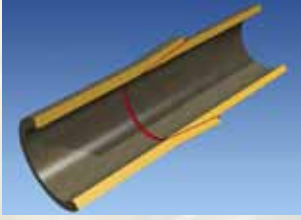


Quick-Lock® adhesive-bonded Joint



Taper/Taper adhesive-bonded Joint



AKPO FPSO using Bondstrand® GRE pipe

A consortium led by Technip, that also includes Hyundai Heavy Industries, was awarded this contract for engineering, procurement, supply, construction and offshore commissioning of the Floating Production Storage and Offloading unit (FPSO) of the AKPO field development, offshore Nigeria. The AKPO field is located on the Oil Mining License (OML) 130 offshore Nigeria, in water depths ranging from 1,100-1,700m. Technip's engineering center in Paris (France) was in charge of the overall project management and performed the engineering phase. The FPSO's hull and topsides construction and integration were executed by Hyundai Heavy Industries in Korea. Engineering and fabrication of various components and structures of the FPSO topsides was realized and center in Nigeria.

The AKPO FPSO hull has a storage capacity of two million barrels of oil and a large deck space to accommodate more than 17 topsides modules. AKPO FPSO, which will be anchored in 1,325 meters of water, will produce 225,000 barrels of oil equivalent per day. It includes two processing trains to separate out gas and water. This floater is 310 m. long and 61 m. wide and includes a 240 bed accommodation unit.

This fast-track project was completed in 40 months from contract award. First oil from AKPO field is expected early 2009.

Scope of supply

2420C Water injection, Produced water, Seawater, Fire water (wet system) in modules

5000M Chlorination Water

7000M Seawater, Ballast system (in the hull), Fresh Water

Design	NOV FGS	Manufacturer of Bondstrand pipe systems
Contractor	HHI	Fabrication FPSO hull and topside equipment
Consultant	Technip	Project management and engineering
Classification Society	Bureau Veritas	All Bondstrand Glassfiber Reinforced Epoxy (GRE) pipework was witnessed by Bureau Veritas during the entire process of manufacturing and installation
Approval	IMO	According IMO A.753(18) L3 standard

Project

Floating Production Storage and Offloading vessel
AKPO (FPSO)

Shipyard

Hyundai Samho Shipyard, Mokpo and Hyundai Heavy Industries, Ulsan – South Korea

Client

HHI Hyundai Heavy Industries for Total Upstream Nigeria Ltd

Pipe system

A total of 11.000 m. of Glassfiber Reinforced Epoxy (GRE) pipe was supplied for this most complex and sophisticated FPSO, delivered in over 3700 pipe spool pieces.

Series: Bondstrand 7000M, 2420C, 5000M and Bondstrand LD

Diameter: 1 to 48 inch (25-1200 mm)

Total quantity: 11.000 meter

Total value: approx. 15 million US\$

Operating conditions

	<u>7000M</u>	<u>2420C</u>	<u>5000M</u>
Operating pressure:	9.5	13.5	10.0
Design pressure:	16.0	18.0	10.0
Design temperature:	60.0	60.0	Ambient
Test pressure:	24.0	27.0	15.0

Installation date

2007-2008