

bluewater

# FPSO Munin





# Munin

The FPSO Munin is a unique FPSO, equipped with DP2 (Fully Redundant Dynamically Positioning) system and external turret to hold a quick disconnectable buoy system for supporting the oil/gas risers. The FPSO is also equipped with a Disconnectable Turret Mooring System to allow conventional mooring. The FPSO has operated successfully in the Lufeng

field, Xijiang field and Huizhou field, all located in the South China Sea. The high flexibility of the FPSO is proven at the Xijiang and Huizhou projects, where the FPSO operated for more than 3 years on full Dynamic Positioning with oil production rates exceeding 90,000 bbl/d. Presently, the FPSO is at anchorage near Labuan, Malaysia, directly available for redeployment.

## 4 diesel engines

The FPSO is equipped with 4 diesel engines with 20 MW power generation, to provide power for diesel-electric propulsion and to provide power for topsides equipment.

## Outrigger

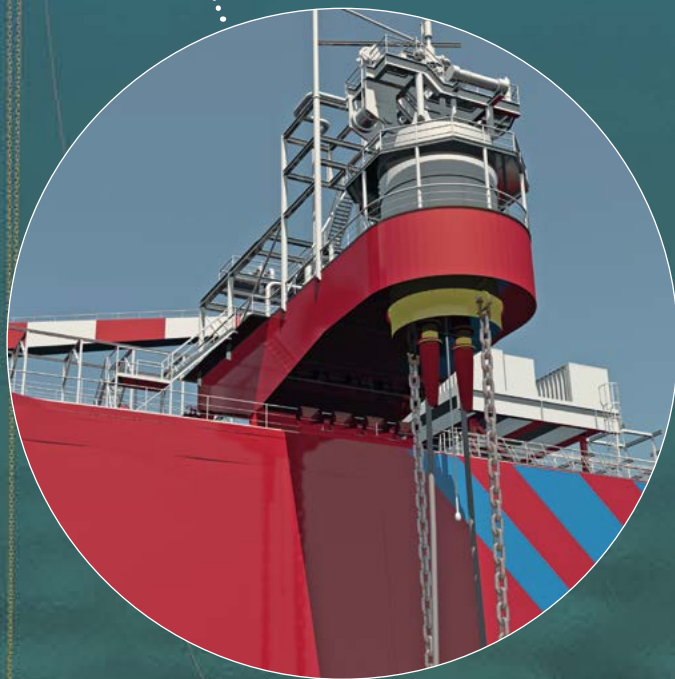
The FPSO Munin has an external outrigger construction with quick-disconnectable buoy, which allows the FPSO to hook-up, independently, in harsh weather conditions (e.g. winter) and disconnect within 1 minute in case a heavy storm or hurricane is approaching. The buoy and its SURF (subsea umbilicals, risers, flowlines) configuration can be pre-installed without the FPSO present.

## Topsides equipment

The FPSO topsides equipment arrangement shows efficient space utilization and open space allows for additional production equipment to increase the oil/gas production capacity.

## Dynamic positioning system

The FPSO is equipped with a DP (dynamic positioning) system. It is self-propelled and suitable to execute an autonomous hook-up to the disconnectable buoy.





# Specifications

## The FPSO main features

The Floating Production Storage and Offloading unit (FPSO) was built as a Multi-purpose offshore unit. The hull design, including fatigue life and longitudinal strength, is suitable for operation in harsh environment areas like the North Sea. The disconnectable Turret Mooring System is suitable for operation in areas with hurricanes/typhoons. The unit is also provided with Dynamic Positioning (DP2), and a quick disconnectable external turret, allowing operation without installation of a mooring system. Crude Separation Plant suitable for production of waxy crude at high temperature. There is ample deck space available for additional modules and large power generation capacity for tie-in of additional consumers.

## General

Port of Registry	Curaçao, Willemstad
Flag state	Netherlands Antilles
Converted to FPSO	Samsung Heavy Industries Co. Ltd, Korea 1997
Classification society	DNV-GL
Class Notation	+1A1 Ship-shaped Oil Production and Storage Unit), BOW LOADING (as applicable for stern loading), HELDK(SH), CRANE, OPP-F, EPR, EO, F-AMC, ICS, DYNPOS AUTR, PROD

## Principal dimensions

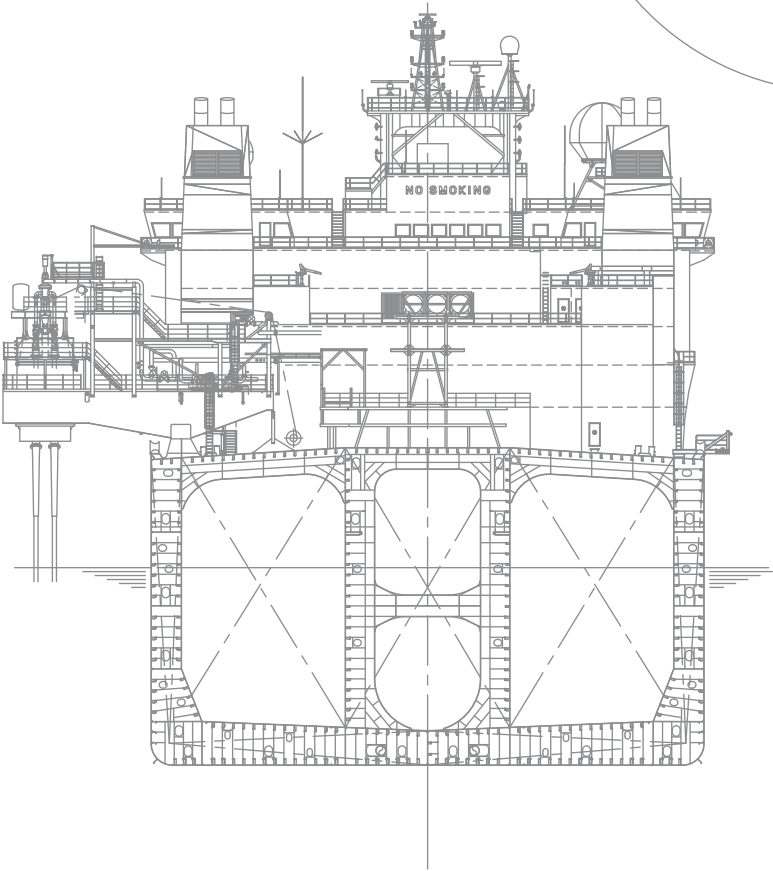
Deadweight [Tonnes]	101,107
Hull type	Double hull Aframax size suitable for North Sea
Dynamic Positioning	DP2
Storage capacity excl slops	595,950 bbls (94,757 m³) in 18 Cargo oil Tanks (98%)
Offloading	Tandem offloading
Accommodation	55 persons (normal operating)
Helicopter deck	EH101 max 14290 kg D value 22.8 m

## Topsides data

Total fluids capacity	125,000 bpd
Crude production	60,000 bpd
Produced water	120,000 bpd
Water injection	N/A
Seawater treatment	N/A
Gas compression	N/A
Gas treatment	N/A
Material selection	NACE MR 01-75
Power generation	4 x 5.2 MW Diesel Generator
Topsides motor drives	Electric

## Turret mooring data

Turret type	• Disconnectable internal turret 6x1 Mooring system • Outrigger for DP FPSO operation
Number of riser slots including umbilicals	4 for internal turret 2 for outrigger



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# References



- Bluewater offices
- FPSO/FSO
- Turret Mooring Systems
- CALM Buoy Systems
- Multi Buoy Systems
- Tower Loading / Mooring Systems