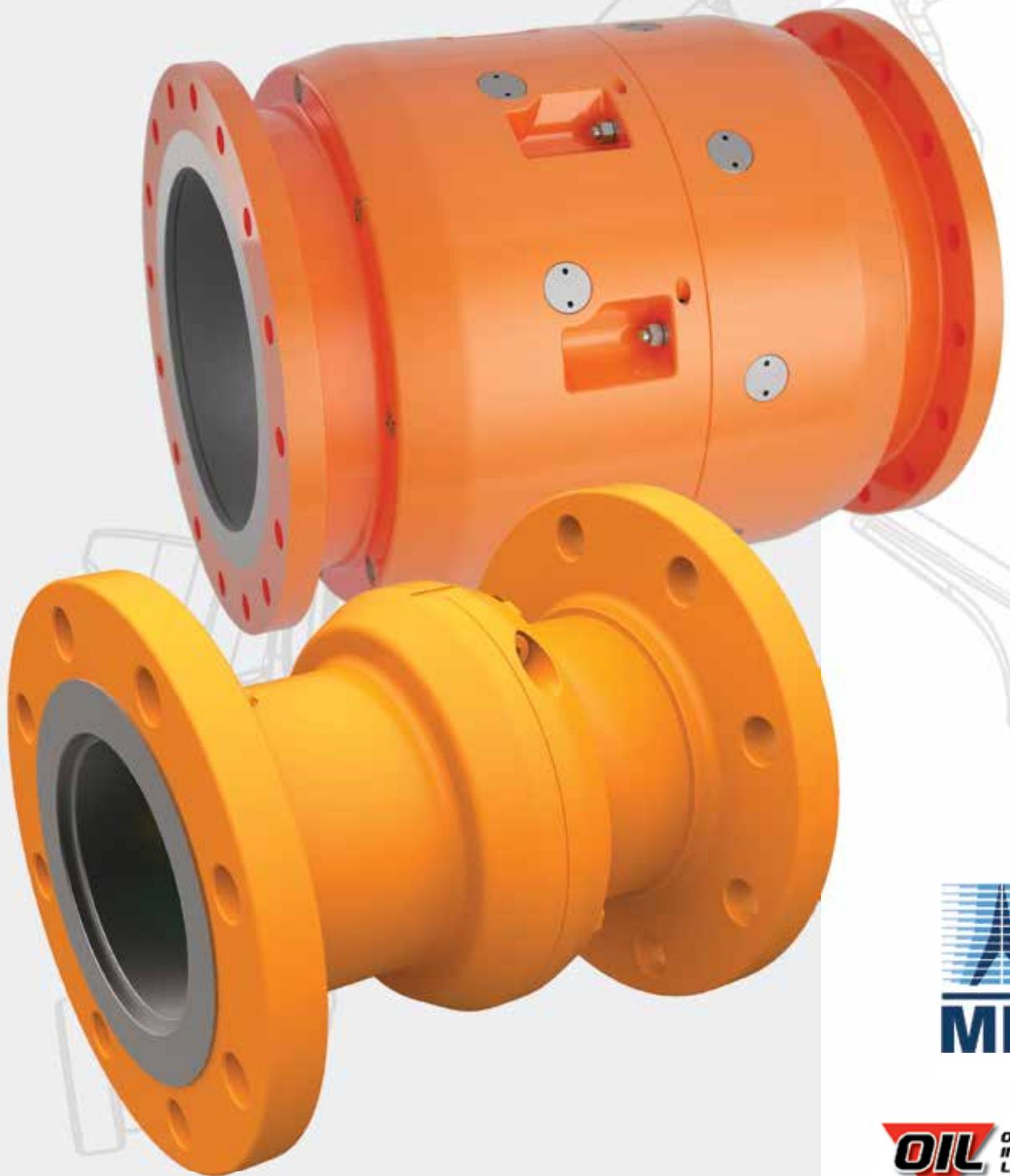


# MIBreak & Flip Flap

Marine Breakaway Couplings

**Minimises Spills | Simple to Maintain | Easy to Reset**





## MIBreak and Flip Flap breakaway couplings minimize the effect of tanker breakout and internal pressure surge events

Hose transfer operations in harsh offshore environments are at risk of tanker breakaway and internal surge pressures, causing oil spills and damage to hoses and fittings. MIBreak and Flip Flap breakaway couplings provide passive hose string protection against excessive axial tension and internal surge pressures. Both are automatically activated when a pre-set load is exceeded, and readily customizable to suit specific single point mooring (SPM) and terminal applications.

## MIBreak's rapid response, petal valve design minimizes oil spills, yet is easy to reset on-site - reducing terminal downtime following an incident

The MIBreak is an essential component in maintaining the environmental integrity of tanker offloading operations. Seamlessly integrated within the flexible hose string, the MIBreak uses flanged ANSI connections for direct bolting to hose end flanges, together with optional buoyancy units. The coupling is full bore ensuring uninterrupted flow and zero pressure loss.

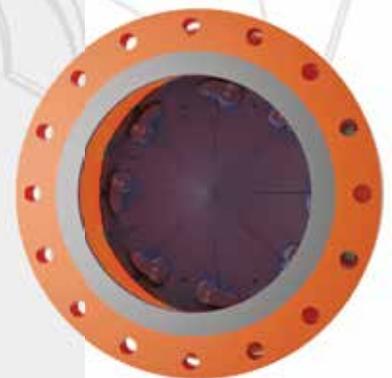
### Unique On-site Reassembly After Activation

Its design makes the MIBreak uniquely capable of on-site reassembly after activation and can be quickly back in service following an incident, reducing terminal downtime. There is no need to return the coupling to MIB to be reset.

### Benchmark Setting Design

The coupling's petal valve closure design sets a benchmark for minimal oil leakage, and petal valve engineering integrity, in marine breakaway couplings. The MIBreak allows breakout load and surge pressure to be adjusted to suit specific SPM / terminal applications by changing the titanium alloy weak-bolts, without disassembling the unit, up to max 50 tons, equivalent to 40 barg of internal pressure.

Operating in world's harshest environments, the MIBreak's forged metal construction is built to last. Its standard coupling configuration comprises two sets of petal valves housed between outer surfaces of an internal central sleeve assembly and internal bore of the valve body.



Two stage petal valve closure provides optimum anti-pressure surge protection.



### Rapid Activation

The MIBreak separates when a pre-set load or internal pressure exceeds break bolt capacity, forcing the coupling apart. The central sleeve is pulled out allowing closure of the upstream petal valves. The sleeve's taper at the upstream end prevents it pulling out completely. The upstream valve's four large petals close within a few seconds, significantly reducing oil flow.

Next the four smaller petals close - closure time is adjustable to suit flow requirements - completing upstream valve closure. Two-stage petal valve closure provides optimal anti-pressure surge protection. Continued axial load will force the second set of weak bolts to break, allowing the sleeve to separate and activate the downstream valve petals. By the time the sleeve reaches end of downstream valve, the valve is fully closed.

The MIBreak uses a novel system of pre-set spring dampeners for the two stage closure, allowing complete closure times to be adjusted to suit each installation. There is no leakage of hydraulic oil into the sea.

- **Innovative petal valve design minimises spillage and optimises surge protection**
- **Passive hose string protection against tanker breakaway and excessive internal surge pressures**
- **Unique on-site reassembly after activation - no need to return to base allowing operations to quickly resume**
- **On-site preventative maintenance programme ensures longevity of service life**

## 100% leak-free shut-off with Flip Flap breakaway coupling

The Flip Flap marine breakaway coupling offers passive monitoring of floating hoses and protection from excessive axial load and surge pressures. The standard coupling configuration comprises two sets of Flip Flap disc valves positioned either side of a calibrated titanium alloy weak-bolt flange assembly.

The two halves of the Flip Flap separate once either a pre-set load, internal pressure or combination of both activates the weak-bolts. As the valves close liquid transfer is prevented, containing liquid within each section of the separated hose. The Flip Flap's disc valves ensure 100% leak-free shut-off.

- **Disc valve design minimises pressure loss**
- **Protection from excessive axial load and surge pressures**
- **100% leak-free shut-off**



Downstream valve partially closed.



Downstream valve large petals fully closed, and the small petals closing to complete valve closure.





## MIB Italiana

The MIBreak and Flip Flap are designed and manufactured by MIB Italiana, the leading supplier of emergency disconnection systems for the oil and gas industry. MIB systems are used on numerous installations in some of the world's harshest environments including Floating Production Platforms, FPSOs and other tanker installations in locations prone to hurricanes, typhoons, icebergs and other adverse environmental conditions.

Based in Casalserugo, Padova, MIB Italiana is the leading supplier of customised fluid transfer connectors and safety solutions for oil or gas export/import systems.

Its connector and safety systems have been used in a range of transfer applications ranging from a small terminal handling fuel oil in an existing port to a complex multi-path connector used in the remotest and harshest of Arctic locations.



## Offspring International

Offspring International (OIL) specialises in equipment for mooring, offloading and control systems to optimise terminal operations both offshore and quayside. We offer a fully integrated supply of equipment for SPM and CBM buoy mooring, hoses, breakaway couplings, PLEM autonomous shutdown valve technology, together with a comprehensive terminal monitoring and management system. Using experience and expertise gained over 25 years, OIL is able to support other mooring applications including renewables, chain ferries, port operations, aquaculture etc.

Based in Birmingham, UK, and with a subsidiary office in Laguna Niguel, California, US, OIL is a dedicated team of mooring professionals with over 100 years' experience in offshore mooring. OIL's employees are active members of the Oil Companies International Marine Forum (OCIMF), where the company has contributed to single-point mooring best practice.

OIL is an international agent for MIB Italiana SPA marine breakaway couplings.



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