



***OIL*** **OFFSPRING  
INTERNATIONAL  
LIMITED**

**Conventional Buoy Mooring Systems**

## High integrity, cost effective tanker loading / offloading

As a leading supplier of Single Point Mooring systems, Offspring International (OIL) has an unrivalled knowledge of offshore terminal loading and offloading. Since installing its first Conventional Buoy Mooring (CBM) over 10 years ago, OIL has systematically developed its product range to include submarine hoses, and state-of-the-art telemetry and monitoring systems.

Conventional Buoy / Multi Buoy Mooring is the ideal mooring system where there are limited quay facilities, infrequent loading / offloading operations, and as an alternative to single point mooring. It comprises multiple buoys to moor the tanker securely and prevent weathervaning. A submarine hose attached to the terminal's PLEM (Pipeline End Manifold) is recovered from the seabed and connected to the midship manifold to begin loading / offloading operations.

## BUOY CONTROL SYSTEMS

Each CBM buoy is fitted with a power system, navigation aid, hook release system, instrumentation / telemetry, tanker equipment and shore equipment. Power for the equipment on the buoys is provided from solar-powered batteries to provide autonomous 24 hour operation, and with sufficient capacity for multiple hook operations and prolonged periods of poor weather.

The buoys feature 10 nautical mile LED navigation light, and a radar reflector to enhance the 'visibility' of the buoy to nearby shipping. In addition, each buoy is fitted with a GPS receiver to provide accurate telemetry timing; as well as buoy positioning.

## TELEMETRY AND CONTROL

Each buoy features a controller to receive inputs and create data messages for transmission over the telemetry link and receive commands from the telemetry system.

The tanker is the primary point for monitoring and control of the buoys. The telemetry and control system is a carry-on unit that displays all buoy parameters plus individual and global release of the hooks. It consists of a battery powered transceiver unit located on the bridge wing to allow clear reception from all buoys and to shore. This will transmit via WiFi to an iPad running a customised application, allowing the Mooring Master free movement around the bridge.

## OILTECH IPAD APP

## MOORING SYSTEM

The CBM mooring system comprises typically four steel mooring buoys. The exact configuration will depend on water depth, field requirements and environmental conditions. Each buoy is moored to the seabed with a single pendant chain to the bottom of the buoy. A secondary anchor is also included to prevent the primary anchor from being dislodged by adverse weather conditions.

Each buoy has a chain hawser assembly through the centre of the buoy unit, terminating in a chainstopper on the tanker deck. It also includes a quick release hook fitted with a sensor to indicate whether it is locked or open; this is monitored by the telemetry system.

## OILTECH SURGE PROTECTOR

The Oiltech Surge Protector reduces the risk of loading pressure surges to crew, environment, hoses and pipelines. It provides a rapid response to surge events – less than 2 seconds – for conventional and multi-buoy moorings (MBM).

By monitoring pressure at the tanker's camlocks, the portable, self-contained Manifold Pressure Monitoring System (MPMS) transmits encrypted telemetry from the pressure sensor unit to a terminal-based control station connected to the pumping station. Once pressure exceeds a pre-set threshold, the Oiltech system will automatically shut down loading operations.

01 CBM – Conventional Buoy Mooring

02 Offloading Hose

03 Mooring line

04 Clump weight

05 Anchor

06 PLEM – Pipeline end manifold



# Offspring International – Strength and Depth

Established over 25 years ago, OIL provides high quality single point and conventional buoy mooring and offloading systems, hoses, breakaway couplings, pressure surge protection and navigational buoy moorings.

Offspring International is a dedicated team of mooring professionals; bringing together over 150 years combined experience in the design, supply and deployment of offshore mooring systems. We are an active member of the Oil Companies International Marine Forum (OCIMF), contributing our knowledge and experience to Single Point Mooring and CBM Best Practice.

Offspring International combines in-depth technical and practical experience with industry-leading mooring systems and products. As the exclusive worldwide agent for Lankhorst Ropes Offshore Division, Royal Lankhorst Euronete Group, part of the Wireco WorldGroup, OIL offers a full range of Single Point Mooring (SPM) products manufactured and supplied in strict accordance with the OCIMF 2000 "Guidelines for the Purchasing and Testing of SPM Hawsers".

Through international agent agreements with leading hose manufacturer EMSTEC GmbH, and emergency disconnect systems specialist MIB Italiana, Offspring also supplies a range of EMSTEC offloading hoses and the innovative MIBreak marine breakaway coupling. In keeping with tanker loading Best Practice, OIL has developed the Oiltech Surge Protector, designed to eliminate the risk and disruption of pressure surges damaging the offloading buoy and supporting pipeline infrastructure.

Based in Dudley near Birmingham, UK, and with a branch office in Laguna Hills, California, USA, OIL has a worldwide customer base together with a comprehensive international network of agents.

For all your offshore mooring requirements, Offspring International has the experience and know-how to design, supply and install offshore mooring systems that are fully optimised and compliant with industry standards and best working practice.

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