



HEAT
Industrial Ltd

Hazardous Area Electric Heaters & Controls

Gas Compressor & Lube Oil Packages



www.exheat-industrial.com

Company Introduction

EXHEAT Industrial Division offers fast track solutions to industry's wide and varied requirements for electrical heating systems. All heaters manufactured by EXHEAT for use in Hazardous Areas are supplied fully certified to meet the latest requirements of the IECEx Scheme, CSA, GOST, CCOE, CNEX, KGS or the European ATEX Directive as appropriate.

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

Air Heaters

- Hazardous Area Ex e air warmers and convector heaters. 500W to 3kW
- Flameproof Ex d air warmers. 500W to 2kW
- FLR Radiator style Exd heaters designed for dust environments. 1kW, 2KW & 3kW
- Ex d & Ex e Anti-condensation and frost protection enclosures heaters. 30W to 500W
- Flameproof Ex d Fan assisted unit heaters. 9kW to 30kW
- Industrial Safe Area CE approved convector heaters. 1kW – 3kW

A selection of air heaters is currently in stock and available for despatch within 2-3 working days.

Our heaters can be controlled from the EXHEAT Industrial range of thermostats listed below.

Line Heaters

Flameproof and Industrial Safe Area line heaters available from 500W to 150kW subject to the application and medium

An indirect method of efficient heating for bulk liquid flow applications

Alternative material available and designed for a variety of mediums such as water, oil, air and corrosive materials

Immersion Heaters

Our standard range of Flameproof immersion and tank heaters are available on short lead times and can be designed to meet your specific requirements

Selection of heating elements including low watts density standard rod/hairpin type and withdrawable ceramic core and cartridge type. Our robust Ex d terminal enclosure protects the connections and is fitted with a process control thermostat and over-temperature protection

Duties from 100W to 150kW subject to process requirement within the design parameters

Any electrical supply up to 690V

Industry flange connections or a threaded boss in a variety of materials

Thermostat/Transmitter Enclosures

Dual certified Flameproof Air Sensing Thermostats and a Safe Area equivalent all available ex stock

The HFT is a tamperproof 316L Stainless Steel construction or the AFT with an externally adjustable design made from Cast Aluminium.

The HIH Flameproof Transmitter/Instrument 316L Stainless Steel Enclosure is designed to accommodate most makes of head mounted transmitters such as WIKA, Siemens & Rosemount

Certification



Exheat Industrial specialises in the design and manufacture of Hazardous Area heating equipment meeting approved quality standards throughout the world.

Exheat Industrial is assessed by BSI Management Systems as operating a

Quality Management System which complies with the requirements of ISO 9001:2008 (FM 26078).

All heaters are manufactured in the UK and marked with CE.



IECEX

The IECEx scheme, which is based on IEC standards, offers a single international assessment and test report for acceptance in all participating countries eliminating the need for duplicate testing. The IECEx Scheme is accepted in 22 countries in Asia-Pacific, Europe and North America.



ATEX

All ATEX heaters manufactured by EXHEAT for use in hazardous areas within the European Union are certified to the ATEX Directive 94/9/EC. Compliance with this Directive has been mandatory for all heaters put into service in hazardous areas within the EU since July 2003.



CSA

Certified CSA for use in the United States and Canada. The CSA certification ensures that equipment is designed and manufactured to the high North American safety standards.



Ex

The Ex logo is a marking for explosion protection equipment. This symbol indicates that the equipment or system complies with the harmonised standards necessary to meet the requirements of the 94/9/EC Directive (ATEX product Directive, named after the French "ATmosphere EXplosible").



KGS

The Korea Gas Safety (KGS) is an inspection body devoted to gas safety and to improve gas safety technology for the Korean domestic markets.



GOST (Ex CU TR)

GOST is the certification body for the Russian domestic market.

Advantages 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 environmental regulations and furthermore, with minimal moving parts, noise regulations are not a concern either.
- **Physical Size** – electric heating boasts a small footprint, without the need for additional piping and supports, thereby saving valuable space.
- **Costs** – being physically smaller in size, not only are initial costs considerably less with electric heating but without the need for frequent and complex maintenance activities and their associated down times or expensive performance monitoring either, operating costs are less too.
- **Maintenance** – with minimal moving parts, electric heating requires less maintenance.
- **Installation** – electric heating boasts a simpler means of operation with faster setup times.



Exheat Industrial offers a range of heating element types for a wide variety of applications. We will work with you to determine the most suitable type for client application, material, specification and budget.

Rod Type Heating

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

- Various materials available subject to design parameters and medium; Incoloy 800 & 825 or 304L, 316L, 321L Stainless Steel
- L Shaped Element bend formation for vertical orientated tanks
- 8mm, 10mm, 12.5mm diameter elements suitable for various process fixings
- Any electrical supply up to 690V (subject to the design parameters)
- 100% efficiency



Removable Core Heating

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

- Elements can be withdrawn/removed without system drain down
- Mild Steel or 316L Stainless Steel Element Sheath
- Short lead time
- Single cores available 1Ph or 3Ph
- 38mm or 45mm diameter elements suitable for various process fixings
- Low watts density (surface temperature across the element)
- Any electrical supply up to 690V (subject to the design parameters)
- 100% efficiency



Removable Cartridge Heating

Cartridge elements are similar in construction to rod elements only both terminations are made at a single end. This allows elements to be installed within a removable element heater construction.

- Elements can be withdrawn/removed without system drain down
- 316L Stainless Steel Element Sheath
- 10mm or 12mm diameter elements suitable for various process fixings
- Any electrical supply up to 480V 3Ph (3-W DELTA or 3-W STAR configuration)
- 100% efficiency



FP & RFA Immersion Heaters

Exheat Industrial offers standard and bespoke flameproof heaters. The FP/RFA range is a highly adaptable solution that can be customised to suit the process requirements of our clients. They are suitable for heating all types of process liquids which are non-corrosive to the materials of construction. Available with all element types and the widest range of certification.

Certification:

- ATEX II 2 G D
- ATEX & IECEx Ex d IIC T1-T6 Gb or Ex d e IIC T1-T6 Gb and Ex tb IIIC T450°C - T85°C Db
- CSA Ex d IIC, Class I, Division 1, Gas Groups A, B, C & D, T1-T6, Class 1, Zone 1, AEx d IIC T1-T6
- IEC/EN 60079-0, IEC/EN 60079-1 & IEC/EN 60079-31
- CCOE (India), KGS (Korea), CNEX (China) and GOST (Ex CU TR - Russia/Kazakhstan - GG TN-K)
- CE marked

Terminal Box Materials:

All FP models available in mild steel or 316 stainless steel constructed terminal enclosure, RFA cast aluminium

Ingress Protection:

Weatherproof protection to IP67 (Nema 7)

Ambient Temperatures:

Suitable for ambient temperatures from -60°C to +60°C (FP) -40°C to +40°C (RFA)

Controls:

Heater over-temperature protection is fitted as standard (optional process temperature sensing devices can be incorporated in the form of thermostats, RTDs or thermocouples)

Design Codes:

Standard engineering (SEP)

Voltage:

Any electrical supply up to 690V (cartidge type 480v)

Ex d withdrawable cartridge heater



Ex d hair pin rod type heater



Ex d withdrawable core heater



Typical Applications		
Gas compressors	Heating medium	Air heating
Pre-heating oil/water	Boiler equipment	Turbines
Lube oil	Frost protection	
Processing equipment	Heat transfer systems	
Cleaning and rinsing tanks	Tank heating	

Lube Oil Project Experience

Exheat Industrial has supplied lube oil heaters to major Oil & Gas projects across the world. Electric heaters are used in oil lubrication packages for gas compressor turbines, sump heaters, crankcase heaters and water inline jacket heaters for cold start up. Below is a short experience list of projects we have worked on.

Project Name	Country	Engineering	End User
Sabine Pass LNG Terminal	USA	Bechtel	Cheniere Energy
CSA withdrawable cartridge heaters - PFD liquid tanks			
Mostorod Refinery	Egypt	GS Engineering & Construction	Egyptian Refining Company
Crankcase lube oil heaters and jacket water heater for reciprocating compressors			
Musandam Gas Processing Plant	Oman	Hyundai Engineering Company	Oman Oil Company
Lube oil heaters for gas compressor packages			
Ruwais (Carbon Black Plant and Coker Unit)	UAE	Samsung Engineering	Abu Dhabi Oil Refining Company
IECEX Lube oil and water applications for use within reciprocating compressor packages			
Baiji Power Plant	Iraq	Orascom Construction	Iraq Ministry of Electricity
Designed immersion heaters for fuel oil to be used within HFO equipments tanks and leak oil tanks			
UFN III	Brazil	GE	Petrobras
INMETRO oil immersion heaters			
South Acis and Permas	Malaysia	Murphy Oils	Petronas
High pressure lube oil heaters for compressor package			
Gladstone LNG Project	Australia	Bechtel	APLNG
IECEX core heaters for lube oil packages			
Etileno XXI Petrochemical Complex	Mexico	Technimont	Braskem/IDESA
Circulation heaters for lube oil packages			
Mossmorran Natural Gas & Liquids Plant	UK	Wood Group	Shell
Flameproof removable core heaters and HIH enclosures for lube oil packages			
Novokuibyshevsk Refinery	Russia	-	ROSNEFT
GOST heaters for oil lube packages			



Air Heaters/Air Sensing Thermostats/Enclosures



FUH Flameproof Fan Heater

Certification	ATEX certified EX II 2 G Ex d IIC T3 Gb IP56 (Optional IP66) IEC/EN 60079-0 & IEC/EN 60079-1 Ex CU TR (GOST) & GGTN-K
Casing	Grey powder coated steel
Controls	If required the heaters can be controlled from the EXHEAT range of remote mounted thermostats available for use in Safe or Hazardous Areas
Voltage	Up to 480V Heater and motor: 3 phase (4 wire STAR), 20kW model 3 phase (3 wire DELTA) Controls: up to 230V 1 phase
Rating	9kW to 30kW

Typical Applications

Oil refineries Oil coolers Storage areas
Offshore Platforms Ammunition stores Sewage plants



HEF Hazardous Area Enclosure Heaters

Certification	ATEX certified EX II 2 G IECEX & ATEX certified Ex e II T4 Gb IEC/EN 60079-0 & IEC/EN 60079-7 Ex CU TR (GOST) & GGTN-K
Casing	Perforated 316 stainless steel
Controls	The HEF is self-regulating, automatically reducing its output as the ambient temperature rises
Mounting	The heater may be mounted in any orientation, using appropriate securing bolts through the mounting feet
Rating	Available in 30, 50, 75 & 100Watts

Typical Applications

Control enclosures Anti-condensation Motor enclosures
Pump enclosures Frost protection



FXE/T Flameproof Enclosure Heater

Certification	IECEX & ATEX Certified EX II 2 G/D Ex d IIC (Gas) T3-T4 Gb Ex tb IIIC (Dust) T200-T135°C Db IEC/EN 60079-0, IEC/EN 60079-1 & IEC/EN 60079-31 Ex CU TR (GOST) & GGTN-K
Casing	Finned aluminium, anodised matte black
Controls	The FXE heater is designed to be controlled with the FXT (inline or remote) or the the HFT, if required
Voltage	Up to 254V
Rating	Available in 30, 50, 75 & 100Watts

Typical Applications

Control enclosures Anti-condensation Motor enclosures
Pump enclosures Frost protection



FAW Flameproof Fan Heater

Rating	250W - 3kW
Certification	ATEX certified EX II 2 G IECEX & ATEX certified Ex e II T2 to T4 Gb IEC/EN 60079-0 & IEC/EN 60079-7 Ex CU TR (GOST) & GGTN-K
Controls	If required the heaters can be controlled from the EXHEAT range of remote mounted thermostats available for use in Safe or Hazardous Areas
Mounting	Floor mounting supplied as standard, wall mounting bracket available on request
Rating	1 phase: 230 to 254V 3 phase: 400 to 440V

Typical Applications

Aircraft hangars Fuel servicing areas Chemical plants
Offshore installations Battery stores Safety showers
Paint stores Spray booths Containers



FWD-T Adjustable Air Warmers

Certification	ATEX certified EX II 2 G/Gb iECEx & ATEX certified Ex d IIC T2-T4 Ex t IIIC T300°C to T135°C Db IP66 IEC/EN 60079-0 & IEC/EN 60079-1 IEC/EN 61241-0 & IEC/EN 61241-1 Ex CU TR (GOST) & GGTN-K
Casing	Mild steel powder coated orange/grey, stainless steel option available
Controls	If required the heaters can be controlled from the EXHEAT range of remote mounted thermostats available for use in Safe or Hazardous Areas
Voltage	1 phase 230/254V or 110V
Rating	500W to 2kW

Typical Applications

Containers	Crane cabs	Paint stores
Battery stores	Fuel servicing bays	Chemical plants
Ammunition stores	Sugar refineries	Spray booths



AFT Air/Process Sensing Thermostat

ATEX certified EX II 2 G/D IECEX & ATEX certified Ex d IIC T6 Ex t IIIC T85°C Db Zone 1 or 2 (Gas) Zone 21 or 22 (Dust) IP6X
Externally adjustable option
Wall mounted/threaded boss or industry standard flange
Suitable for ambient temperatures from -60°C to +60°C



HIH Flameproof Transmitter Enclosures

Certification	ATEX certified EX II 2 G/D iECEx & ATEX certified Ex d IIC T6 Gb Ex t IIIC T85°C Db IP66 IEC/EN 60079-0 & IEC/EN 60079-1 IEC/EN 61241-0 & IEC/EN 61241-1 Ex CU TR (GOST) & GGTN-K
Enclosure	Stainless steel enclosure
Window	Optional viewing window for transmitter LCD displays

Typical Applications

Temperature measurement and display for all applications
Accommodates all major brands of head mounted process transmitter
Hazardous Area process temperature measurement
Thermowell assemblies available
Machinery and plant construction, power engineering, heating, ventilation, and refrigeration



HFT Air Sensing Thermostat

ATEX certified ATEX II 2 G IECEX & ATEX certified Exd IIC IP66 T6 Gb for Zone 1 or 2 (Gas)
Wall mounted
Stainless steel enclosure
Suitable for ambient temperatures from -60°C to +60°C
Ingress protection IP66



Standard heater assembly



Heater assembly/wiring



Removable core assembly



Element brazing



Flange CNC machining



UK staff and factory

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