



Full-scale sour testing rig

Designed and manufactured in-house by TWI

A fatigue test machine for full-scale testing of pipes, girth welds and connectors, in rotating bending and in-plane bending, in the presence of an internal aggressive environment.

Features and benefits

- Believed to be the only full-scale environmental fatigue test facility of its type in the world
- Recreates environmental conditions of service at sea, including exposure to fluids containing H₂S
- Servo-hydraulic control of applied load, giving precise and consistent cyclic stress ranges
- Can apply both rotating bending and in-plane bending
- Axial preload facility for application of static tensile mean stress
- Capable of applying variable amplitude loading spectra

Some applications

- Determination of the fatigue strength of offshore pipeline girth welds
- Fatigue testing of pipeline connectors
- An alternative to resonance testing where high frequency and mechanical interfaces make this method unsuitable
- Fatigue testing within sour environment
- Testing parts exposed to corrosive gas and fluids, including those found in power plant eg. biomass and geothermal wells

Technical specification

- Accommodates pipe sizes up to 324mm outer diameter
- Bending moment range up to +/-250kNm
- Axial preload up to 200kN
- Test frequency up to 2Hz
- Test temperature range 5–60°C

