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INTERNATIONAL

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Hazardous Area Electric Process Heat & Control Systems





EXHEAT Electric Heaters and Control Systems

Designed and Manufactured for
Hazardous and Non-Hazardous Areas

ABOUT EXHEAT

EXHEAT is recognised as one of the world leaders in the design and manufacture of electric process heaters and control systems for both hazardous and non-hazardous area equipment. We custom engineer products that meet the precise heating and control needs our clients require.

With extensive global experience in electrical, mechanical and thermal design, our knowledge in designing and manufacturing electric process heating equipment suitable for installation within the extreme environments commonly found in the oil, gas and petrochemical industries is second to none.

Where our products are to be installed within a hazardous area, product certification can be supplied from all appropriate bodies, including IECEx, ATEX, CSA, Inmetro, KGS, CCOE and CU TR (formerly GOST).

All our equipment is designed, manufactured, and rigorously tested within our 5,000m² ISO 9001:2008 certified facilities in the UK.

With a continuous focus on customer success and strong commitment to quality, EXHEAT is dedicated to delivering reliable electric process heating solutions that are perfectly designed to meet our customer's needs.

From harsh offshore locations where anti-corrosion properties are of paramount importance, to desert locations where high and low ambient temperatures must be considered, EXHEAT has the expertise you require.

Company Profile

EXHEAT endeavours to lead the global hazardous area electric heaters and control systems industry. We aim to achieve this through core focus on:

- Embracing new technologies and continuous improvement in our product range
- Offering innovative solutions and delivering the best quality
- Offering globally approved equipment certified for hazardous areas
- Providing customers with a high level of service in design, detailed engineering and project management
- Supporting customers worldwide with a team of support / service engineers

Industries and Applications

EXHEAT has the knowledge and expertise to design and manufacture electric process heating equipment suitable for installation within the extreme environments commonly found in the oil, gas and petrochemical industries. Our products are engineered for a wide range of applications:

- Butane / propane vaporisers
- Cleaners
- Crude oil
- Dye solutions
- Fuel gas
- Fuel oils
- Glycol (TEG and MEG) reboilers
- Heat transfer oils
- Heating medium
- Hydrocarbon liquids
- Industrial gases
- KO drums
- Lubricating oils
- Molecular sieve regeneration
- Molten salt baths
- Natural gas
- Steam
- Synthetic oils
- Tank heating
- Vapour degreasing
- Water
- Turnkey heating systems

Quality Assurance

EXHEAT is a Total Quality Environment committed to continuous improvement to ensure that customers' requirements are met and backed up by a level of service necessary to operate in today's global market place.

We operate a Quality Management System in accordance with the internationally recognised benchmark standard ISO 9001:2008, which additionally meets the Quality Assurance requirements of both the European ATEX Equipment Directive (2014/34/EU) and Pressure Equipment Directive (2014/68/EU), as well as the globally recognised IECEx scheme. Products manufactured for the European market are CE marked and meet the requirements of the European Low Voltage, EMC and Machinery Directives. EXHEAT is also registered with both Achilles and Achilles FPAL, ensuring total quality in its products and systems.

Certification

EXHEAT holds approvals from North America, Europe, China, India, Korea, Russia, Brazil and globally through the IECEx scheme for the manufacture of electrical heating equipment for use in potentially explosive atmospheres.



Certificate No. FM26078

Benefits of Electric Heating



Compared to other types of industrial heating, such as fuel and gas fired heating systems or indirect heat exchangers for steam, electric heating offers many advantages:

- **Efficiency:** Without the need for regular tuning or additional heat sources, electric heating boasts virtually 100% efficiency, since almost all of the electricity is converted to heat.
- **Precision:** Being a direct heating solution, electric heating boasts fast reaction times, offering superior temperature control and the flexibility to deal with varying process conditions.
- **Environmental:** Without the production of pollutants as a by-product, electric heating avoids the monitoring and control measures necessary to meet many environmental regulations. This, combined with minimal moving parts, means noise regulations are no longer a concern.
- **Physical Size:** Electric heating boasts a small footprint, saving valuable space by not requiring additional piping and supports.
- **Costs:** Electric heating equipment are typically physically smaller in size, meaning that initial costs are considerably lower. Operating costs are also minimised, as the need for frequent and complex maintenance, down times, and expensive performance monitoring activities are similarly reduced.
- **Maintenance:** With minimal moving parts, electric heating requires less maintenance.
- **Installation:** Electric heating boasts a simpler means of operation, with faster setup times.

Product Applications

EXHEAT supplies electric process heaters and control solutions to major oil and gas projects across the world. We have the knowledge and expertise to design and manufacture products that are suited for installation in hazardous and non-hazardous locations. Below are some of the industries and applications our products can commonly be found in.

- Oil and gas
- Petrochemical
- Processing plants
- Refineries
- Power generation
- Chemical
- Construction
- Food processing
- General manufacturers
- Marine
- Medical
- Pharmaceutical
- Utilities
- Water
- Turnkey heating systems



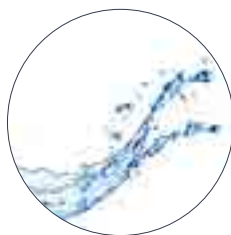
Fuel Gas



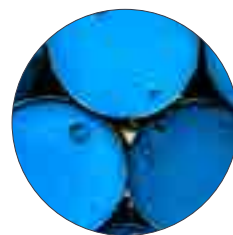
Seal Gas



Biogas



Heating Medium



Crude Oil



Natural Gas



Air Separation



CC Regeneration



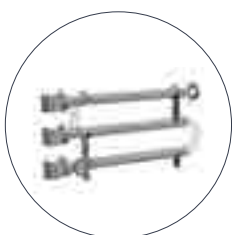
MS Regeneration



KO Drums



Glycol Reboilers



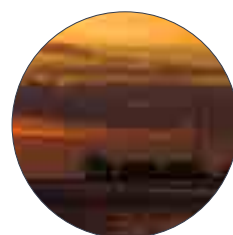
High Temp / Large
Delta T Applications



Tank Heaters



FPSO



FLNG

Ex d and Ex e Hazardous Area Process Heaters



EXHEAT Ex d and Ex e process heaters comprise a large range of process flow heaters, certified for use in a Zone 1 or Class I, Div 1 or Div 2 hazardous area. Engineered with reliability and operational safety in mind, EXHEAT's process heaters are designed for heating many process fluids and are used in a wide variety of process applications, from heating fuel or natural gas, to molecular sieve regeneration and heat transfer processes. All EXHEAT process heaters are custom engineered to meet client specification, ensuring that products are a perfect fit for the required application.

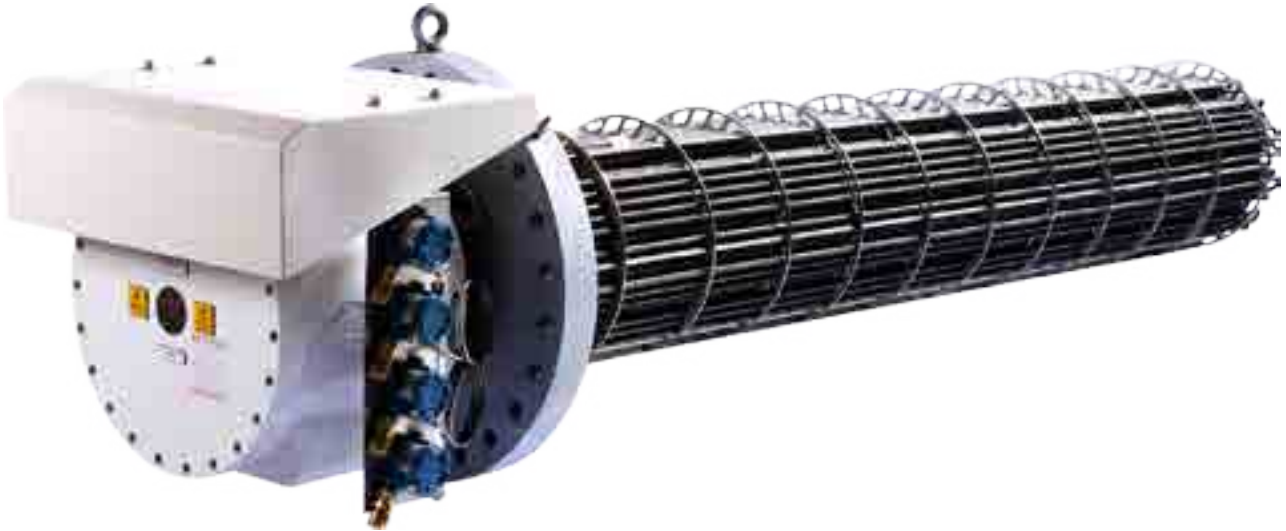


Ex d Explosionproof Process Heaters	Ex e Hazardous Area Process Heaters
Certified to ATEX / IECEx  II 2 G/D CSA, CU TR (formerly GOST), KGS CCOE, CNEx and Inmetro standards Ex d, Zone 1, Gas Group II A, B, C Class I, Div 1, Gas Group A, B, C, D	Certified to ATEX / IECEx  II 2 G CSA, CU TR (formerly GOST) CCOE, CNEx and Inmetro standards Ex e, Zone 1, Gas Group II A, B, C Class I, Div 2, Gas Group A, B, C, D
Terminal box certified weatherproof to IP65 and IP66	Terminal box certified weatherproof to IP67 or Type 4x. Lightweight 316L stainless steel construction
Up to 1400kW (larger ratings achieved by a combination of enclosures)	Up to 5000kW
Vessel materials available: carbon steel, low temperature steel, stainless steel, duplex, titanium, super austenitic, Monel, nickel alloys	Vessel materials available: carbon steel, low temperature steel, stainless steel, duplex, titanium, super austenitic, Monel, nickel alloys
Vessel design codes: PED compliant, PD 5500: Cat 1, ASME VIII Div 1 or 2, Stoomwezen, CODAP, AD Merkblätter, AS 1210, EN13445	Vessel design codes: PED compliant, PD 5500: Cat 1, ASME VIII Div 1 or 2, Stoomwezen, CODAP, AD Merkblätter, AS 1210, EN13445
Temperature class T1 to T6 (T450°C to T85°C)	Temperature class T1 to T6 (T450°C to T85°C)
Elements specially sealed to prevent moisture ingress	Elements specially sealed to prevent moisture ingress
Elements individually replaceable on site without the need for special tools	Elements individually replaceable on site without the need for special tools
Suitable and certified for use in ambient temperatures -60°C to +60°C	Suitable and certified for use in ambient temperatures -60°C to +60°C
Anti-condensation heaters fitted if required	Anti-condensation heaters fitted if required

TYPICAL APPLICATIONS

- Biogas
- Caustic solutions
- Cleaners
- Crude oil
- Dye solutions
- Fuel gas
- Fuel oils
- Glycol heating
- Heat transfer oils
- Heating medium
- Hydraulic fluids
- Hydrocarbon liquids
- Industrial gases
- Lubricating oils
- Molecular sieve regeneration
- Natural gas
- Steam
- Vapour degreasing
- Wastewater
- Water

Ex d and Ex e Hazardous Area Immersion Heaters



EXHEAT's immersion heaters comprises a large range of Ex d flameproof / explosionproof and Ex e hazardous area electric immersion heaters that are suited for heating gases and liquids in tanks and other pressurised vessels.

By custom engineering our products we ensure that our heaters meet our client's needs: from compact heaters to large, robust industrial heaters that can withstand even the harshest environments, and are engineered to comply with all certification standards worldwide.



Ex d Explosionproof Immersion Heater	Ex e Hazardous Area Immersion Heater	Hazardous Area L Immersion Heater
Certified to ATEX / IECEx  II 2 G/D CSA CU TR (formerly GOST), CCOE, KGS, CNEx and Inmetro standards Ex d, Zone 1, Gas Group II A, B, C Class I, Div 1, Gas Group A, B, C, D	Certified to ATEX / IECEx  II 2 G CSA CU TR (formerly GOST), CCOE, CNEx and Inmetro standards Ex e, Zone 1, Gas Group II Class I, Div 2, Gas Group A, B, C, D	Certified to ATEX / IECEx  II 2 G CU TR (formerly GOST), CCOE, CNEx and Inmetro standards Ex e, Zone 1, Gas Group II
Terminal box certified weatherproof to IP65, IP66 or Type 4 standards	Terminal box certified weatherproof to IP67 or Type 4X standards. Lightweight stainless steel construction terminal box	Terminal box certified weatherproof to IP66, IP67 or Type 4X standards. Enclosure manufactured from durable stainless steel with removable cable entry gland, with cable entries cut to suit incoming cable requirements. External and internal earth stud
Up to 1400kW (larger ratings achieved by a combination of enclosures)	Up to 5000kW	Up to 300kW
Temperature class T1 to T6 (T450°C to T85°C)	Temperature class T1 to T6 (T450°C to T85°C)	Temperature class T1 to T6 (T450°C to T85°C)
Elements specially sealed to prevent moisture ingress, and individually replaceable on site without the need for special tools.	Elements specially sealed to prevent moisture ingress, and individually replaceable on site without the need for special tools.	Elements specially sealed to prevent moisture ingress, and individually replaceable on site without the need for special tools.
Suitable and certified for use in ambient temperatures -60°C to +60°C	Suitable and certified for use in ambient temperatures -60°C to +60°C	Suitable and certified for use in ambient temperatures -60°C to +60°C
Anti-condensation heaters fitted if required	Anti-condensation heaters fitted if required	Anti-condensation heaters fitted if required

TYPICAL APPLICATIONS

- Butane / propane vaporisers
- Calorifier packages
- Chemical baths
- Crude oil
- Fuel gas
- Fuel oils
- Glycol (TEG/MEG) reboilers
- Glycol cooling
- Heat transfer oils
- Heating medium
- Hydrocarbon liquids
- Industrial gases
- KO drums
- Lube oil refinery
- Molecular sieve regeneration
- Molten salt baths
- Synthetic oils
- Tank heating
- Turbines
- Water

Air Duct Heaters



For safe, durable and reliable duct heating solutions, EXHEAT offers a full range of electric air duct heaters that are designed to endure even the harshest of locations. Our duct heaters can be supplied CE marked, in accordance with the latest CENELEC and ATEX requirements, or IECEx certified and manufactured to the latest IEC standards.

EXHEAT's range of Ex e duct heaters are custom-built to meet client specifications and are suitable for use in Zone 1 or Zone 2 hazardous areas. Along with a variety of flameproof and thyristor control systems that are developed in-house for quality, customers can achieve the precision necessary for optimal temperature control.

TYPICAL APPLICATIONS

- Air handling units
- Air pre-heating
- Annealing
- Anti-icing heaters
- Core drying
- Drying ovens
- Furnace heating
- HVAC heating
- Reheating
- Space heating

FEATURES

- Certified to ATEX / IECEx Ex II 2 G and CU TR (formerly GOST) standards
- Elements certified Ex e for use in Zone 1 hazardous areas
- Terminal box is certified weatherproof to IP66 and IP67
- Temperature class T2 to T6
- Elements are specially sealed to prevent moisture ingress
- Elements are individually replaceable on site without the need for special tools
- Various types of over-temperature cut-outs available (certified thermostats, RTDs or thermocouples)
- Anti-condensation heaters fitted if required

FP Cast Line Heaters

EXHEAT's range of cast aluminium line heaters provide a compact and efficient heating solution for constant flow liquids or gases. The design incorporates electric heating elements and an indirect process heating coil embedded within marine grade cast aluminium. This provides excellent heat transfer properties combined with low surface temperatures.

Cast heaters are increasingly being selected over traditional pressure vessel type heaters for the following reasons:

- Cost effective
- Uniform heat distribution
- Available on shorter lead times
- Resistant to any internal vibrations
- Compact size with a reduced footprint
- Increased safety due to the encasement
- Suitable for high process design pressures
- High reliability and increased service life
- Excellent heat transfer and residual heating from the aluminium casting

FEATURES

Certified to ATEX, IECEx or CSA standards

Certified under EN / IEC 60079-0, 60079-1, 60079-7, 60079-31 and standards per CEC / NEC 500

Flameproof IP66 rated terminal enclosure

Cellular glass insulated with stainless steel cladding

Maximum design pressure and temperature of 660barg at up to 400°C

Process control and over-temperature protection sensors: RTD Pt100, thermocouple type K or thermostats

Wall or floor, vertical or horizontal mounting

Multiple heating elements allow for step control. Alternatively, solid state relay or thyristor control can be employed

Coil materials: stainless steel 316L, duplex S31803, super duplex S32760 (others, including nickel alloys available on request)

Process connections available using standard flanged or compression joints



TYPICAL APPLICATIONS

- | | |
|-------------------|--------------------|
| • Air | • Nitrogen |
| • Annealing | • Paint heating |
| • CO ₂ | • Pasteurisation |
| • Instrument air | • Solvent |
| • Natural gas | • Steam generation |

Control Systems



EXHEAT designs and manufactures an extensive range of control systems. All control systems are designed to meet exact client specifications, comply with global quality standards and meet the IEC 61439 standard. Our control systems product range includes:



Safe area
control systems



Purged panel
control systems



Remote control units and
emergency shutdown stations



Flameproof
control systems



Safe area
standard control systems



Low voltage MCC
and modular systems

Design and Verification

EXHEAT's consultative design process means we work alongside our clients, thereby ensuring we provide the best long term solution for their needs. This solution may come in the form of a detailed engineered system or that of a much simpler bespoke solution.

Our in-house design capabilities include:

- Full design verification of busbar systems in accordance with IEC 61439
- Control systems designed from 10A up to 3200A
- SIL level reports and verification
- Heat dissipation calculations

Manufacturing

Our control systems are manufactured in our 1400m² purpose-built facility in the UK, laid out under lean manufacturing principles and includes an in-house testing facility. Our manufacturing facilities are ISO 9001 certified, with equipment meeting the IEC 61439 standard.

Testing Facilities

EXHEAT has state of the art testing facilities, including a fully functional load test chamber capable of simulating and monitoring environmental conditions whilst testing the systems. Our testing abilities include full load testing, heat soak testing, harmonic analysis and waveform recording.

We have full facilities to accommodate clients throughout any specified test. All test results are logged using calibrated data recording equipment.

Control System Services

- Thyristor control system design
- Step contactor sequence control
- PLC programming
- Engineering planning
- Manufacture
- Factory testing and quality control
- On-site commissioning
- Spares and after sales service

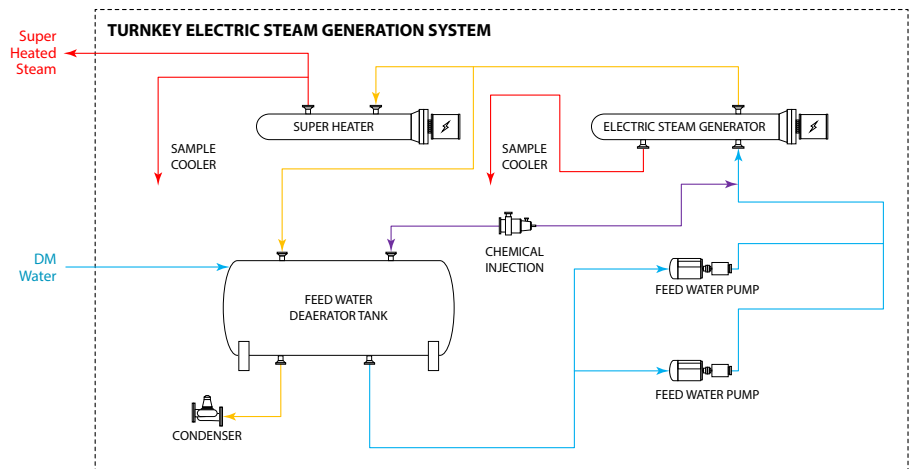


EXHEAT Turnkey Heating Systems

EXHEAT is an integrated solutions supplier, encompassing mechanical, electrical and electronic assembly capabilities within the same business. We have a wide product range to offer and distinguish ourselves as a custom solutions provider complete with onsite commissioning and after sales services.

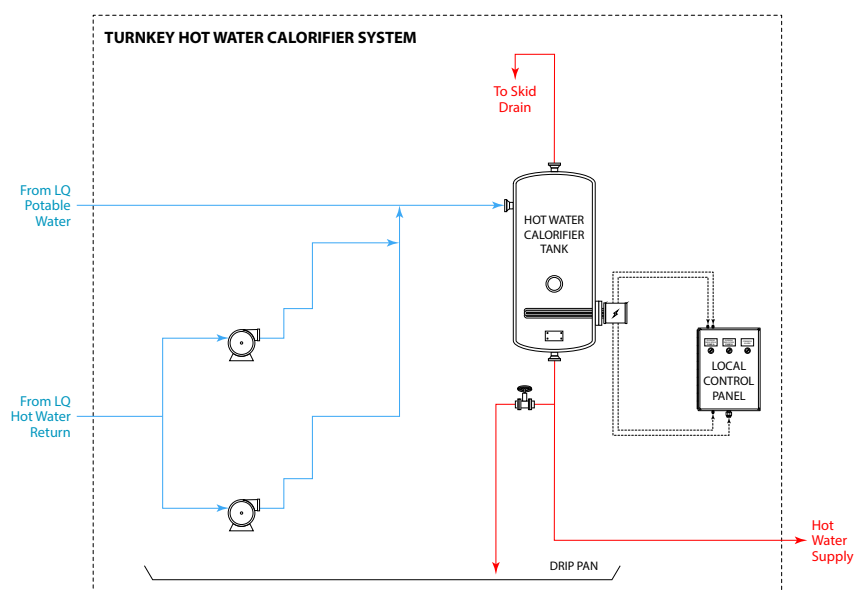
EXHEAT engineered turnkey heating systems include **Electric Steam Generation systems**, **Electric Hot Water systems** and **Electric Hot Oil systems** complete with project specific controls and instrumentation. We design and deliver systems that:

- Meet site specifications
- Comply with site and international standards
- Fit the footprint
- Are tested as per the client's requirements and standards
- Are delivered on time and within budget
- Have low operation and maintenance cost



Our engineers will work with you to ensure the following are fulfilled:

- Equipment specification
- P&IDs
- HAZOPS
- 3D models and GA drawings
- Control philosophy
- Maintainability and operability
- Compliance to all relevant standards
- Factory acceptance testing





Advantages of Electric Heater Systems over Traditional Gas / Oil Fired Systems

Electric heaters work under the same principle as traditional gas or oil fired heaters, other than the fact that they use electricity to heat the process rather than gas. This makes them an ideal option for sites where there is no access to mains gas supply or which have environmental restrictions, such as emission controls, noise limits etc.

One of the biggest advantage of electric heating systems is their energy efficiency, with around a **99% efficiency rate** for the user. They do not require burning of fossil fuels to produce heat, hence no heat is lost through waste gases via flues or chimneys. Other major advantages include its compact size, accurate temperature controls, low maintenance, less noise and no emissions.

EXHEAT is a company possessing all the necessary experience to produce custom engineered turnkey heating systems of high quality. Our exposure to clients from various industries (refineries, petrochemical plants, power generation, gas processing plants and LNG among others) has enabled us to share process and engineering experience from different fields. We assist clients to consider and select unique solutions for their specific project and process challenges.

Drawing on our years of engineering experience and expertise across various divisions, EXHEAT's team of engineers takes customer requirements from concept stage through to completion and site commissioning.

In addition, over the years EXHEAT has developed a wide variety of best in class sub vendors, resulting in customised equipment suited for the task at hand and delivering high efficiency, reliability and process guarantee.

EXHEAT's commitment to produce the right product for your application, using years of mechanical, electrical and electronic design expertise, is your guarantee that any turnkey heating system we supply and commission will meet your project and process requirements.



Design, Manufacturing and Project Management

Facilities

All manufacturing and testing is done in-house at our head office in the UK. This site houses our sales and engineering teams, quality control, engineering, document control and admin departments all under one roof. EXHEAT has a state-of-the-art 5,000m² production facility that encompasses the following disciplines:

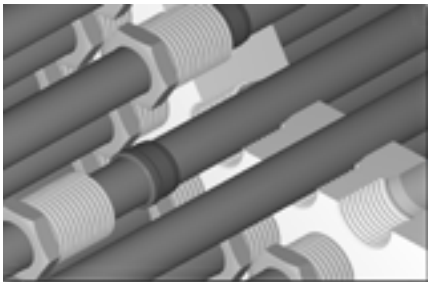
- Material control
- Fabrication
- Braising
- Machining
- Welding, including specialist element to tube sheet welding
- Non-destructive testing (NDT)
- Wiring
- Heater assembly
- Hydrostatic testing up to 900barg
- Control panel assembly
- Load testing
- High voltage (HV) testing
- Function testing up to 5MW



Manufacturing Techniques

EXHEAT meets the stringent requirements of design codes, international standards and client specifications. Our design features allow us to provide heating solutions for extreme processes — from cryogenic service to gas regeneration — and for pressures in excess of 500barg.

We manufacture heaters with element to tubesheet sealing using bite coupling design or automated orbital welding. Alternatively, we are also able to provide heaters with cartridge elements inserted in pockets to facilitate withdrawal of the elements without the need to drain the system.



Elements sealed using bite couplings



Orbital welding of element to tubesheet



Cartridge elements inserted in pockets

Element Manufacturing

Elements are manufactured from 80/20 nickel chrome resistance wire with high-purity compacted magnesium oxide powder sheathed within corrosion / erosion resistant tube of various materials (titanium, stainless steel 316/316L/321, Incoloy 800/825, Inconel 600/625, Monel, etc), depending on client specifications.



Rod-Type Elements

Metal sheathed with mineral insulation rod elements are the most versatile and cost effective method of electric heating.



Core-Type Elements

Withdrawable ceramic core type elements are designed for use in heating large tanks — the advantage being that maintenance can be done without the need to drain the tank.



Cartridge-Type Elements

Cartridge elements are similar in construction to rod elements, except both terminations are made at a single end. This allows elements to be installed in a withdrawable construction.

Design and Project Management Capabilities

Design

Our unique design approach and extensive range of certification offers simple solutions to complex requirements. EXHEAT design teams support customers from conceptual, FEED to EPC, and throughout the life cycle of the equipment.

Our in-house design capabilities include:

- Single heaters up to 5MW
- 3D modeling (Pro Engineer)
- Thermal design
- Electrical design
- Process design verification
- Mechanical design
- Instrumentation requirements



Ex d flameproof design



Ex e hazardous area design

Project Management

With a proven track-record of providing electric heating and control system solutions for a vast number of projects all across the world, EXHEAT has the experience to implement and integrate with even the most complex project architectures.

EXHEAT assigns an experienced and qualified team of engineers and draught-persons to each project to implement and manage the following:

- | | |
|---------------------------------------|---------------------------------|
| • Engineering | • Electrical documentation |
| • Planning | • Packing and transportation |
| • Procurement | • Commissioning |
| • Manufacture | • Customer care and after sales |
| • Factory testing and quality control | • Worldwide servicing |
| • Documentation | |

Major Project Experiences

EUROPE

Adriatic LNG
Nyhamna / Ormen Lange
Gjoa
Pazflor SRU
Skarv & Idun Development
Milford Haven Refinery
Buzzard Field
Sullom Voe Oil and Gas Terminal
Holford Gas Storage
Leman Platform

Hole House II Gas Storage Facility
Jasmine Development
Revolution Gas Storage
Mariner
Aasta Hansteen
Ivar Aasen
Forties Field Redevelopment
Golden Eagle Area Development
Quad 204 FPSO
Clair Ridge Heavy Oilfield

NORTH AMERICA

White Rose Oil Field Development
Terra Nova Field Development
Whiting Refinery Northwest Indiana
Hibernia Gas Field Development

SOUTH AMERICA

Peregrino FPSO
Peru LNG
FPSO Ilha Bela
Tupi 7 & Tupi 8
Tupi Alpha & Tupi Beta
Cessão Onerosa P74
UFN III – Petrobras Fertilizer Plant
Campos Basin Development – P56, P58, P62 & P63
Baleia Azul Field Development
Lula Oil Field Development
Macueta Gas Compression Plant

AFRICA

In Salah Gas Field
Diffra FPF And Flowlines
Melut Basin Oil
Angola LNG
Olowi Deepwater Oil Field
Western Libya Gas Project (WLGP)
Nigeria LNG (Bonny Island Development)
Hungo And Chocalho Deepwater Oil Fields – Kizomba FPSOs

West Franklin
Montrose BLP Greenfield
Solan Topsides
Gudrun
Tepes Nova Gas Process Station
Greater Ekofisk Area Development
Kvitebjorn Platform
Edvard Grieg
Valhall
Cygnus
Magnus

RUSSIA / CIS

Sakhalin
Moscow / Salavat Refineries
Tuapse / Kuibyshev / Syzran Refineries
Stavrolen / Nizhegorodnoc
Shah-Deniz and Azeri Projects
Chirag Platform
Atyrau Refinery
AGT Pipelines Project
Karachaganak Field Development
Kashagan Field Development
Kashagan Barges
Kharyaga Field Development
Turkmenistan Block 1 Gas Development

ASIA

Sumbagsel
Tangguh LNG
Usan FPFOS
Brunei LNG
West-East Pipeline
Ampa Fairley Rationalisation
Guangzhou Refinery
Huizhou 21-1B Gas Project
Resak Development
Tangga Barat Development
Malampaya Debottlenecking
Helios Terminal
Songkhla Gas Separation Plant
Nam Con Son - Lan Tay Platform
Ningxia Hui Refinery
Pengerang Refinery and Petrochemical Integrated Development

AUSTRALASIA

Laminaria Field
Buffalo FPSO
Bassgas Offshore Development
Otway Offshore Gas
Queensland Curtis LNG
Greater Gorgon Gas
Australia Pacific LNG
Gladstone LNG
Wheatstone LNG
Prelude FLNG
Ichthys

MIDDLE EAST & INDIA

Borouge 2
South Pars
Oman LNG
Khuff Gas Development
Emirates Aluminium Smelter Complex
Esfahan Gasoline Production Plant
Aromatics Complex Kuwait
Saih Rawl Oilfield
Mukhaizna Power Plant
Harweel Cluster Development
Al-Shaheen

Amal
Yemen LNG
Qarn Alam
Yanbu Refinery
Hawiyah LNG
SK Olefins Plant
Riyadh Power Plant
Habshan Gas Complex
Jubail Export Refinery
Sahil & Shah Field Development
Shaybah NGL

Pearl GTL
Bhatinda Refinery
Tisco Jamshedpur
ICP-R Process Platform
Zamzama Gas Field
Vedanta Aluminium
Jamnagar Refinery
Uch Gas Field
Sangu Development

After Sales Services



EX Services, backed with 25 years of experience serving Operators and EPC contractors, is the servicing and maintenance arm of the EXHEAT Group, offering professional support to ensure our customers' systems are maintained by highly qualified and experienced engineers.

With a solid understanding of heater and control system applications, as well as dedicated teams in strategic positions all over the world, EX Services has the ability to provide fast technical support or emergency site visits, giving clients access to a comprehensive range of solutions that are designed to lower costs, reduce risk, and improve product longevity by eliminating problems before they arise, to keep heating and control systems running.



Service Contracts

Our maintenance solutions help maximise the functionality of clients' heating systems.

Correctly maintained equipment helps ensure performance is improved to, and sustained at, design specifications. The best way to ensure proper maintenance is through an EX Services contract. We offer several service contract options that are tailored to suit your business and maintenance needs.

Available service contract options include:

- 6 month routine maintenance
- 12 month routine maintenance inclusive of heater terminal enclosure inspection
- Spares discount
- Labour discount
- Spares stock check
- Site survey
- 24 hr telephone technical support
- Maintenance days included
- Inclusive repairs spares
- Bundle removal and inspection



Training

EX Services is able to provide structured training, covering operation, basic maintenance and problem solving for all EXHEAT equipment, and is tailored to suit our clients' staffing needs and providing knowledge on how to get the best performance from our equipment.

This certified training can be conducted on-site or at our training facilities in the UK.



On and Offsite Repairs

We can provide ongoing engineering support through our team of EX Services technicians based internationally.

With many years of experience, our technicians can provide remote support, on-site / off-shore and return-to-base repairs for all EXHEAT systems, ensuring the right solution for our customers is available.



Site Surveys and Condition Reports

Our team of engineers conduct full site surveys, providing condition reports for all EXHEAT equipment. This site survey also includes a review of customer training needs, spares stock levels, and onsite documentation, ensuring clients are perfectly equipped to get the most from our heating equipment.

We can also carry out thermal imaging studies to safely detect otherwise invisible symptoms of imminent failure at an early stage, allowing customers to fix issues before they disrupt production processes and help save both time and money.



Technical Support

EX Services is proud to provide a comprehensive technical support service via our main offices in the UK and Singapore, ensuring support is available when it is needed most.

With easy access to design, manufacturing and site services teams, clients can be assured of a prompt and appropriate response to assist with any technical enquiries.



Commissioning and Start-up Cover

Guaranteeing that our EXHEAT equipment is installed right the first time can be vital to ensuring timely completion of a critical project and providing a stable base for equipment performance.

EX Services can supply on and off shore commissioning engineers to complete all commissioning and start-up checks; giving our customers the confidence that equipment has been installed correctly and is operating within design parameters.

Using EX Service engineers to commission EXHEAT equipment also provide instant validation of the EXHEAT warranty.



Preventative Maintenance

In any stream of life, prevention is always better than cure. Never has this been more prevalent than within a process or production environment.

Our preventative maintenance programmes provide the foundations for optimum performance and asset longevity. Each preventative maintenance programme is tailored to suit the customer.

Part of the preventative maintenance schedule includes ongoing diagnostics performance monitoring of important equipment to ensure optimum performance at all times throughout the lifecycle of the heater.

For more information about EX Services:

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Telephone: +44 (0)1953 886200

Website: www.exservices.com

Industrial Standard Products



EXHEAT Industrial offers fast track solutions to the industry's wide and varied requirements for electrical heating systems. All heaters are manufactured for use in hazardous areas, and can be supplied certified to meet the latest requirements of the IECEx scheme, CSA, UL, Inmetro, CU TR (formerly GOST), CCOE, CNEx, KGS or the European ATEX Equipment Directive as appropriate. Products manufactured for the European market are CE marked and meet the requirements of the European Low Voltage, EMC and Machinery Directives.

All heaters are manufactured and stocked in the UK. A selection of stock is also kept at our regional office in Houston to facilitate faster delivery time.

Air Heaters

EXHEAT Industrial manufactures a range of flameproof and increased safety air heaters for use in hazardous areas that are designed to integrate smoothly with our thermostats and transmitters.



- Industry flange connections or a threaded boss in a variety of materials
- Hazardous area Ex e air warmers and convector heaters (250W to 3kW)
- Flameproof Ex d air warmers (500W to 2kW)
- FLR radiator style Ex d heaters designed for dust environments (1kW, 2kW and 3kW)
- Ex d and Ex e anti-condensation and frost protection enclosure heaters (30W to 500W)
- Flameproof Ex d fan assisted unit heaters (9kW to 30kW)
- Hazardous area Ex de portable fan assisted heaters (3kW and 6kW)
- Industrial safe area convection heaters (1kW to 3kW)



Immersion Heaters

Designed for direct immersion into process fluids, EXHEAT Industrial's standard line of flameproof immersion and tank heaters are available on short lead times, and can be designed to meet our customer's specific requirements. Features include:

- A wide selection of standard, low watt-density rod / hairpin heating elements, as well as a range of withdrawable ceramic core and cartridge type heating elements, enclosed within a robust Ex d terminal fitted with a process control thermostat and over-temperature protection to protect element connections
- Heater designs for any electrical supply up to 690V, and duties from 100W to 250kW (subject to process requirement within the design parameters)
- Industry flange connections or a threaded boss in a variety of materials



Line Heaters

Our comprehensive range of line heaters provide a clean, safe and efficient heating method for bulk liquid flow applications, and are designed for a variety of mediums such as water, oil, air, as well as both corrosive and non-corrosive materials. These flameproof and industrial safe area line heaters are available from 500W to 150kW (subject to application and medium), with alternative materials available.



Thermostats / Transmitters

We design industrial controls to complement our heaters. Supplied in weather-proof or flameproof enclosures, all thermostats are certified for use in hazardous areas where the atmosphere is classified as a Zone 1 or Zone 2 (IIA, IIB, IIC) gas group. Dual certified flameproof air sensing thermostats and safe area equivalents are all available ex-stock.

For more information about EXHEAT Industrial:

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Website: www.exheat-industrial.com

Client and End User Experience List

- ABB Lummus Global (CB&I)
- ADCO
- ADGAS
- ADMA-OPCO
- ADNOC
- AGIP
- Aibel
- Air Liquide
- Air Products
- Aker Solutions
- Alfa Laval
- Alstom
- Amec
- Arco
- Axens
- BASF
- Bayer
- BCPL
- Bechtel
- Bemco
- BHP
- Bluewater
- BOC
- Bouygues
- BP
- British Gas
- Bumi Armada
- BW Offshore
- Cameron
- CB&I
- Chevron
- Chiyoda
- Clough
- CNOOC
- Conoco
- Costain Engineering
- CPCL
- CPECC
- Crest
- CTCI
- CUEL
- Cuu Long
- Daelim
- Dow
- Dresser-Rand
- DSME
- EIL
- Encana
- Eni
- Enppi
- Essar
- Esso
- ExxonMobil
- Flowserve
- Fluor
- Formosa Plastic
- Foster Wheeler
- GAIL
- GASCO
- Gazprom
- GDF Suez Group
- GE International
- GNOPC
- GSPC
- Halliburton
- Hess (Amerada)
- HHI
- Hitachi
- Hyundai Engineering
- IKPT
- Indian Oil Corp
- Ithaca Energy
- J Ray Mcdermott
- Jacobs Comprimio
- JGC
- John Crane
- Kazmunaigaz
- KBR
- Kencana HL
- Kobelco
- KOC
- KOGAS
- Kvaerner (Aker)
- Larsen & Toubro (L&T)
- Linde
- LPEC
- Lukoil

- Maersk Oil & Gas
- METKA
- Mitsubishi
- Mitsui
- MMHE
- MODEC
- Mossgas
- Murphy Oil
- MW Kellogg
- Nalco
- NAM
- Newfield
- Nexen
- NIGC
- Norsk Hydro
- Occidental
- Odebrecht
- OGC
- OMV
- ONGC
- OPWPC
- Origin
- PAE
- Parsons
- PDO
- Pertamina
- PETRECO
- Petrobras
- Petrochina
- Petrofac
- Petrojet
- Petrokemya
- Petrom SA
- Petronas
- Phillips Petroleum
- PKN Orlen
- POSCO
- Praxair
- Prosafe
- PTSC
- PTT
- PTTEP
- Punj Lloyd
- Qatar Gas
- Qatar Petroleum
- Ramunia
- Rekayasa
- Reliance
- Repsol
- Rompetrol
- Rosneft
- SABIC
- Saipem
- Samsung Engineering
- Satorp
- Saudi Aramco
- SBM
- SDE
- SEI
- Shaw Group
- Shell
- SHI
- Sibur
- Sinopec
- SK Engineering
- Snamprogetti (Saipem)
- SNC Lavalin
- Solar Turbines
- SOME
- Statoil
- Talisman
- Tanker Pacific
- Techint
- Technip
- Tecnicas Reunidas
- Texaco
- Total
- Toyo
- TRANSCO
- Turkmengaz
- Uhde Shedden
- UOP
- Vedanta
- Wintershall
- Wood Group
- Woodside
- Worley Parsons







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