



LEG MATING UNIT (LMU) SIDE PADS & SHEAR FENDERS

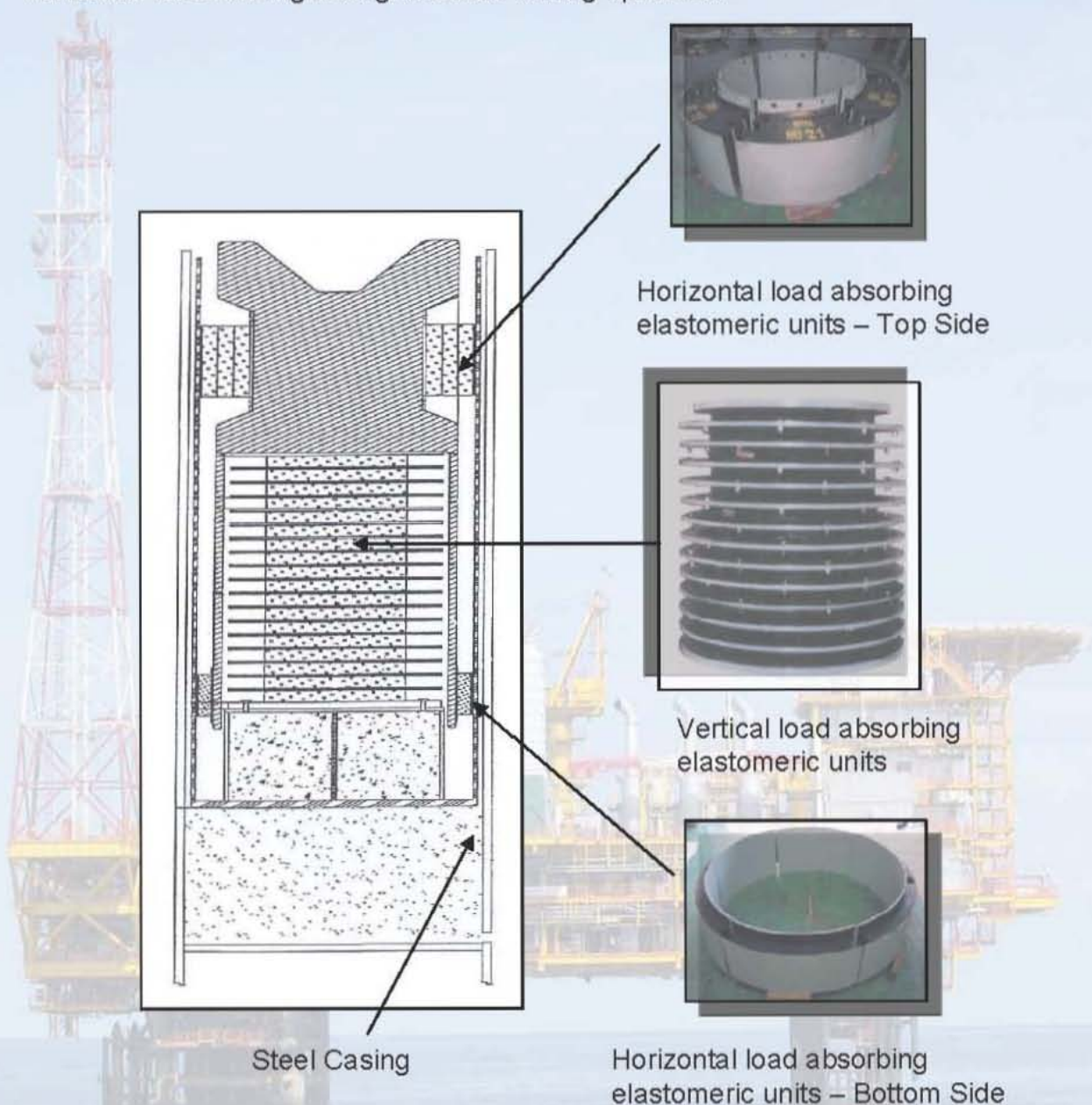


MIN INTEGRATIONS PTE. LTD.

Leg Mating Units

Leg Mating Units are used in the Float Over Method of installation of Platform Topside. The topside structure is transported to the site with a barge. During the leg mating operation, the topside load is slowly transferred to the jacket leg using the leg mating units.

Leg mating units consist of a steel casing, which incorporates the rubber pads which are designed to take up the static load of topside structure as well as the dynamic load of topside owing to the seawave movement. This vertical rubber pad is normally complimented with the use of side rubber pad to cater for any horizontal force arising during the deck mating operation



Testing Facility

All LMU rubber pads are tested to verify their load / deformation behaviors before site installation.

We have the relevant test facilities to examine

- Static load / deformation behavior up to 4000 tonne compression load. The test press table can accommodate the bearing size up to 2000 mm diameter
- Sustained load test on the rubber pads to demonstrate its integrity under unstained load.
- Dynamic and fatigue behavior of rubber pads using the scaled model. The test equipment is a MTS hydraulic system of maximum load capacity +/- 500kN, dynamic amplitude +/-100mm and frequency up to 25hz

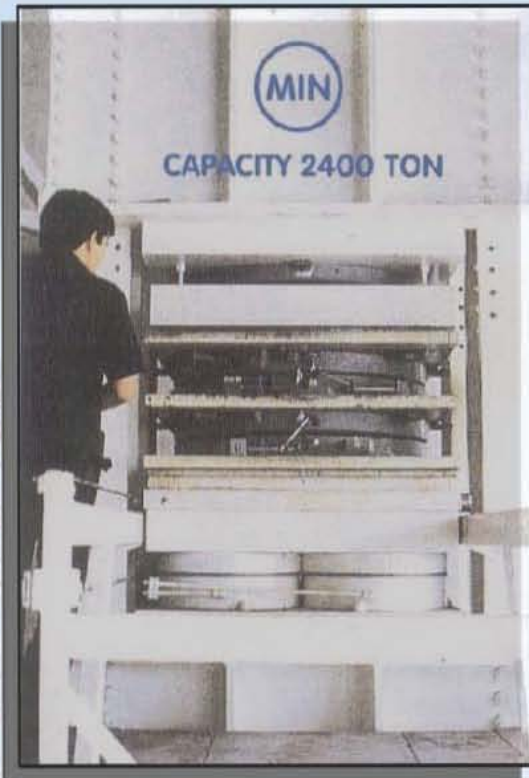


The shown tester has a 4000 tonne compression capacity and a shear capacity of 700 tonne with a total stroke of one meter. Table size is 2M x 2M



Compression load/displacement test of Leg Mating Rubber Modular Unit for CTOC Project

Testing Facility



The shown tester has a 2400 tonne compression load and a 400 tonne longitudinal load. Table size is 2M x 2M.

Compression load/displacement test for Helang LMU side pads

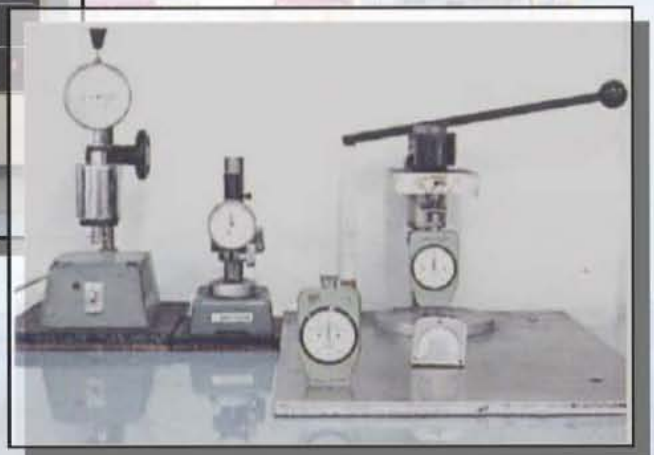
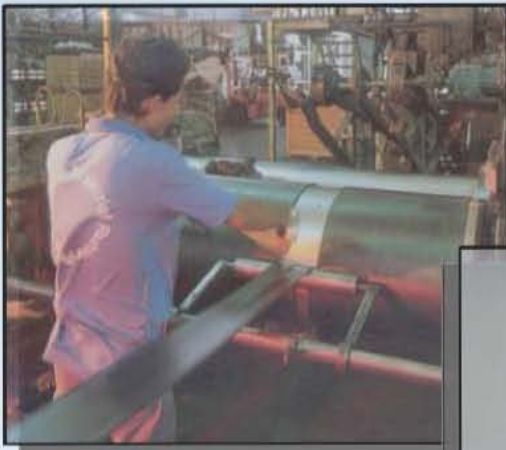


Dynamic and Fatigue Tests of LMU Scaled Model

Test setup of the scaled-model LMU for Helang Project

Test equipment used for this test is a Servo Hydraulic System (MTS) of maximum load capacity of ± 500 kN, dynamic amplitude of ± 100 mm and frequency of up to 25 Hz.

Testing of Rubber Material



Leg Mating Unit (LMU) Project References :

1. **PLATFORM M3PQ by Shell Sarawak and Petronas Carigali**
Year : 1995
Platform topside weight : 8300 tonne
Platform fabricator : Sime Sembawang
No. of LMU Rubber Pads : 16 + 2 spares

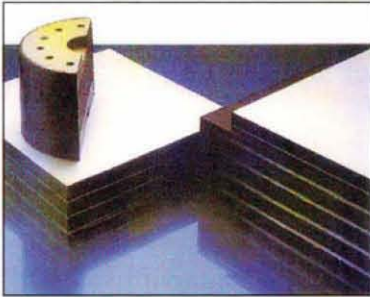
2. **PLATFORM CTOC (CAKERAWALA GAS FIELD DEVELOPMENT PROJECT) by Carigali – Triton Company**
Year : 2001
Platform topside weight : 18 000 tonne
Platform fabricator : Technip (M) S/B.
No. of LMU : 8 units (Rubber pads were designed to exhibit 21.58 MN at 500mm vertical stroke)
Remarks : We also supplied Soft Pads for Samsung Heavy Industries to be used in Load Support Frame and Rubber Surge Fender for Samsung Heavy Industries to be used in the barge during deck mating.

3. **PLATFORM HELANG by Nippon Oil**
Year : 2003
Platform topside weight : 8836 tonne
Platform fabricator : Malaysia Shipyard Engineering (MSE)
LMU pads consist of the following : 2 units x Type I vertical pad (15.4MN at 450mm)
2 units x Type II vertical pad (12 MN at 450mm)
24 units x Curved units (Top Side Pads)
24 units x Curved units (Bottom Side Pads)
Remarks : We also supplied Rubber Soft and Hard Pads for MSE to be used in Load Support Frame and Rubber Surge Fender for Saipem (M) S/B to be used in the barge during deck mating.

4. **PLATFORM BUNGA RAYA E**
Year : 2004
Platform topside weight : 9600 tonne
Platform Fabricator : SIME Semcorp Engineering (SSE)
LMU Pads Consist of the following : 14 units of Type 2A Vertical Pad (2171 Tonne)
14 units of Type 2B Vertical Pad (2282 Tonne)
14 units of Type 5A Vertical Pad (2509 Tonne)
14 units of Type 5B Vertical Pad (2638 Tonne)
24 units of Curved Unit (Top Side Pads)
24 units of Curved Unit (Bottom Side Pads)

5. **PLATFORM BUNGA ORKID A**
Year : 2007
Platform topside weight : 16 390 Tonne
Platform Fabricator : SIME Semcorp Engineering (SSE)
LMU Pads Consist of the following : 13 units of Type Soft 1 Vertical Pad (3961 Tonne)
13 units of Type Soft 2 Vertical Pad (3961 Tonne)
13 units of Type Hard 1 Vertical Pad (4234 Tonne)
13 units of Type Hard 2 Vertical Pad (4234 Tonne)
24 units of Curved Unit (Top Side Pads)
24 units of Curved Unit (Bottom Side Pads)

Also Available In Our Delivery Programme Include :-



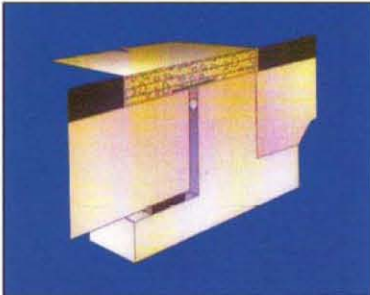
Elastomeric Bearings



Rubber Dowel Caps



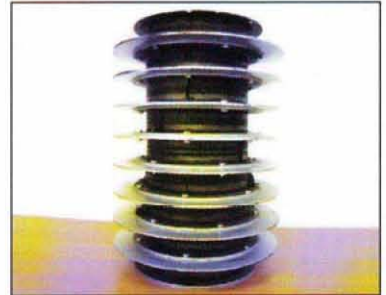
Rubber Seismic Bearings



Asphaltic Joints



Multiflex Expansion Joints



Rubber Bearing for oil & gas application



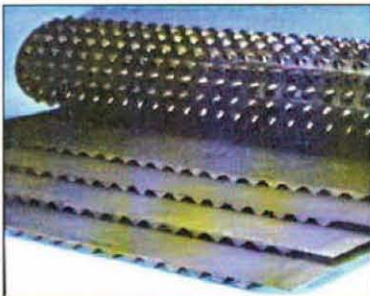
Rubber Shear Fenders



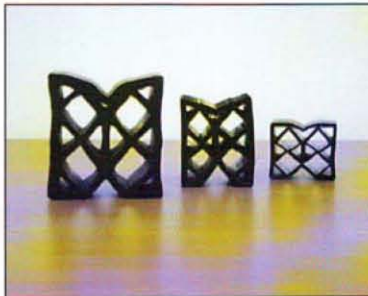
Rubber Water Stop



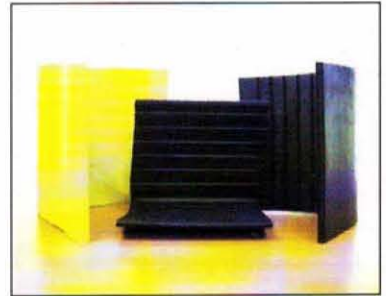
Rubber Fender



Rubber pad for rail track system



Compression Seals



Corner Guard



MIN INTEGRATIONS PTE. LTD.

10 Anson Road
#26-04 International Plaza
Singapore 079903.

Tel : +65 6680 9321

Fax : +65 6698 7326

Email : enquiry@minintegrations.com

NOTE:

The information contained in this catalogue is given in good faith without liability on our part. We reserve the right to modify the contents without prior notification should we consider it necessary at any time after publication.