



## THE UNITBIRWELCO GROUP

UnitBirwelco is a UK based Design, Engineering, Manufacturing, Fabrication, Procurement, Maintenance and Construction group providing quality products and services into Oil and Gas, Petro Chemical, Power Generation & Distribution, Energy from Waste, Water, Food and Nuclear industries. We Design, Engineer and Manufacture in the UK.

### GROUP OFFICES

#### BIRWELCO LTD

##### HALESOWEN

Conceptual studies to turnkey projects

Process and detailed design of energy and process plants

Design and construct fired heaters, waste heat recovery units and flares

#### BIRWELCO LTD

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info@unitbirwelco.com

#### UNIT SUPERHEATER ENGINEERING

##### SWANSEA

Design and manufacture of steam drums

Superheaters/economisers

Boiler tube/element manipulation

HP boiler pipework

Pipework Fabrication

Shell and Tube Heat Exchangers

Air cooled heat exchangers

Heat exchanger refurbishment









Pressure vessels

NDT/heat treatment

#### UNIT SUPERHEATER ENGINEERING LTD

Unit House  
Elba Business Park, Elba Crescent,  
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Tel: +44 (0)1792 654 091  
eng@unitbirwelco.com

### MEMBERSHIPS & ACCREDITATIONS

-  National Board R Certified
-  National Board NB Certified
-  ASME U Stamp Certified
-  ASME S Code Stamp
-  EN1090 EXC 4
-  BSI Quality Assurance ISO 9001 Management Systems
-  SGS ISO 9001 Management Systems
-  EC Certificate of Conformity to the Pressure Equipment
-  Directive 2014/68/EC

## AIR COOLED HEAT EXCHANGERS



For over 50 years the Unit Superheater Engineering Ltd has designed and supplied Air Cooled Heat Exchangers to customers worldwide, for service in refinery, chemical, petrochemical, power and energy related industries.

Supply scope includes both forced draft and induced draft fan type units individually designed and manufactured for specific process services.

Mechanical design standards are to TEMA, API 661, British and ANSI Standards and AMSE Codes, and our quality control systems to ISO 9001:2015.

At UnitBirwelco we are committed to the highest standards of quality control and strive to be at the very top of our industry. This commitment extends across all of our operations, from manufacturing and fabrication through to design and management systems.

By consistently achieving the very highest standards, we aim to exceed our customers' expectations and regulatory requirements and, within a safe working environment, deliver world class customer service.

### WE ARE CERTIFIED TO THE FOLLOWING STANDARDS -

- ① ASME (American Society of Mechanical Engineers) certified manufacturer of pressure vessels, U Code Stamp
- ① ASME certified manufacturer and assembler of power boilers, S Code Stamp
- ① Lloyd's Register Quality Assurance ISO 9001 Management Systems
- ① United Registrar of Systems (URS) ISO 9001 Management Systems
- ① SGS ISO 9001 Management Systems
- ① EC Certificate of Conformity to the Pressure Equipment Directive 97/23/EC



### CONTACT

For Air Cooled Heat Exchanger Services contact:

**Steve Foligno on:**

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**Email:** s.foligno@unitbirwelco.com

## POWER



Unit Superheater Engineering Ltd provides a comprehensive multi-disciplined engineering design and fabrication service for power plants using coal, gas, oil, nuclear and renewables.

### OUR PRODUCTS AND SERVICES INCLUDE:

- ① Steam drums
- ① Boiler tube/elements
- ① Pipework fabrication
- ① Superheaters
- ① Economisers
- ① Boiler piping
- ① Non-destructive testing

### MECHANICAL DESIGN STANDARDS ARE TO

- ① BS 1113:1999 – Design & Manufacture Of Water Tube Steam Boilers
- ① BS EN 12952: 2011 – Water Tube Boilers
- ① BS EN 13445:2002 – Unfired Pressure Vessels
- ① ASME VIII Div.1 2013 – Unfired Pressure Vessels
- ① ASME I 2013 – Pressure Vessels –Power Boilers
- ① ASME B.31.3:2013 – Process Piping ASME
- ① B.31.1:2013 – Power Piping

To provide our customers with unsurpassable quality assurance, UnitBirwelco is an ASME certified fabricator and assembler of high pressure boilers, heating boilers, pressure vessels and power piping, holding both ASME “S” and “U” Code Stamps.

We also provide mechanical erection services for power plant construction across the UK including installation of equipment, pipework fabrication, erection and testing together with full project management services.



### CONTACT

For Power Services contact:

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## ENGINEERING



UnitBirwelco's front-end engineering design packages recognise the level of detail required to fully define engineering scope and ensure smooth transition through to the detail engineering phase.

By building a complete understanding of clients requirements, and by utilising in-house construction, safety and operational expertise we are able to develop the optimal technical and commercial engineering solutions.

Initial process design, HSE engineering and process control studies enable UnitBirwelco to move efficiently into detailed design with a full understanding of the overall engineering solution.

UnitBirwelco has multi discipline expertise including:

- ① Process engineering
- ① Instrumentation and system
- ① integration Electrical engineering
- ① Equipment
- ① Civil and structural engineering
- ① Piping and mechanical engineering

We also recognise the added difficulties associated with revamp and retrofit projects and have extensive experience of managing the required interface work with existing operational plant and the subsequent engineering activities.



### CONTACT

For Engineering Services contact:  
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## FLARE SYSTEMS



UnitBirwelco has been involved with Flare Systems for over 40 years and from our division in Halesowen we can offer a complete service including design, engineering, manufacture, refurbishment, upgrade and spare parts.

### THE SONAJET® PRINCIPLE

Now recognised as a world leader, the Sonajet® design was first developed and patented by UnitBirwelco in the 1970's to meet the requirements for low radiation flaring on North Sea installations.

The Sonajet® combines the advantages of high pressure sonic flaring with long life to provide guaranteed ignition under all conditions.

The Sonajet® design solution eradicates the need for annual tip change-outs and associated downtime costs – all of which makes it the most cost-effective solution on the market. In addition, its design is extremely flexible and can be tailored to meet virtually any requirement.

A proportion of the high pressure gas is throttled and expanded to produce a low velocity gas stream, which produces a stable flame. The low pressure flame ensures a continuous ignition source for the remaining high pressure gas exiting the tip, even under maximum flow and blow-down conditions. As a result, flame lift and blow out are avoided.

### SYSTEM BENEFITS

- ① Total reliability with flare Ignition systems
- ① Proven, safe pilot monitoring in all atmospheres
- ① Reliable, sturdy support structures, stacks or derricks
- ① Seals, vessels and anti-diffusion barriers for peace of mind
- ① Back-up skids and control systems to ensure operation
- ① Total spares support – a simple call away



**MORE INFORMATION OVERLEAF**

### CONTACT

For Flare Systems Services contact:

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## FLARE SYSTEMS



### LOW PRESSURE FLARES

#### GRW PIPEFLARE

Provides safe, efficient, reliable flaring in any application where smokeless combustion is not required. Sizes from 6 to 72 inch diameter, exit velocities up to 275m/s. Tip life of over 15 years in the North Sea environment.

#### GRSS STEAM ASSISTED

Smokeless flaring by utilization of an external ring of high velocity steam nozzles. Entrainment of large quantities of air into the hydrocarbon gas stream along with the Hydroxylation reaction gives excellent combustion conditions and prevents smoke.

#### GRCW AND GRCS FUEL/AIR ASSISTED

Flexible design is refined to allow the injection of high pressure gas for applications where steam is not available in sufficient quantity.

All the benefits of the GRSS apply to these designs.

#### GFX GROUND FLARE

When environmental conditions prevent flaring with an elevated system, the GFX ground flare provides the ideal solution with lower noise levels and zero radiation.

Individually designed for either continuous or intermittent duty, burning waste hydrocarbon gases with smokeless operation.

Burner design and stage control arranged for optimum turndown with the capacity of the flares normally ranging from 5-125 tonnes/hr.

### THE SYSTEMS FOR SUCCESS

#### FLARE IGNITION SYSTEMS

Flame Front Generator (FFG) and High Tension (HT) spark ignition systems. FFG design developed during extensive trials – one of the very few totally reliable systems on offer. Proven again and again on installations worldwide.

#### PILOT BURNERS AND PILOT MONITORING

Proven in offshore and onshore applications worldwide, ensuring reliable ignition in all atmospheric conditions. Birwelco offers thermocouple or flame ionization based pilot monitoring as safe modes of flame detection.

#### FLARE STRUCTURES

Support structures for elevated flare systems. Guyed stacks, self-supporting stacks and derrick structures for erection onshore and offshore.

#### VESSELS

Anti-diffusion and molecular gas seals meet the specific requirements of prevention of air ingress; flashback and reductions of purge rates.

Seal drums provide a positive liquid seal against flashback into the flare header and can also be used to maintain a backpressure. Knockout drums are utilized to remove entrained liquids in the flare gas stream. Droplet sizes down to 300 microns can be accommodated.

#### SKIDS

Propane skids provide back up for ignition and pilot operations and are sized per application. Snuffing skids are available with CO<sub>2</sub>, Nitrogen and Halon agents. Control systems are provided to suit.

### CONTACT

For Flare Systems Services contact:

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## FLARE GAS RECOVERY



UnitBirwelco offers a full suite of in-house services including process and engineering design, manufacturing, installation and commissioning for Flare Gas Recovery Package supply to the energy industry.

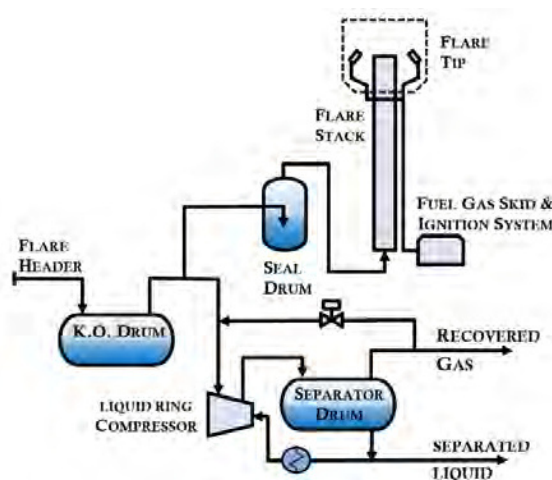
50 years experience as a leading global supplier of process equipment ensures our Flare Gas Recovery packages meet the highest industry and internationally recognised standards.

Our capability and experience allows us to provide Flare Gas Recovery packages as part of a new flare system or as an addition to an existing flare installations to meet client requirements.

System implementation adds value through hydrocarbon product recovery and reduces environment impact through waste gas emission reduction.

### SERVICES OFFERED -

- ① Feasibility and economic / environmental impact studies. Our engineers can determine facility benefits with recommendations on equipment selection and sizing.
- ① Bespoke engineering design to requirements, in customer full compliance with current industry and code standards, including PED and ATEX.
- ① Complete skid mounted packages or pre-assembled and tested modular units with control systems.
- ① Spares and service support
- ① Recovered gas dew point and gas sweetening treatment packages.



UnitBirwelco - provider of complete flare solutions

### FLARE GAS RECOVERY BENEFITS

- ① Reduction in greenhouse gas emissions.
- ① Recovery of previously flared or vented product.
- ① Lower asset noise levels and visible pollution.
- ① Can be added on to an existing flare system
- ① Dedicated spares and service support

### CONTACT

For Flare Gas Recovery Services contact:

**Dave Ashby on:**

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**Email:** d.ashby@unitbirwelco.com

## AFTERMARKET SPARES



With over 50 years experience of supplying thermal and process plant to many hundreds of installations worldwide, UnitBirwelco has established a dedicated spares service to provide operators with security of supply.

Our comprehensive replacement and spare parts service is available to clients all over the world for fired heaters, air cooled heat exchangers, vacuum steam condensers, flare systems and process and water treatment plants.

We hold a comprehensive database of drawings, part numbers and job history files, which enables our service engineers to quickly identify the correct spare part. Stock parts can usually be dispatched within 24 hours of order confirmation and special fabricated components will be supplied in the shortest possible turnaround.



### Service Benefits-

- ① Dedicated spares service offering comprehensive replacement and spare parts service
- ① Our QA system ensures all parts are supplied to match the original specification
- ① Fast turnaround on all spares
- ① A highly skilled team who will be on hand to assist with any queries



### CONTACT

For Spares Services contact:

**Daniel Sidaway on:**

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**Email:** [d.sidaway@unitbirwelco.com](mailto:d.sidaway@unitbirwelco.com)



## AFTERMARKET SERVICES – FLARE SYSTEMS



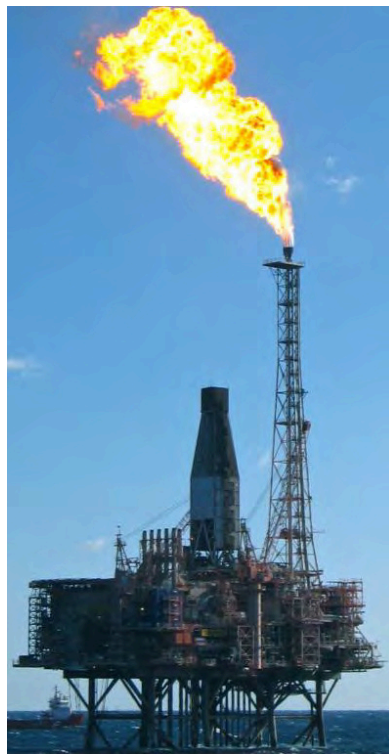
UnitBirwelco has a dedicated team of Flare system specialists who provide technical assistance and support to operators worldwide. Their experience and in-depth knowledge enables accurate and efficient responses to all our client requirements.

### FLARE SERVICES

- 🔧 Onshore and Offshore Commissioning
- 🔧 Equipment Inspection and Survey
- 🔧 Design and Equipment Upgrade
- 🔧 Studies and Calculations
- 🔧 Maintenance
- 🔧 Training

### FLARE SPARES

- 🔧 Complete Flare Tip Replacement
- 🔧 Pilot Assemblies Flame Front (FF), High Energy (HE), High Tension (HT) Ignition Systems
- 🔧 Ignition Control Panels
- 🔧 Windshields
- 🔧 Inspirators
- 🔧 Manifolds
- 🔧 Interface Bolts and Gaskets c/w recommended torques
- 🔧 Pressure Regulators, Pressure Indicators and Pressure Gauges
- 🔧 Electrodes, Ignition Lances,
- 🔧 Thermocouples and extension cables
- 🔧 Valves, Flanges, Fittings etc...



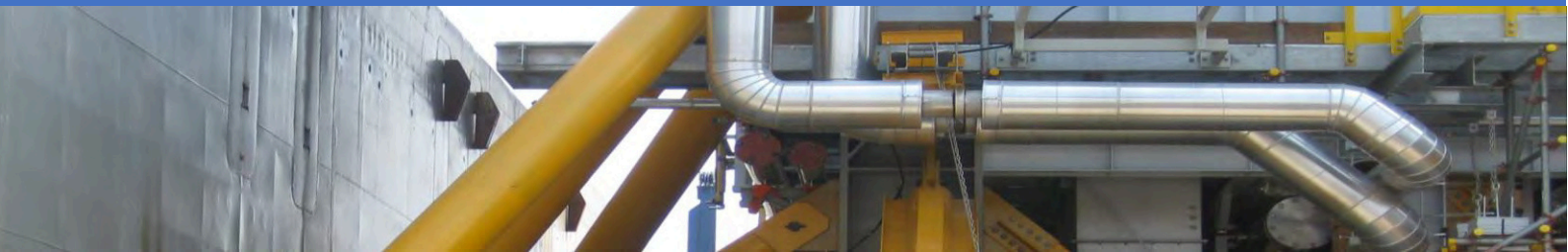
From Flare tips and pilot burners to control panels, we have the skills and expertise to meet your needs. We are committed to offer comprehensive replacements, spare parts and upgrades. Our specialist engineers work closely with the end user to provide the best possible solution.

#### CONTACT:

Flare Services and Spares Enquiries:  
**Daniel Sidaway on:**  
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New Flare Package Enquiries:  
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## AFTERMARKET SERVICES– FIRED HEATERS & FURNACES



UnitBirwelco has a dedicated team of Fired Heater Specialists who can provide technical assistance and support to operators worldwide. Our experience and in-depth knowledge enables accurate and efficient response to all Client requirements.

### Heaters & Furnaces - Bespoke parts for repair & refurbishment

- Heaters and Furnaces supplied to the Refining, Chemical and Petrochemical industries are provided to a bespoke UnitBirwelco design to meet specific Client requirements.

### Spare Parts Solution Provider

- With more than 60 years of experience in the design and supply of fired heaters and furnaces, UnitBirwelco provides custom support to meet the ongoing needs of our Clients installed fired equipment.

### Process & Utility Coils

- Flanges, bends & pipe (bare/finned), loose or in fabricated bundles
- 100% ASME coded and PED compliant shop fabrication to all recognised international specifications & codes

### Tube Supports

- Radiant supports - vertical & horizontal tube, single or double fired
- Convection supports – tube sheet design, intermediate or end
- Cast alloy or fabricated - to applicable specifications & codes
- Expedited delivery – re-engineered cast to fabricated manufacture

### Heater Casing Stiffening/Replacement

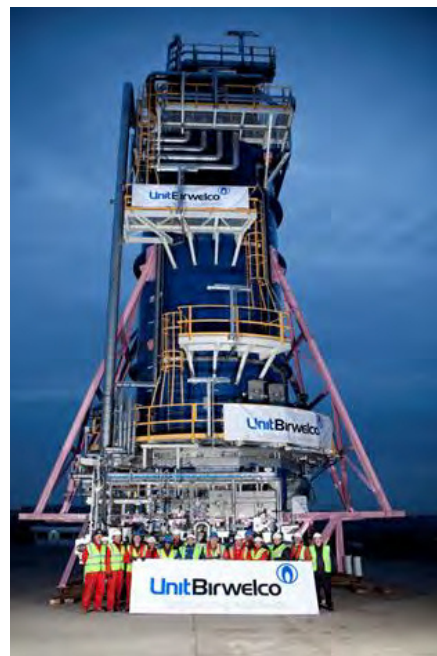
- Engineered solutions to replace & repair casing, structures and ducting damaged by corrosion, while maintaining structural integrity
- Casing replacement shop optimised, minimising site installation

### Control Dampers & Guillotines

- Robust design for improved Reliability and easier Maintenance

### Instrumentation

- New and replacement instrumentation to monitor performance and improve equipment safety and control



Single point source for all your Fired Heater & Furnace Spare Part & support requirements

### CONTACT:

Fired Heater Spares Enquiries:  
**Daniel Sidaway on:**  
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New Heater Package Enquiries:  
**Dave Ashby on:**  
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## HEAT EXCHANGERS



Unit Superheater Engineering Ltd has designed and supplied more than 5,000 Heat Exchangers for over 50 years, including Coolers, Evaporators, Exchangers, Reboilers, Steam Generators, Superheaters and Vaporiser Units. From our base in Swansea we specialise in the design and manufacture of bespoke units, tailor made for specific processes across a wide range of industries.

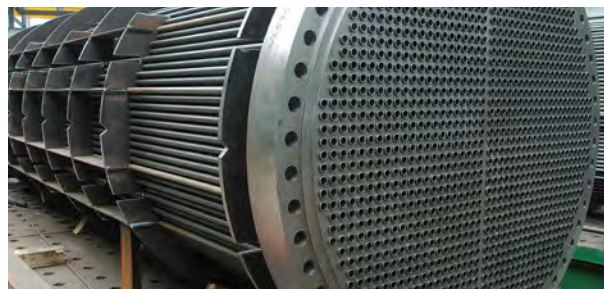
### EXCHANGER TYPES INCLUDE:

- ① Shell & Tube Exchangers
- ① Simple Fixed Tube Sheet Units
- ① U-tube Units
- ① Fixed Tube Sheet Units with an Expansion Joint or Packed Joint
- ① Floating Tube Sheet Units (Floating Head)
- ① Double-pipe Exchangers

Mechanical design standards are to Tubular Exchanger Manufacturing Association's (TEMA), API 660, OCMA, ANSI ASTM, ASME and British Standard requirements. We are also certified to the following standards for the manufacture of Heat Exchangers:

- ① ASME (American Society of Mechanical Engineers) certified manufacturer of pressure vessels, U Code Stamp
- ① ASME certified manufacturer and assembler of power boilers, S Code Stamp
- ① EC Certificate of Conformity to the Pressure Equipment Directive 97/23/EC

Our quality control systems are accredited to ISO 9001:2015. Robust inspection, testing, reporting and certification throughout the manufacturing cycle ensure we achieve our standards on a consistent basis.



### CONTACT

For Heat Exchanger Services contact:  
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## POWER SERVICES



UnitBirwelco Power Services provides a comprehensive 24/7, 365 day-a-year repair, maintenance and specialist engineering support service to UK Power Plants. POWER PLANTS SERVED-

- ① Gas
- ① Waste to Energy
- ① Biomass
- ① Coal
- ① Combined Heat and Power Facilities

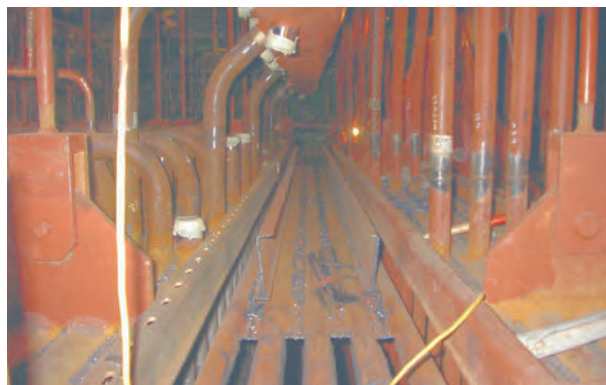
With over 40 years of experience UnitBirwelco Power Services' highly responsive specialised teams, which include experienced project leaders, mirror welders, pipefitters and platers, deliver practical solutions that minimise downtime and repair and maintenance costs.

### SERVICES-

- ① On-going Repair and Maintenance
- ① Statutory Inspection Repair and Maintenance
- ① Support Pre and post NDE preparation and repair
- ① Pressure system diagnostics

UnitBirwelco Power Services is supported by a specialist boiler and pressure system engineering design team and manufacturing and fabrication bases in North East Lincolnshire and South Wales.

Our teams have worked on projects for a wide range of the UK's major power providers including SSE, ScottishPower, E.ON, FCC, EPRL, Viridor and Babcock & Wilcox Vølund.



### CONTACT

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## PROCUREMENT



UnitBirwelco's experienced procurement team employs robust systems and procedures to carry out all aspects of the procurement process including purchasing, contract management, expediting and materials management.

We provide strategic sourcing on a global basis and offer significant leverage with key long term suppliers to ensure precise specification and scheduling, high quality manufacturing and fabrication and consistent value for money.

In addition, and where appropriate, our in-house fabrication and manufacturing capability offers both reduced risk and supply chain management and greater control and flexibility.

### PROCUREMENT CHECKLIST

#### PROCUREMENT PLAN

- ① Consider worldwide basis
- ① Tax and duties applicable
- ① Extent of Client approval
- ① Reporting requirements
- ① Import certification and permit
- ① Applicable terms and conditions
- ① Confidential information
- ① Transportation and shipping
- ① Document distribution

#### ESTABLISH SUPPLIERS LIST

- ① Ability to comply to specification
- ① Past performance
- ① Competitiveness
- ① Location
- ① Known workload
- ① Operational & financial stability

#### ISSUE QUOTATIONS ENQUIRIES OBTAIN, EVALUATE

#### BIDS QUOTATIONS NEGOTIATE AND COMMIT

#### PURCHASE ORDERS INSPECTION & EXPEDITE

#### EXPEDITING

- ① Supplier assessment
- ① Inspection & test programme
- ① Review weld/NDT procedures
- ① Inspect purchase items for compliance
- ① Issue status reports
- ① Chase progress

#### COORDINATE TRANSPORT & SHIPPING

#### EXPEDITE

- ① Drawings
- ① Material certification
- ① Supply

#### COORDINATE & ADMINISTRATION ACTIVITIES

### CONTACT

For Procurement Services contact:  
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## FIRED HEATERS



For over 50 years UnitBirwelco has been a market leader in the supply of fired heaters, with our design expertise delivering benefits to the petrochemical industry across the UK, Europe, North America, the Middle and Far East.

Worldwide we have built over 750 refinery fired heaters, from ethylene crackers to catalytic reformers and waste heat trains.

Carefully developed in recent years, our high intensity heater technology for crude and vacuum heaters, is still the premier design choice today. It features a mixture of design innovations which deliver economies over traditional designs.

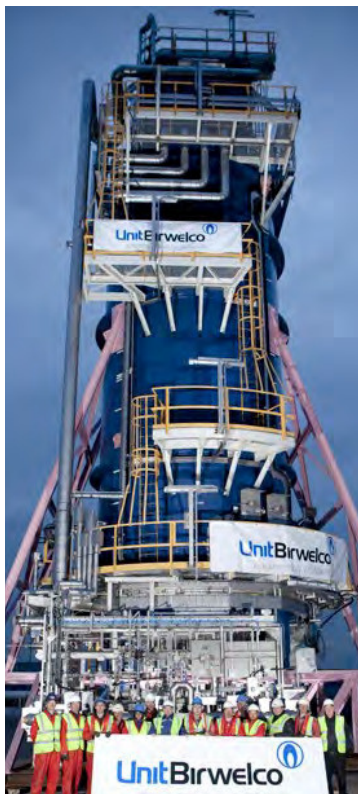
### CONTINUOUS IMPROVEMENT

Revamps and retrofits can provide significant benefits in extending the operational life of furnace units. Our expertise reduces maintenance headaches, with reduced downtime equalling better productivity and profit.

Similarly, UnitBirwelco are experts at investigating process issues and upset events and determining the best way forward for a quick turnaround.

### UNITBIRWELCO CONFIDENCE

- ① 50-years+ of global pedigree supplying and installing fired heaters
- ① Expertise in fitting the design solution to the task
- ① Support, improvement and optimisation of existing installations
- ① Repair expertise that gets our customers back into production swiftly
- ① Modularisation expertise on hand
- ① Total spares support – a simple call away



### CONTACT

For Fired Heater Services contact:

**Dave Ashby on:**

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## ENERGY FROM WASTE



UnitBirwelco provides a comprehensive multi-disciplined engineering design and fabrication service for the Energy from Waste industry.

### What we can offer-

- ④ Supply of Inconel 625 bent tubing
- ④ Tube bending
- ④ Manufacture and repair of economisers, header, elements, water walls, drums.
- ④ Manufacture and retube of LP & HP heat exchangers
- ④ Accredited BS EN 1090 exec '4' structural steel fabricator.



Regardless of project size, or whether single or multi-discipline work scope, our focus on innovative design solutions, quality and performance tracking and HSE and zero incident strategies delivers tangible efficiencies, cost savings and mitigates both known and unforeseen risks.

Our project managers, engineers and construction professionals provide clients with an integrated team with a broad skills base but common purpose. Working across oil and energy, process, power pharmaceutical gas, waste to and industries, UnitBirwelco delivers often complex and challenging construction projects with precision deadlines. and within demanding



### CONTACT

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