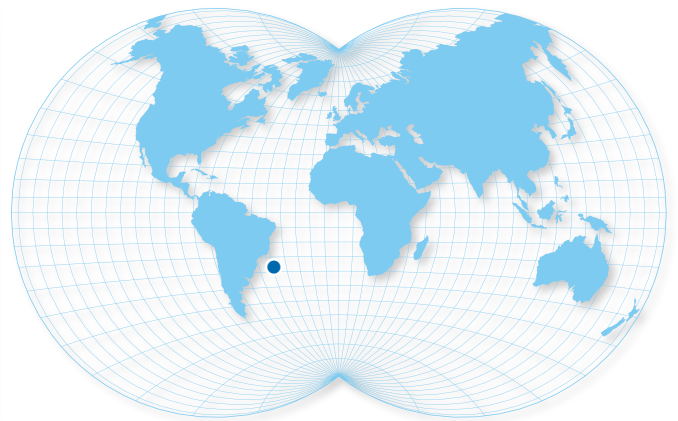


# WAIKIKI PERO INGA FIELDS, BRAZIL:

## FPSO OSX 3 External Turret



### Scope of Work

SOFEC designed, constructed and supplied an external cantilevered bow turret system for a 357,000 dwt FPSO vessel. The OSX-3 FPSO is located within block BM-C-39 of the Campos Basin, offshore Brazil, on the Waikiki Pero Inga fields in 110m water depth.

The turret is designed for a combination of 17 risers and 9 umbilicals.

The SOFEC turret system is ABS classed.

### General Description

Client Name:	OSX 3 Leasing B.V.
Contract Award:	June 2011
Installation Date:	November 2013
First Oil:	December 2013
Vessel Size:	304,622 dwt
Storage Capacity:	1,317,890 bbls
Water Depth:	110m (361ft)
Fabrication: Turret -	Malaysia
Vessel -	Singapore
Topsides -	Singapore

### Design Environmental Criteria [100-year storm]

Sig. Wave Height:	8.27m (27ft)
Wind Velocity:	23.3m/s (45.3 kts)
Current:	1.5m/s (2.9 kts)

### Mooring System

- 12-leg (3x4) all chain mooring
- 120mm chain R35/R4
- Anchor Piles

### Turret

This SOFEC external turret mooring system is record-breaking in size and provides safe and reliable means of mooring the FPSO on station in the Waikiki Pero Inga fields for the entire service life of the FPSO, in all sea state conditions. The riser system must remain undamaged in the 100-year storm.

The SPM system is an external, bow-mounted cantilevered turret designed to allow free weathervaning of the FPSO about the mooring system. In the offloading condition, the mooring system shall, in addition to withstanding loads from the 304,622 dwt FPSO, be capable of withstanding loads imparted by a Suezmax shuttle tanker moored in tandem off the stern of the FPSO.

### (Continued)

### Fluid Swivel Assembly

Production:	2 x 8-in. three outlet toroids (740 psi design)
Test /Service / Depressurization:	1 x 8-in. two outlet toroids (6,170 psi design D.P.)
Water Injection:	1 x 8-in. two outlet toroids (6,170 psi design D.P.)
Gas Injection:	1 x 6-in. one outlet toroid (6,170 psi design D.P.)
Gas Lift:	1 x 6-in. one outlet toroid (6,170 psi design D.P.)
Hydraulic & Chemical Injection Swivel:	25 paths (5,000 psi design)
Low Voltage Electrical Optical Swivel:	203 electrical paths plus 31 fiber paths
Medium Voltage Swivel:	28 paths (15kV & 8kV)

### Riser System

- 1 x 9.13-in. Flexible Riser (Gas Export)
- 2 x 6-in. Flexible Riser (Production & Test)
- 2 x 8-in. Flexible Riser (Water Injection)
- 2 x 6-in. Flexible Riser (Production)
- 2 x 8-in. Flexible Riser (Production)
- 4 x 4-in. Flexible Riser (Service)
- 2 x 6-in. Flexible Riser (Gas Injection)
- 2 x 6-in. Flexible Riser (Gas Lift)
- 9 Umbilicals