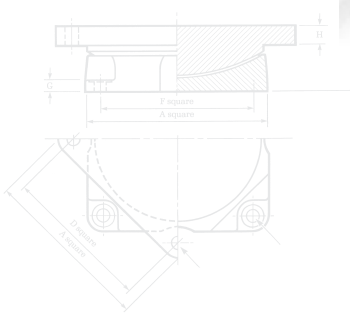
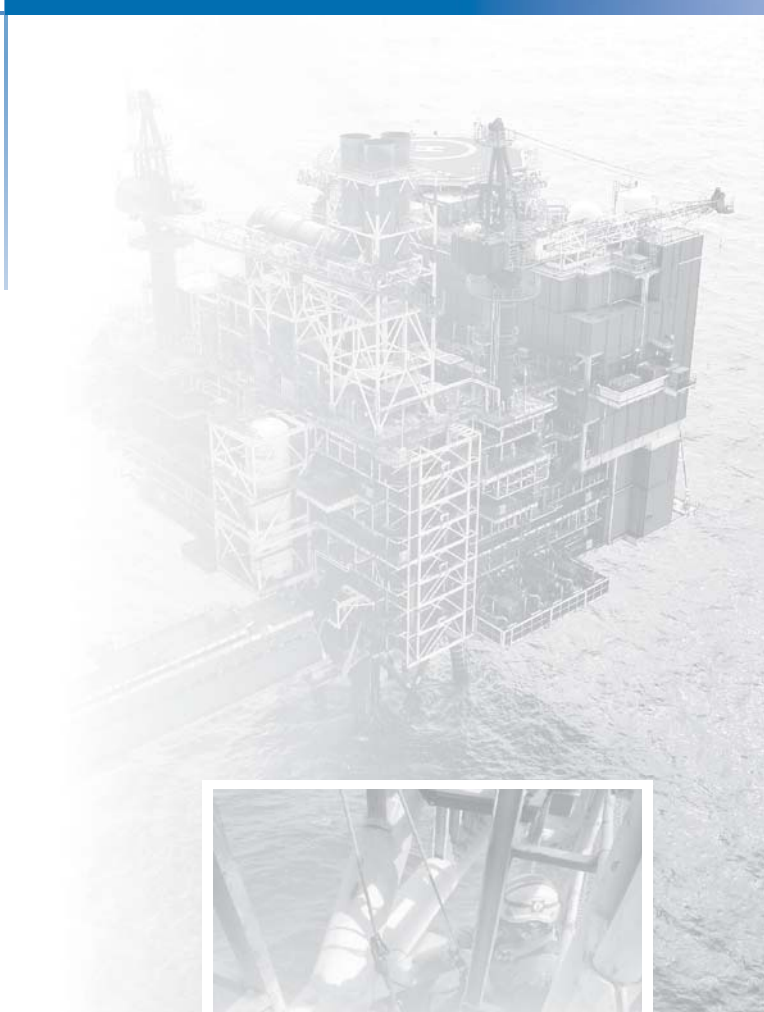


OFFSHORE OIL & GAS SOLUTIONS

Structural Supports & Services

Offshore Oil & Gas Integrity



EKSPAN

"Bridging the years, Supporting the future"



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SUPPORTING the FUTURE



Introduction - Who We Are & What We Do

Ekspan are the UK's leading sliding support specialist providing quality service, design, manufacture, installation, inspection and site maintenance or replacement work for sliding support solutions. We produce and supply sliding support solutions for bridges, ship topsides, oil platform linkspans, sea terminals and pipelines to service a range of applications, including heavy industrial bearings for harsh environments.



With over 20 years experience in the bridge and offshore oil and gas industries, our expertise in structural movement and design enables us to provide optimum sliding support solutions by way of end-to-end care and consultancy support - tailored to meet the specific needs of our clients.

Ekspan have worked with a broad range of clients both in the UK and worldwide - these include *Talisman Energy, ConocoPhillips, Shell, Nexen Petroleum, Total E&P UK, BP, Gulf Industrial Services Company and Abu Dhabi Marine Operating Company.*

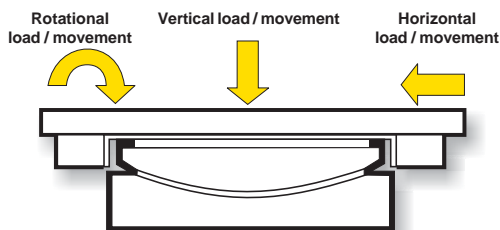
Scope & Quality Service

Ekspan have highly skilled and fully trained offshore engineers who regularly visit installations to maintain sliding and moving parts. Where link bridges connect to offshore platforms, deterioration due to lack of maintenance can result in transmission of forces from dissimilar movements of two or more structures.

We liaise and engage with platform asset managers, operators, owners and designers to discuss the importance of understanding functionality and condition of bearings.

Each stage of our service from design, materials, work practices and site activities are quality controlled and executed with excellence. All our works are accredited to ISO 9001:2008 and FPAL.

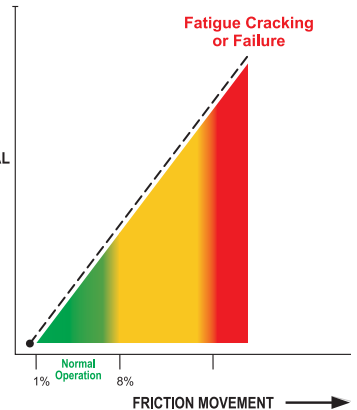
Bearings act as bridge supports and allow structural movement due to thermal or sea state effects



Typical spherical type bearing showing extent of corrosion



RISE OF STRUCTURAL STRESS LEVELS



If a bearing is non-functioning then there can be potentially serious consequences to adjacent structures.

We offer the following services to ensure the structural integrity of offshore link bridges is maintained:

- Inspections of link bridges and bearings, as well as full reporting detailing findings and recommendations for remedial or replacement works.
- A complete range of industrial bearings designed specifically for applications where articulated support is required, such as machinery, pipelines, offshore structures and top sides - thus reducing the stresses and fatigue within the structure and allowing more controlled movement.

Product Supply / Installation

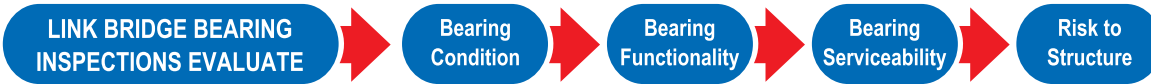
- Design solutions based upon a range of standard products, to meet any support defect - we are especially conversant with the problems associated with hostile environments, extremes of temperature and corrosion.
- Manufacture, installation, refurbishment and replacement of mechanical component parts.



Inspection & Maintenance - Structural Integrity for Offshore Link Bridges

Is your Structure experiencing unusual movement, load or stress increase?

- Regular link bridge bearing inspections are fundamental to structural integrity and asset management and should not be overlooked during structural assessments. Inspection of the condition of the bearing sliding surfaces is important in determining functionality.



Bearings support vertical loads, can restrain horizontal loads and permit longitudinal, transverse and rotational movement effectively allowing structures to 'breathe'.

A bearing that is not functioning within its design criteria can subsequently increase loads and stresses into the bridge or jacket structure. In extreme cases, where the sliding surfaces have deteriorated significantly, the outcome can be severe with steel on steel interfaces occurring. Bearing failure to this degree accelerates stresses on adjacent welds and structural members, thus reducing operational life. Furthermore, costs associated with emergency maintenance or repairs are considerable when compared to a routine inspection regime.

Offshore bearing inspections can determine wear rates, future life expectancy and identify any possible maintenance requirements.

The importance of diagnosing potential destructive structural defects through 'whole-system' inspections can considerably reduce the maintenance hours required to replace or refurbish sliding supports.

Ekspan support structural 'whole life care' through planned regular maintenance. Maintenance carried out as a result of bearing inspection recommendations can be minimal, such as only requiring re-lubrication, but may also involve a complete overhaul with replacement of the sliding surfaces.



Manufacture and Installation Examples

EKOFISK 2/4L ACCOMMODATION PLATFORM - TOPSIDES & BRIDGES



Supplied:

Designed, supplied and installed 8 no. G series spherical bearings.

These bearings were designed for vertical load capacities from 250 to 600 tonnes for movement ranges of up to 1 metre.

Client: ConocoPhillips & SMOE



EKOFISK 2/4-Z WELLHEAD PLATFORM - TOPSIDE & BRIDGE



Supplied:

Designed and supplied 6 no. elastomeric bearings

These bearings were fitted to the 8,000 tonne wellhead platform that links to the offshore Ekofisk production and processing centre.

Client: ConocoPhillips & Aker Solutions



CIVIL ENGINEERING - PRODUCTS

- **BRIDGE AND STRUCTURAL SUPPORT BEARINGS** (BS5400, EN1337, AASHTO)
- POT BEARINGS
- ELASTOMERIC BEARINGS
- SPHERICAL BEARINGS
- ROCKER BEARINGS
- GUIDED BEARINGS
- ROLLER BEARINGS
- RUBBER PAD BEARINGS
- RUBBER STRIP BEARINGS
- HIGHWAY APPROVED EXPANSION JOINTS
- SUB-SURFACE DRAINAGE
- DAMPERS & SHOCK TRANSMISSION UNITS
- BUILDING SEALS/JOINTS
- GROUTS & ADHESIVES

FOR APPLICATION IN:

Bridges; Steel Structures; Tall Buildings; Shopping Centres; Stadiums; Towers; Swing Bridges, Piers and Jetties; RORO Ferry Terminals; Building Vibration Isolation; Carparks; Walkways.



INDUSTRIAL & OFFSHORE PRODUCTS

- OFFSHORE BRIDGE AND TOPSIDE BEARINGS
- MACHINE SUPPORT BEARINGS
- PLATFORM SUPPORT BEARINGS
- ACOUSTIC BEARINGS
- ANTI-VIBRATION BEARINGS
- PETRO/CHEMICAL PIPE SUPPORT BEARINGS
- BUILDING SEALS/JOINTS
- WALL/FLOOR EXPANSION JOINTS
- SPECIALIST MOVEMENT SOLUTIONS
- LARGE TANK SUPPORTS
- STEEL SUPPORT BEARINGS
- LARGE MOVING STRUCTURES

FOR APPLICATION IN:

Ships; Ramps and Topsides; Oil Platforms; Submarines; Generator Supports; Conveyor Supports; Machine Mounts; Large Tank and Vessel Supports; Vibration Isolation; Pipeline Supports; Radio Telescopes.



RENEWABLE SERVICES

- OVERLAND PIPE SUPPORT BEARINGS
- ROTARY BEARINGS TECHNOLOGY
- TURBINE BEARING TECHNOLOGY
- TURBINE BLADE TESTING
- TURBINE FOUNDATIONS & SUPPORTS
- WAVE TECHNOLOGY
- SPECIALIST FABRICATION SERVICES
- VESSEL SUPPORT SYSTEMS
- FLOOD DEFENCE SYSTEMS
- SPECIALIST TEST EQUIPMENT - DESIGN TO INSTALLATION

FOR APPLICATION IN:

Hydro-Electric Plants; Wind Turbine Construction; Testing of Turbine Blades; Wave Power Devices; Reaction Vessels for Wave Power; Foundations for Offshore Turbines.



SERVICE - OPERATION & MAINTENANCE

- PRINCIPLE CONTRACTOR SERVICES
- SPECIALIST SUB-CONTRACT SERVICES
- BEARING & EXPANSION JOINT INSTALLATION
- BRIDGE INSPECTION/MAINTENANCE
- SPECIALIST SWING BRIDGE SYSTEMS
- EXPANSION JOINT INSPECTION/MAINTENANCE
- BRIDGE/STRUCTURAL JACKING, AND TEMPORARY WORKS
- INLAND WATERWAYS – LOCK GATES
- OFFSHORE STRUCTURAL INSPECTION/MAINTENANCE
- CABLE STAY INSPECTION/ MAINTENANCE
- POST TENSION SYSTEM MAINTENANCE
- LUBRICATION SYSTEMS
- SPECIALIST STRUCTURAL MONITORING

FOR APPLICATION IN:

Bridges; Steel Structures; Tall Buildings; Shopping Centres; Stadiums; Towers; Swing Bridges, Piers and Jetties; RORO Ferry Terminals; Building Vibration Isolation; Carparks; Walkways.



A world wide service offering effective solutions in:-

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Installation • Commissioning • Planned Maintenance**

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Issue 01 - August 2013

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