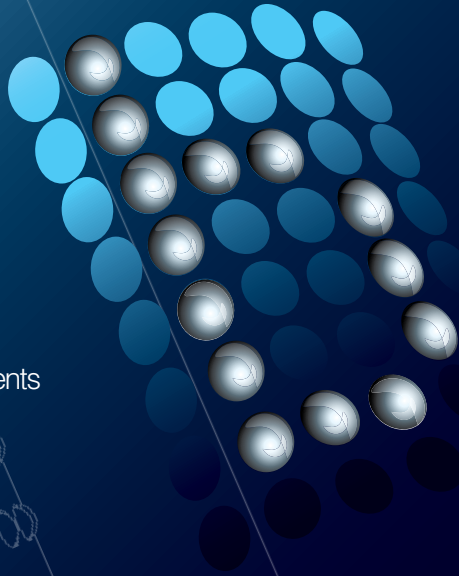


Balltec

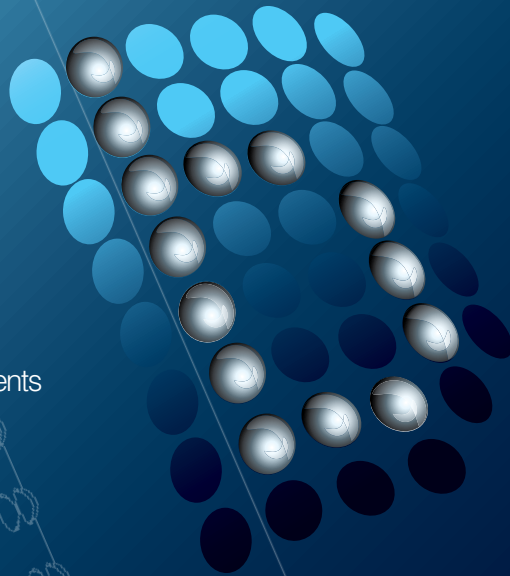
Mechanical connectors for hostile environments



Permanent Subsea Mooring Connectors

Balltec

Mechanical connectors for hostile environments



Subsea Mooring Connectors



Benefits

No ROV intervention required during connection – the connector self locks upon full engagement
– ROV is required for observation purposes only.

Simple disconnection using ROV operated clamp.

Can be used with any anchor type (Suction Piles, Driven Piles, VLA, Plate etc)

Top Entry and Heave Tolerant (once first row of balls on male is inserted into the receptacle the connector grips, arresting any heave. Further lowering of tool into receptacle completes the installation process).

Very robust design suitable for installation from Anchor Handling Vessels (AHVs).

Optimised design offers significant size and weight reduction over similar systems

Permanent Subsea Mooring Connectors

Our Subsea Mooring Connectors utilise our well established BREM (Ball & Roller Engagement Mechanism) technology to provide a disconnectable permanent connection suitable for use with all types of anchor foundations and requiring minimal ROV intervention.

Designed, Manufactured and Tested in Accordance with the DNV & ABS Rules for Certification of Offshore Mooring Chain, they are currently available in any size up to 2750mT MBL.



Design

Using the latest 3D CAD software our engineers can quickly provide bespoke designs tailored to suit your load rating and interface requirements (LTM shackle, H-Link, direct interface to chain etc). Every mooring system has of course its own specific requirements and load spectrum and all permanent connectors are subject to a 3rd Party FEA Study and Fatigue Assessment together with design assessment by the relevant certification authority.

Testing

All testing is carried out in our workshop/test facility in Carnforth UK. It is here that our 2500mT tensile test rig complete with its own access platforms, 10mT overhead crane and data logging facilities enables the testing of several connector assemblies per day if required.

Technical Specification

MBL - Several available sizes up to 30,000kN.

Weight - Example > 16000kN MBL Male Connector - 1550kgs.

Material - All load bearing components manufactured from forged bar.

Class - DNV, ABS, BV, Lloyds or other.

Proof Load - According to class.

Connection - Can be supplied with padeye for interface with shackles, H-links etc or with clevis head for direct connection to chain links (including common links)

Tel. +44 (0) 1524 733388
Email. sales@balltec.com

Fax. +44 (0) 1524 733399
www.balltec.com

USA. +1 (0) 713 254 3554

Balltec Track Record

InterMoor, Inc.

ATP Oil & Gas ("Gomez" Gulf of Mexico)

Anchor type: SEPLA
MBL: 6036kN
Water depth: 5000ft
Design life: 20 years

InterMoor, Inc.

Murphy (Kikeh Development Drilling, Malaysia)

Anchor type: SEPLA and Suction Pile
MBL: 1357kips
Water depth: 4200ft
Design life: 10 years

Technip (Australia)

Murphy (Kikeh Pipelines, Malaysia)

Anchor type: Suction Pile
MBL: 300mT
Water depth: 4200ft
Design life: 20 years

InterMoor, Inc.

Intermoor (Rental Mooring System, Gulf of Mexico)

Anchor type: SEPLA
MBL: 8000kN
Water depth: <=8000ft
Design life: 10 years

Aker Kvaerner

Chevron (Blind Faith, Gulf of Mexico)

Anchor type: Suction Pile
MBL: 16,592kN
Water depth: 7000ft
Design life: 27 years

PDC Marine

AED (Puffin FPSO, Australia)

Anchor type: Drag embedment
MBL: 7,100kN
Water depth: 330ft
Design life: 10 years

Intermoor, Inc.

Intermoor (Rental Mooring System, Gulf of Mexico)

Anchor type: SEPLA
MBL: 8000KN
Water depth: <=8000ft
Design life: 10 years

Intermoor, Inc.

ATP Oil & Gas (Mirage, Gulf of Mexico)

Anchor type: Driven Pile
MBL: 3500kips
Water depth: 4050ft
Design life: 25 years

Subsea 7, London

Esso Angola Ltd (Saxi Batuque, Angola)

Anchor type: Suction Pile
MBL: 2615kN
Water depth: 2,400ft
Design life: 20 years

Intermoor, Inc.

Murphy (Kikeh, Malaysia)

Anchor type: SEPLA
MBL: 1450kips
Water depth: 4,200ft
Design life: 10 years

Intermoor, Inc.

Chevron (Tombua Landana, Angola)

Anchor type: SEPLA
MBL: 6036kN
Water depth: 4000ft
Design life: 20 years

Intermoor, Inc.

Shell (Shell BC-10, Brazil)

Anchor type: Drag embedment
MBL: 730mT
Water depth: 4,500ft
Design life: 20 years

Track record correct as of February 2009