



One of the IWAKI platforms prior to decommissioning.

## PROJECT TITLE

IWAKI Decommissioning Heavy Lift Project.

## DATE

March 2010.

## BACKGROUND

KTL Offshore was selected to supply the complete heavy lift package for this prestigious project – the decommissioning of topsides, steel support jacket and a section of the associated 12” gas export pipeline which lay at an offshore field 40 km east of Naraha Co, Fukushima prefecture, Japan, in 150m of water.

**Weighing more than 20,000 MT, this was the largest platform to be decommissioned in Japan at that date.**

## Huge Order

A total of 56 heavy lift KimFlex Slings, 4 KimSwage Slings and 4 Cable Laid Grommets were produced worth in excess of S\$ 2,0 M making this one of the largest single orders for heavy rigging equipment ever received by the company. The slings were produced to a strict quality control plan requiring management sign off for each and every sling and customer hold points during the testing and manufacture.

## IWAKI DECOMMISSIONING HEAVY LIFT PROJECT (Japan)

### Heavy Lift Slings, Grommets And Shackles



Testing of 6” dia KimSwage Sling.

In addition to the slings, KTL Offshore also supplied around 70 Wide Body type Crosby Shackles from the USA.

## Critical length Tolerance

The contractor specified length tolerances for the slings were critical. The sling lengths had to be achieved at a load of 3% of the calculated sling breaking load to an accuracy of 0.25% of the nominal length. In many cases, this was a tolerance on length (under load) of around 30mm. Every single sling was proof load tested at our Tuas facility in our KimTest 3000 test bed, a fully computerized tensile testing machine and one of the largest in the industry.

The customer representative was on hand at every single test to witness the actual length being achieved. At the end of the manufacturing phase, all the slings met the length tolerance. In order to achieve such tight length tolerances whilst under load, KTL Offshore has developed unique “Engineered length Control” software based on years of research and experience gained in the elongation characteristics of steel wire rope slings.

The software predicts the elongation in the sling for any given applied load based on certain parameters such as original sling length, length of sling eye vs the body length and diameter of connecting pins during the test. This predicted elongation is factored in during manufacture by making the sling slightly shorter than required in its as-manufactured length under zero load; when the sling is loaded it will then stretch to the correct length. It is precision engineering.



Testing of Crosby Shackles.



Proof load testing of a KimFlex 9" dia Sling in KimTest 3000 test bed to the client's strict length tolerance.

### **Customer Training and Involvement**

The process of securing this project started well in advance of the official RFQ.

KTL Offshore personnel have been active in providing their customer with an unprecedented level of technical information, training and advice on the KimFlex heavy lift sling product range as well as their application for months beforehand.

This involved conducting training seminars overseas as well as "open house" training and factory visits by the customers technical personnel to the Tuas Facility to gain a better understanding of the sling making process. According to sources from within the customers, this level of knowledge sharing from a sling manufacturer was "unprecedented".

### **Continued Success**

The choice of KTL Offshore as their heavy lift choice for IWAKI follows on from a previous project completed for the Mumbai High South Field in 2009.

During this project which involved the supply of 36 KimFlex Slings (also a very large order for heavy lift slings), the European based engineers – who were using the KimFlex sling for the first time – were delighted at the ease of use and flexibility of this type of sling.

The KimFlex Sling is a braided sling as opposed to the more traditional, rigid cable laid sling which is predominantly used in Europe.

Not only were they delighted by the product, but KTL Offshore's service once again impressed: a few hours before the lift was due to take place late one Saturday afternoon, the engineer in charge of the lift was having a particularly difficult time with one of the 3rd party personnel regarding some additional marking on the shackle which he wanted to be included in the relevant test certificate. After making a phone call to KTL Offshore, the engineer had the required documentation within 1 hour and was able to proceed with the lift as planned.

### **ITEMS**

#### **KimFlex Slings (Braided)**

- 1 KimFlex Sling, 176mm dia x 21.07m length, MBL 1100.90 MT.
- 1 KimFlex Sling, 176mm dia x 21.11m length, MBL 1100.90 MT.
- 1 KimFlex Sling, 176mm dia x 20.51 m length, MBL 1100.90 MT.
- 1 KimFlex Sling, 176mm dia x 20.47m length, MBL 1100.90 MT.



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Testing of a KimFlex Sling showing the eye construction.



Testing of a 20 m long Cable Laid Grommet.

- 1 KimFlex Sling, 176mm dia x 24.31m length, MBL 1100.90 MT.
- 1 KimFlex Sling, 176mm dia x 24.32m length, MBL 1100.90 MT.
- 1 KimFlex Sling, 176mm dia x 24.46m length, MBL 1100.90 MT.
- 1 KimFlex Sling, 176mm dia x 24.43m length, MBL 1100.90 MT.
- 1 KimFlex Sling, 176mm dia x 20.24m length, MBL 1100.90 MT.
- 1 KimFlex Sling, 176mm dia x 20m length, MBL 1100.90 MT.
- 1 KimFlex Sling, 176mm dia x 21.49m length, MBL 1100.90 MT.
- 1 KimFlex Sling, 176mm dia x 21.63m length, MBL 1100.90 MT.
- 1 KimFlex Sling, 152mm dia x 19.96m length, MBL 816.50 MT.
- 1 KimFlex Sling, 152mm dia x 19.94m length, MBL 816.50 MT.
- 1 KimFlex Sling, 152mm dia x 21.09m length, MBL 816.50 MT.
- 1 KimFlex Sling, 152mm dia x 21.12m length, MBL 816.50 MT.
- 1 KimFlex Sling, 168mm dia x 20.95m length, MBL 954 MT.
- 1 KimFlex Sling, 168mm dia x 21.06m length, MBL 954 MT.
- 1 KimFlex Sling, 168mm dia x 21.28m length, MBL 954 MT.
- 1 KimFlex Sling, 168mm dia x 21.17m length, MBL 954 MT.
- 1 KimFlex Sling, 228mm dia x 25.48m length, MBL 1778.40 MT.
- 1 KimFlex Sling, 228mm dia x 25.61m length, MBL 1778.40 MT.
- 1 KimFlex Sling, 228mm dia x 25.59m length, MBL 1778.40 MT.
- 1 KimFlex Sling, 228mm dia x 25.45m length, MBL 1778.40 MT.
- 1 KimFlex Sling, 168mm dia x 24.77m length, MBL 954 MT.
- 1 KimFlex Sling, 168mm dia x 24.96m length, MBL 954 MT.

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- 1 KimFlex Sling, 228mm dia x 24.03m length, MBL 1778.40 MT.
- 1 KimFlex Sling, 228mm dia x 23.83m length, MBL 1778.40 MT.
- 1 KimFlex Sling, 176mm dia x 18.38m length, MBL 1100.90 MT.
- 1 KimFlex Sling, 176mm dia x 18.33m length, MBL 1100.90 MT.
- 1 KimFlex Sling, 176mm dia x 17.77m length, MBL 1100.90 MT.
- 1 KimFlex Sling, 176mm dia x 17.82m length, MBL 1100.90 MT.
- 1 KimFlex Sling, 176mm dia x 12.98m length, MBL 1100.90 MT.
- 1 KimFlex Sling, 176mm dia x 13.39m length, MBL 1100.90 MT.
- 1 KimFlex Sling, 228mm dia x 12.78m length, MBL 1778.40 MT.
- 1 KimFlex Sling, 228mm dia x 12.34m length, MBL 1778.40 MT.
- 1 KimFlex Sling, 176mm dia x 17.70m length, MBL 1100.90 MT.
- 2 KimFlex Slings, 228mm dia x 17.70m length, MBL 1778.40 MT.
- 1 KimFlex Sling, 104mm dia x 18.32m length, MBL 372 MT.
- 1 KimFlex Sling, 104mm dia x 18.19m length, MBL 372 MT.
- 1 KimFlex Sling, 104mm dia x 17.99m length, MBL 372 MT.
- 1 KimFlex Sling, 104mm dia x 18.12m length, MBL 372 MT.
- 1 KimFlex Sling, 284mm dia x 32.15m length, MBL 2592 MT.
- 1 KimFlex Sling, 284mm dia x 32.23m length, MBL 2592 MT.
- 1 KimFlex Sling, 308mm dia x 31.07m length, MBL 3060 MT.
- 1 KimFlex Sling, 308mm dia x 30.99m length, MBL 3060.0 MT.
- 1 KimFlex Sling, 360mm dia x 36.13m length, MBL 4054.0 MT.
- 1 KimFlex Sling, 284mm dia x 36.69m length, MBL 2592.0 MT.
- 1 KimFlex Sling, 284mm dia x 36.44m length, MBL 2592 MT.
- 1 KimFlex Sling, 360mm dia x 35.87m length, MBL 4054 MT.
- 1 KimFlex Sling, 360mm dia x 30m length, MBL 4054 MT.

- 2 KimFlex Slings, 284mm dia x 30m length, MBL 2592 MT.
- 1 KimFlex Sling, 360mm dia x 30m length, MBL 4054 MT.
- 1 KimFlex Sling, 176mm dia x 17.70m length, MBL 1100.90 MT.

#### **Kimswage Sling (Single Part Flemish Eye)**

- 1 KimSwage, 152mm dia x 29.50m length, MBL 1424.90 MT.

#### **Cable Laid Grommets**

- 1 Cable Laid Grommet, 96mm dia x 20m length, MBL 722 MT.
- 1 Cable Laid Grommet, 114mm dia x 8m length, CGBL 1018.20 MT.
- 2 Cable Laid Grommets, 114mm dia x 14m length, CGBL 1018.20 MT.

#### **General Sling**

- 2 Wire Rope Slings, 52mm dia x 5.78m length, MBL 197 MT.
- 2 Wire Rope Slings, 52mm dia x 5.44m length, MBL 197 MT.
- 2 Wire Rope Slings, 52mm dia x 6.40m length, MBL 197 MT.

#### **Shackles**

- 4 Crosby G-2160 Wide Body Shackles, WLL 300 tons.
- 4 Crosby G-2160 Wide Body Shackles, WLL 300 tons.
- 16 Crosby G-2140 Wide Body Shackles, WLL 300 tons.
- 1 Crosby G-2130 Wide Body Shackle, WLL 35 tons.
- 2 Crosby G-2130 Wide Body Shackles, WLL 85 tons.
- 5 Crosby G-2130 Wide Body Shackles, WLL 120 tons.
- 8 Crosby G-2140 Wide Body Shackles, WLL 400 tons.
- 1 Crosby G-2130 Wide Body Shackle, WLL 35 tons.
- 4 Crosby G-2130 WLL Wide Body Shackles, 17 tons.
- 2 Crosby G-2130 WLL Wide Body Shackles, 55 tons.
- 1 Crosby G-2130 WLL Wide Body Shackle, 25 tons.
- 4 Crosby G-2160 WLL Wide Body Shackles, 700 tons.
- 1 Crosby G-2140 WLL Wide Body Shackle, 400 tons.
- 2 Crosby G-2140 WLL Wide Body Shackles, 250 tons.
- 2 Crosby G-2160 WLL Wide Body Shackles, 600 tons.

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