



MOORING SOLUTIONS IN ASIA PACIFIC

A SINGLE, LOCAL SOURCE OF MOORING,
POSITIONING AND RIG MOVING SERVICES

an **ACTEON** company



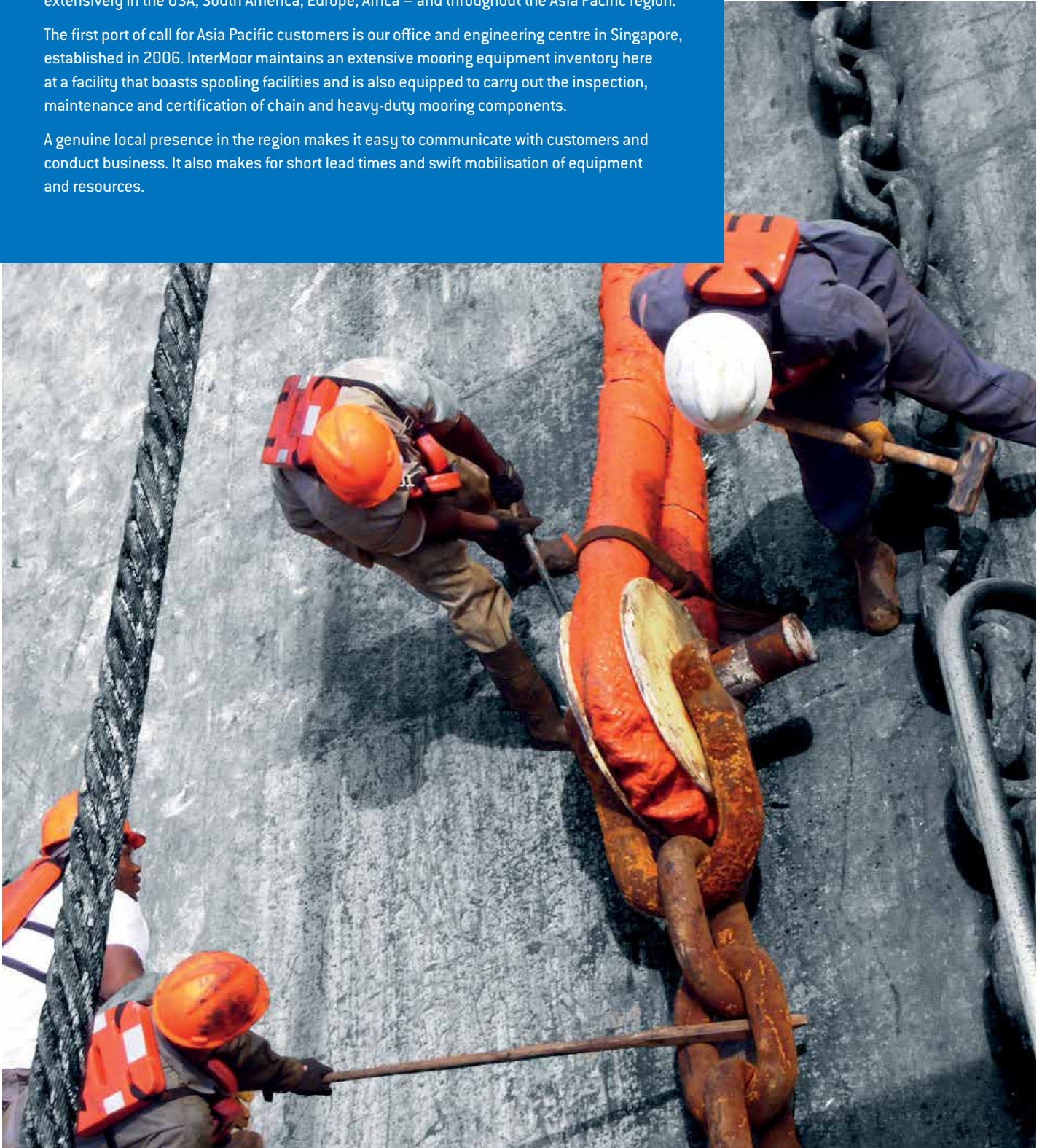
STRENGTH IN THE REGION

ENGINEERING CENTRE AND OFFSHORE BASE IN SINGAPORE

InterMoor is an Acteon company and a world-leading supplier of mooring, foundation and allied subsea services. Renowned for its deepwater know-how and experience, InterMoor operates extensively in the USA, South America, Europe, Africa – and throughout the Asia Pacific region.

The first port of call for Asia Pacific customers is our office and engineering centre in Singapore, established in 2006. InterMoor maintains an extensive mooring equipment inventory here at a facility that boasts spooling facilities and is also equipped to carry out the inspection, maintenance and certification of chain and heavy-duty mooring components.

A genuine local presence in the region makes it easy to communicate with customers and conduct business. It also makes for short lead times and swift mobilisation of equipment and resources.



PROFESSIONAL APPROACH

ROBUST, END-TO-END SOLUTIONS FOR EVEN THE MOST COMPLEX AND CHALLENGING MOORING PROJECTS

InterMoor's Singapore-based team comprises naval architects, mooring engineers, logistics managers and marine operations specialists. Together, they formulate and deliver robust, end-to-end solutions for even the most complex and challenging of mooring projects.

Our knowledge of the offshore oil and gas industry in the region and our understanding of local business drivers and the regulatory environment ensure that any actions we propose always rate highly for practicality, which results in smoother projects and less hassle for our customers.

Throughout InterMoor, we place great stock on professionalism; it is the key to success in an unforgiving offshore environment. Acute attention to detail, combined with our vast practical experience, technical creativity and flexibility, reduces the likelihood of projects being derailed when the unexpected happens, which equates to fewer delays and cost overruns.



ESTABLISHED PLAYER IN THE REGION

InterMoor has an excellent record in the Asia Pacific region. We set the world depth record for conventional mooring systems in 2008 when securing the Ocean Rover semisubmersible drilling rig in up to 2600 m of water offshore Sabah, East Malaysia. (We undertook mooring analyses, developed installation procedures and provided offshore supervision for this project.) In 2006, InterMoor was responsible for the foundations (suction anchors and driven piles) for Murphy Oil's Kikeh spar, which lies at the heart of Malaysia's first true deepwater development. In 2011, we returned to Kikeh to change out the hawsers and perform a tender-assisted drilling (TAD) unit hook-up.

INTEGRATED PROJECT CAPABILITY

CUSTOMERS BENEFIT FROM A SINGLE POINT OF CONTACT FOR TRULY INTEGRATED MOORING SOLUTIONS – RESPONSIBILITIES ARE EASIER TO DEFINE AND THERE ARE FEWER CONTRACTOR INTERFACES TO DEAL WITH

ANALYSIS

DESIGN

PROCEDURES

EQUIPMENT

LOGISTICS

INSTALLATION

RECOVERY

INSPECTION

InterMoor is geared up to provide an end-to-end mooring service from the Singapore office. We commonly undertake detailed mooring analyses leading to the design of complete mooring systems. Anchoring comes into this, of course, along with any necessary structural and installation-related engineering. We will also devise any measures necessary to deal with pipelines or other existing seabed infrastructure.

The development of detailed installation procedures follows naturally and takes account of any requirements for simultaneous operations offshore. Our ability to carry out installation computer simulations helps greatly at this stage.

We will then manage the provision of the necessary mooring system components (InterMoor sells or rents a comprehensive range of mooring equipment), take care of the logistics and, finally, provide experienced professionals to perform the work offshore. An experienced InterMoor project manager will direct the process throughout. Health, safety and environment matters will be at the top of his or her agenda.

DETAILED ANALYSIS – THE BASIS OF SUCCESSFUL MOORING DESIGNS

- Hydrodynamic and aerodynamic studies
- Quasi-static and dynamic (frequency and time domain) modelling
- Anchor holding capacity evaluation
- Component fit checks
- Fully coupled two-body motion analysis and clashing assessments
- Dynamic lowering analysis
- Fatigue analysis
- HAZID, HAZOP and risk assessments



EXTENSIVE EXPERIENCE

INTERMOOR'S PORTFOLIO INCLUDES A WIDE VARIETY OF MOORING PROJECTS

- Moorings for FPSOs, semisubmersibles, spars, tension-leg platforms, TAD units, and production and loading buoys
- Conventional, preset and insert moorings
- Temporary and permanent systems
- Foundations, including suction and driven piles
- Flexible flowline, riser and umbilical installations and tie-ins
- Rig moves, including surveying and positioning

WORKING IN CHINA

InterMoor took care of all aspects of the installation of the mooring system for the submerged turret production buoy that serves the new Hai Yang Shi You 118 FPSO vessel in the Enping field, 200 km offshore Hong Kong, China. The system consists of 12 chain/wire mooring legs with 84-in. driven-pile anchors, each nearly 50 m long. The work scope included the hook-up of the mooring system plus the installation of an in-field 12-in. static flowline (2.45 km long), a 175-m dynamic riser, power/optical umbilicals and a PLEM structure. InterMoor placed a four-man engineering team in China to work with China Offshore Oil Engineering Company and manage the project from the planning stage through to its completion offshore. The work was completed on time and within budget.



PRESET MOORING SUCCESS

Kebeangan Petroleum Operating Company chose InterMoor to moor the Alliance TAD unit at the KBB platform, offshore Malaysia. The system, comprising seven mooring lines and anchors and a soft-line hawser, was preset close to the platform, and the TAD unit was hooked up very efficiently immediately it arrived from Labuan. InterMoor designed the preset system, developed the offshore procedures and supplied equipment and personnel for the installation and hook-up.

EFFICIENT FSO VESSEL MOVE

InterMoor worked closely with China Offshore Oil Engineering Corporation over a five-month period during which the Nan Hai Sheng Kai FSO vessel was refurbished and subsequently relocated within the Lufeng field, in the South China Sea. InterMoor's extensive work scope included the decommissioning and re-mooring (after refurbishment) of the vessel's SOFEC-designed, disconnectable internal turret. InterMoor provided project management, installation engineering and procurement services for the mooring system and took care of the hook-up plus the installation of a new 8-in. flexible flowline and riser between the turret and the field's wellhead platform.



VALUE CREATION

INTERMOOR IS ALL ABOUT INNOVATIVE PEOPLE DRIVEN BY A CULTURE THAT CENTRES ON VALUE

Our customers expect us to be cost-effective; we think this is the very least we should be. InterMoor aims to add value to its customers' operations through mooring solutions that account for the wider economic issues surrounding individual offshore projects and offer the optimum balance of cost, practicality, reliability and risk – solutions that are completely robust in both the technical and the economic sense.

This requires not only mooring know-how but also a sound knowledge of the whole offshore business, vast experience and not least an openness to new ideas and fresh ways of doing things. It is about sustaining a value culture and working continually to foster creativity and innovation. It is how we work at InterMoor and why we have enjoyed such success in the Asia Pacific region.



UNINTERRUPTED PRODUCTION DURING FPSO VESSEL MOORING REPLACEMENT IN THE PANYU FIELD

In May 2014, InterMoor in Singapore replaced the full mooring system used to secure the APL-designed, submerged turret production buoy serving the Hai Yang Shi You III FPSO vessel over the Panyu field, 200 km offshore Hong Kong, China. The project, managed by InterMoor for China Offshore Oil Engineering Company, included planning, marine engineering and the development of offshore procedures before the installation of nine suction pile anchors (each weighing over 130 t) and the presetting of the chain and wire mooring lines.

InterMoor engineers developed a process to deploy the new mooring system from an available but less than ideal vessel with limited deck space and only one crane block (InterMoor modified the vessel at short notice). The new moorings were successfully installed less than a metre from the existing ones and without interrupting production from the field – the FPSO remained connected to the turret buoy throughout. There were no safety or lost-time incidents.





WHAT OUR CUSTOMERS SAY ABOUT US

ASIA PACIFIC CUSTOMERS VALUE OUR PROFESSIONALISM, LEADERSHIP AND ATTENTION TO DETAIL

“

Throughout all these challenging activities, your personnel provided the necessary leadership to ensure the operations were carried out safely and efficiently.”

“

Please extend my personal thanks to everyone at InterMoor who was involved from the planning all the way through to execution. I hope that we can work together on another project.”

“

We were impressed by InterMoor’s innovative solutions and the attention to detail, which allowed us to complete these challenging projects safely and on time.”

“

InterMoor’s project management expertise and ability to work closely with our engineers enabled us to successfully manage multiple vessels and an international workforce on two complex projects running concurrently.”

“

InterMoor’s good technical team contributed heavily to the success of our project.”

INTERMOOR IS A GLOBAL COMPANY WITH OFFICES CLOSE TO ITS CUSTOMERS



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