

Flexible Jumper Bridge

The Flexible Jumper Bridge is a custom engineered solution used to make a diverless connection between two flexible jumpers subsea



FEATURES

Adjustment in X-Y-Z dimensions to facilitate jumper connections

Stroke to accommodate flange adaptation and flexible jumper deployment

Silicone lined clamp design to interface with existing flexible jumper end fittings

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Oceaneering was asked to solve a client's technical problem of reconfiguring a subsea field offshore of Trinidad and Tobago without divers. The request was made due to the high ocean current and low visibility making diver operations hazardous. A retrofit was required in order to bring additional production online after 3 years of inactivity.

Oceaneering addressed the problem by successfully deploying a custom engineered solution, a Flexible Jumper Bridge, to connect a wet-stored jumper and a new flexible jumper with a Grayloc® remotely operated vehicle (ROV) subsea connector. The addition of the Grayloc® connector allows for future disconnect of jumper as needed.

The Flexible Jumper Bridge consists of two independent silicone lined clamp assemblies that secure each end of the flexible's end fitting: one fixed and one designed to provide alignment in X,

Y, and Z. Both clamp assemblies share a common structure that supports both flexibles and their end fittings after the connection is made.

The Flexible Jumper Bridge was deployed with a purpose built cross-over adapter utilized to convert the wet-parked flexible from an API Flange to a Grayloc® connector. The wet-parked flexible was then landed and secured into the Flexible Jumper Bridge to make up to the cross-over adapter. Next, a flexible with a ROV installable Grayloc® Remote Clamp was deployed from the vessel and landed in the opposite side of the bridging structure. Both silicone lined clamps were closed and secured prior to final adjustments in the X, Y and Z axes on the Flexible Jumper Bridge via ROV. Finally, the two Grayloc® profiles were pulled in and secured, a back seal pressure test was performed and the clamps were opened to allow for movement of the flexible over the remaining 25 year life of the field.

Technical Data

Designed to pull a flexible jumper with 10 tonnes of force over a stroke of 30 inches (76.2 cm)

Designed to horizontally and vertically align the flexible jumper end fitting with 2 tonnes of force and over +/- 3 inches (7.62 cm) in either direction

ROV interfaces in compliance with ISO 13628-8/API 17H

Designed and tested in accordance with DNVGL-ST-E273 R45 for offshore crane operations

Cathodic protection designed in accordance with DNV RP B401 for 25-year life of the load-bearing structure

Weight and Dimensions

Length	34.2 ft / 10.4 m
Width	8.5 ft / 2.6 m
Height	7.2 ft / 2.2 m
Weight (air)	25,000 lb / 11,340 kg
Weight (water)	21,875 lb / 9,922 kg
Design lLife	25 years

