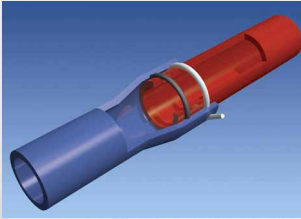


Taper/Taper adhesive-bonded Joint



Key-Lock® mechanical Joint



Bondstrand® GRE installed at Tengizchevroil TCO Asset Development project

The Tengiz field, first discovered in 1979, has recoverable reserves estimated at between 6 and 9 billion barrels. The field was jointly developed in 1993 as a 40-year venture between Chevron Texaco (50%), Kaz Munai Gaz (20%), US Exxon Mobil (25%) and LUKArco (5%). The joint venture company is known as TengizChevrOil (TCO).

The size of the Tengiz oil field is of super giant status, with estimated potential reserves of 6 billion barrels and it is the intention of TCO to increase production from Tengiz and the nearby field of Korolev to a peak of 700,000 barrels per day by the year 2010. In order to support this development TCO has committed itself to investing \$ 20 billion in Kazakhstan over 40 years. In addition to increased crude oil production, SGP (Second Generation Project) will also increase production of associated dry gas, propane, butane and saleable sulfur products. The SGI (Sour Gas Injection) project will increase oil production and will develop state-of-the-art gas injection technology for enhancing oil recovery by injecting produced sour gas to maintain reservoir pressure. This will enable the company to pump more export crude along the Caspian Pipeline Consortium's pipeline to the Russian Black Sea port of Novorossiisk.

Material

GRE supply: loose pipe, fittings, adhesive and specialist installation equipment. Prefabrication puddle flange spools and manhole entry spools, designed and manufactured to clients requirements. Supplied ex works NOV Fiber Glass Systems (The Netherlands) and Pipex (UK) involving long-term coordination with clients logistics department and third party international haulier.

Project management

Involving design and approval of prefabricated items, detailed Quality Assurance documentation submittal in dual language (English/Russian), technical assistance and product support, such as training, field service, and UK based engineering.

Installation

Senimdi Kurylys LLP and local Kazakh workforce.

Project

TCO (Tengizchevroil) Asset Development Project - Tengiz, Kazakhstan

Client

PFD (UK) Ltd. A joint venture between Parsons Energy & Chemicals and Fluor Daniel Corporation

Pipe system

Hydrocarbon & chemical drainage system:

Bondstrand 3410 with Key-Lock joints.

Diameter: 3-36 inch (80-900 mm)

Quantity: 20.600 m

Effluent water pipe line (incl. up to 9% by weight solids):

Bondstrand 3460 with Taper/Taper joints

Diameter: 3 inch (80 mm)

Quantity: 3.000 m

Operating conditions

	Bondstrand 3410	Bondstrand 3460
Operating pressure:	10 bar	40 bar
Design temperature:	-46 to 100 °C	-46 to 121 °C
Test pressure:	15	60

Installation date

Completed 2005