



PROVIDING MISSION CRITICAL ENGINEERING SOLUTIONS TO MARKET LEADERS IN THE NUCLEAR, OIL, GAS AND **PETROCHEMICAL INDUSTRIES**





Accreditations & Approvals







www.bendalls.co.uk

BENDALLS ENGNEERING











Group Organisational Structure



An international business at the forefront of innovation and technology

- **FTSE Quoted Company**
- Market Capitalisation: £140m+ (2014 Results, Turnover £429m, Profit £16.6m)



"Strategic Diversity Delivering Results"

Group Engineering Capability



Design & Fabrication





Precision Engineering













Carrs Engineering Global Reach





Bendalls Engineering est. 1894 **Historic Highlights**

Supporting British Record Breakers

Pioneering Supply to UK nuclear











Supporting the Energy Sector Development from the 1970s to date









Serving Blue-Chip Clients

Delivering Mission-Critical Components

Nuclear Evaporators & Critical Engineering Support



Key Partners & Clients:







Key Oil & Gas Fabrications

Scope of Capability Manufacturing to the highest standards for mission critical applications



Large Scale Fabrication

Assemblies up to 45m and 140Te



Precise Inspection & Quality Control

Certified UK & US Nuclear work with corresponding quality systems











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Weld Procedure Qualification Records

(ITP)

Weld Procedure Qualification Records (Hold Point) Weld Procedure Specifications and Approval

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Precision Machining Services

Flexible on site capability



Welder Qualifications

Weld Record Sheet

Weld Map

STRIKE PART

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Quality Assurance

Comprehensive Life Time Record information in line with stringent **Nuclear requirements** Hold Romal Antis memory and Antis an

High-tech quality control



- The Bendalls QA team are qualified to analyse process plant, weld joints and materials using our state of the art in-house equipment to ensure the demanding quality standards of our clients are met.
- Techniques employed include:
- X-ray & Gamma
- MPI
- Dye Pen
- Ultrasonic





- Endoscope
- Hardness Testing
- Metallurgy Analysis
- **Coating Thickness**

Extending Capability in Design & Project Management



Existing process equipment design expertise has been extended.

Proven pressure vessel design capability has been extended and consolidated by broader mechanical and EC&I design capability all underpinned by expert project management to allow the group to manage complex engineering programmes.





Managing the Capacity & Skills Gap

THE SKILLS CHALLENGE

Engineering UK report 'The State of Engineering' said:

"over the next decade the UK will need approximately" 87,000 engineers per year to meet demand, and that these people will need at least level 4 skills (i.e. HNC and above). In addition a further 1 million skilled and semiskilled operatives/technicians will be required ".

THE CAPACITY GAP

The Recession has reduced the UKs Engineering **Capacity** Source: Office of National Statistics Fabricated Metal Products GDP £ms p.a.











Up-Skilling All Workforce New Apprentices Every Year

Nuclear Case Study: MASFE (Medium Active Salt Free Evaporator THORP



Project: MASFE Sellafield

Bendalls working with Jordan Nuclear (now part of Redhall Nuclear) to manufacture a number of complex evaporator vessels as part of refurbishment work of the THORP reprocessing facility. Each vessel was fabricated to precise tolerances and weighed over 20te and at 11meters in length was the size of a double decker bus.

The £1.8Bn THORP (Thermal Oxide Reprocessing Plant) facility was designed from the outset with a spare evaporator cell containing support steel work, cladding and tie-ins already installed in the event that a new evaporator was required later in its life. However access remained a challenge with the Sellafield team using a Leibherr 80 te LTM 1800 rigging crane to perform the delicate operation of first raising the vessels some 34m before they could be lowered into place through an opening in the roof.







Nuclear Case Study: Evaporator D Award Winning Performance

Project: Evaporator D Sellafield

Bendalls working with Costain to construct mission critical components within the multimillion pound Evaporator D project on Sellafield, the UKs largest and most complex site.



Bendalls precisely fabricated the main evaporator vessel, the feed liquor stock tank and numerous roof wall and floor boxes. With the fabrication taking place in parallel with design works, Bendalls worked closely with the Contain Engineering team to ensure that fabrication considerations were taken into account.

Bendalls delivered on time and to budget meeting all quality standards and became the first company to be awarded the Sellafield Certification in Quality & Fabrication.



The main Evaporator being lowered into the modular frame at Interserve's facilities



COSTAIN



Oil and Gas Case Study: Fuel Gas Column Sullom Voe Oil Terminal – Shetland Islands

Project Overview: Fuel Gas Column BP

Bendalls was engaged by BP's EPC Contractor the Wood Group to create a Fuel Gas Column for the Sullom Voe Oil Terminal in the Shetland Islands.

Constructed from Carbon Steel with 316L stainless steel weld overlay over the entire internal surface, the Column was built to the highest standards (PD5500 Cat 1 with 100% radiography on all welds). Bendalls engaged key sub-contractors to create a turnkey solution:

- Kock-Glitsch provided process internal design and provision of key sub-assemblies
- Wilton Engineering undertook cladding works

The completed Column was 45 meters in length, and weighed in at 103te













Oil and Gas Case Study: Shah Deniz – Azerbaijan

Project Overview: Design & Manufacture of 33 Pressure Vessels, BP

Bendalls was engaged by BP's EPC Contractor, KBR, to design and build 33 pressure vessels as part of a huge infrastructure project in Azerbaijan. Delivered from our facility in Carlisle, this project is forecast for completion in October 2015 following a delivery programme of 18 months.

The range of equipment includes two-off 35m tall, fully dressed carbon steel Stabiliser Columns and a 26m-long, 130Te, horizontal stainless steel HP Flare KO Drum.











Serving the most Demanding Clients

Offshore Engineering



Supporting Oil & Gas

















High Performance Engineering









Investing in world-class High Tech Manufacturing capabilities

to efficiently meet exacting client demands



- Utilising a wide range of high end metrological testing techniques & equipment
- BS EN ISO 9001:2008 UKAS Accredited
- **Meeting UK & US Engineering Standards**





Just-in-time 24/7 Delivery

Product ID for Traceability & Efficient booking in



Expanding Operations

- **Creating Capacity for Growth** Moved from existing 16,000 ft² facilities to new 80,000 ft² Facilities
- **Creating an optimum environment for Precision Engineering & High Tech Manufacturing**







