof of concept equipment and test rigs to inform technology development programmes. Examples include the design, build and testing of subsea clamp concepts and game changing technology for the piggybacking of offshore pipelines.

*"I would like to thank Red Engineering for the successful manufacture and assembly of the dog leg SIT test fixture. It is noted you had to go to considerable effort personally to hit the dates and this is much appreciated as this was a critical test for our project."*
***- A Gillespie, FMC Technologies***

## REMOTELY OPERATED TOOL TESTING

Development of test procedures and equipment to allow the functional testing of remotely operated tools. Recent projects include the testing of a ROV operated gate valve intervention tools for FMC technologies and a new pipecrawler tool being developed for pipeline pigging operations.

## DROP TESTING

Impact testing of subsea equipment to verify its ability to withstand dropped objects. Red Engineering is currently developing a new build drop test rig to allow the safe and efficient drop testing of a wide range of equipment.

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**JOE ORRELL**
Managing Director
joe.orrell@redengineers.co.uk

**STEVE POCOCK**
Workshop and Test Manager
steven.pocock@redengineers.co.uk

**TOBY BAILEY**
Business Development Director
toby.bailey@redengineers.co.uk

RED ENGINEERING, Tynedale House, Burn Lane, Hexham, Northumberland, NE46 3RU