



Products • Services • Projects

## Delivering Effective HVACR Solutions to the Energy Industry Worldwide



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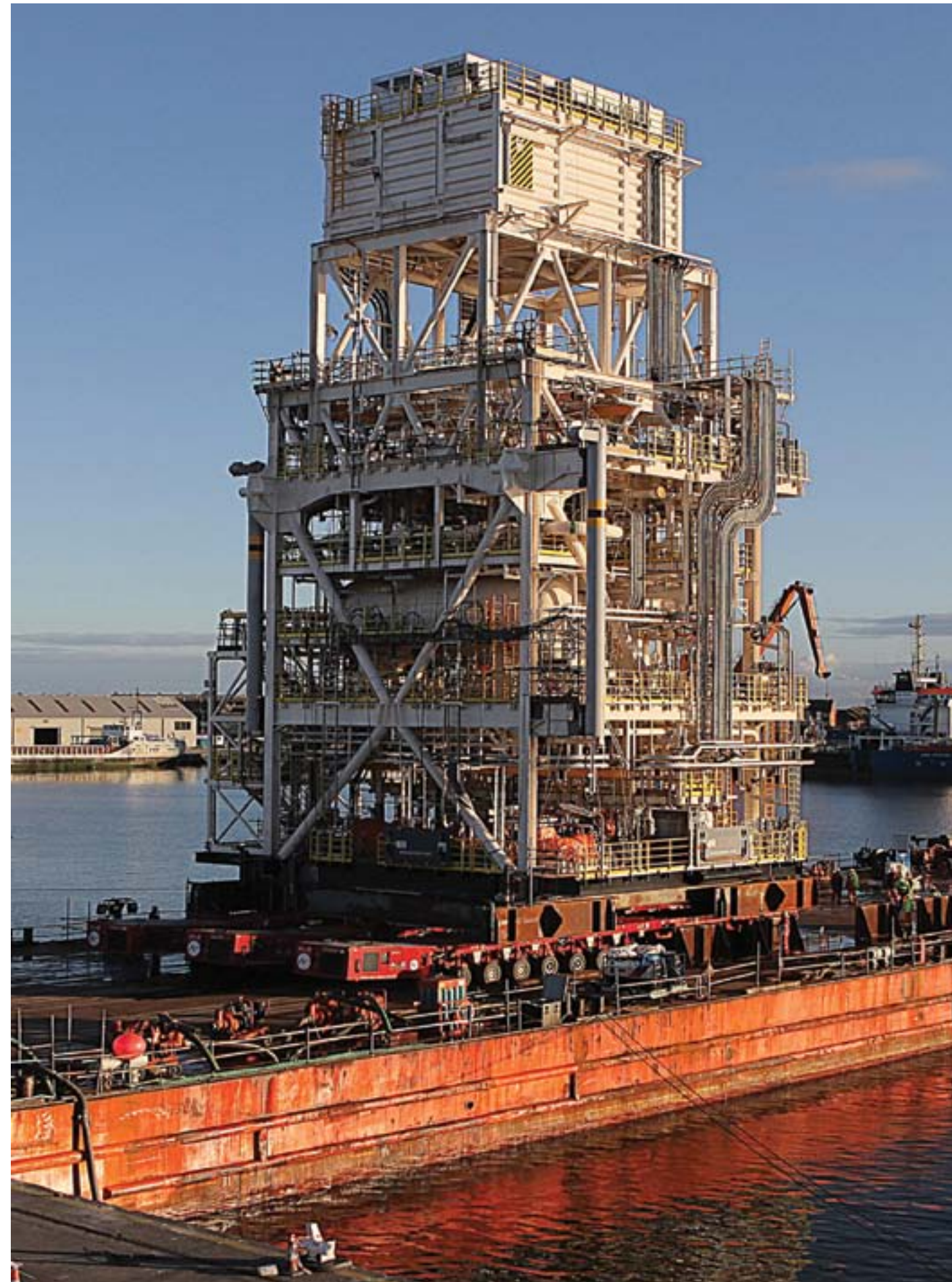
## Company Profile

HVAC & Refrigeration Engineering Ltd is an Aberdeen based specialist international provider of heating, ventilation, air conditioning and refrigeration (HVACR) solutions to the offshore oil and gas and onshore petrochemical and marine industries.

We provide high quality engineering and service support as well as the design and manufacture of equipment to meet individual client requirements.

Our team of highly skilled professionals in engineering design, manufacturing and field support services are structured into three divisions, working together to ensure that our customers receive the best possible service.

We are fully resourced in-house to provide a complete engineering, procurement, installation and commissioning (EPIC) package, managed by dedicated project managers who act as single points of contact during the entire project lifecycle.



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## Products Division

The Products Division specialise in the design and manufacture of our branded products, Climarine and Hazcool, as well as customised bespoke equipment to meet the specific application needs of our customers. Our range of Climarine and Hazcool products meet the highest QHSE standards and comply with all appropriate industry regulations. We are specialists in hazardous area equipment and provide certification to ATEX, IEC and other such standards.

- Water chiller units
- Crane cabin AC units
- Through wall AC units
- Water cooled AC units
- 2-piece split AC units
- 3-piece split AC units
- Air cooled condenser units
- Refrigerated containers
- Air handling units
- Through roof packaged AC units
- Fan coil units
- Pressurisation fan skids
- Chilled water pump skids
- Seawater cooled condensing units
- Packaged units
- Control panels



Specialist Air Handling Units in 316L Stainless Steel



Air Cooled Water Chillers



Packaged Air Conditioners



Refrigerated Containers

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## Services Division

The Services Division provides complete piece of mind when it comes to the health, safety, compliance, integrity, reliability, uptime maintainability and efficiency of HVACR facilities, equipment and operations. Our experienced teams of highly skilled and specially trained engineers and technicians are available 24/7 on a worldwide dedicated support or call off basis to execute all types of work scopes.

- **Compliance services & testing**
- **Installation**
- **Maintenance**
- **Integrity reviews**
- **System performance checks**
- **Refrigerant leak detection systems**
- **Refrigerant system conversions**
- **Commissioning and air balancing**
- **Spares supply**

## Projects Division

The Projects Division delivers HVACR engineering solutions to a diverse customer base of offshore and onshore oil & gas and petrochemical asset owners and service providers around the world. We execute all types of Greenfield and Brownfield projects from small turnkey assignments to multi-million pound upgrades and new system installations.

- **Survey & definition of workscopes**
- **Front end engineering design studies**
- **Project detailed design engineering**
- **Project procurement**
- **Turnkey packages**
- **2D & 3D draughting**
- **Full documentation & certification packs**
- **Overall project management**



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PRESS 'ESC' TO CLOSE

## Products Division

Our Products Division design and manufacture high quality air conditioning and refrigeration equipment for the Oil & Gas, Marine and Petrochemical industries.

As a market leader in our field, our products are specifically designed to withstand demanding worldwide environments, utilising the latest 3D design technology and manufactured to an ISO 9001 accredited quality management system. Our products are built using only quality, industry leading components and cased & framed in 316L stainless steel. This provides our clients with the peace of mind that when purchasing our equipment, we provide only high quality, safe and reliable products with long service life, which offer real, long term value for money through low total lifecycle costs.

**With two standard product ranges, we are able to offer equipment designed for a broad range of applications:-**

**HAZCOOL®** • The Hazcool® range is high specification, quality, ATEX compliant, reliable equipment suitable for location within explosive atmospheres.

**climarine®** • The Climarine® range is also high specification, quality and reliable equipment, suitable for location in non-hazardous areas.

Both our ranges include Water Chillers, Split or Packaged AC Systems, Refrigeration Systems, Condensing Units, Air Handling Units, Fan Skid Units and Control Panels.



**Packaged air conditioning units  
c/w DNV 2.7-1 lifting frame**

**Water cooled  
Air conditioning units**



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## Bespoke Design

Where a client's individual requirements call for equipment which falls outside of our standard ranges, our highly experienced team of engineers, designers and manufacturing specialists offer a bespoke service whereby we design and manufacture cost-effective, tailored solutions, specifically to meet even the most demanding of specifications.



## After Sales Service

To support our products we provide clients with a full after sales service, encompassing installation, commissioning, operator training, maintenance and servicing. All provided by our in-house engineering and field service technicians.



## Performance Testing

In addition to the above we also have an environmental test chamber facility, where our products are fully tested to ensure they perform to specification. This facility also provides the capability to perform full customer factory acceptance testing under a variety of test conditions.



**Air Cooled Water Chiller**



**Water Chiller**



**Rooftop Packaged Air Conditioning Unit**

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## Product Range

- Water chiller units
- Crane cabin AC units
- Through wall AC units
- Water cooled AC units
- 2-piece split AC units
- 3-piece split AC units
- Air cooled condenser units
- Refrigerated containers
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- Fan coil units
- Pressurisation fan skids
- Chilled water pump skids
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- Packaged units
- Control panels

## Product Applications

- Drilling control cabins
- Analyser houses
- LER & control cabins
- ROV power/control rooms
- VSD/VFD drive houses
- Laboratory modules
- Mud logging/MWD units
- Wireline units
- Metering stations
- Chemical/fuel stores
- Accomodation modules
- Safety shower tank chilling

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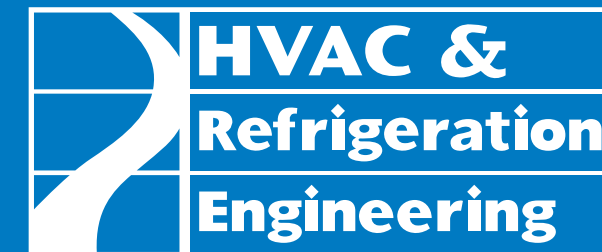
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## Services Division

Our Services Division provide ad-hoc breakdown, planned maintenance and compliance inspection services to our clients, whilst providing installation and commissioning support to our projects and products divisions.

Our compliance services are designed to provide customers with a range of support to help them meet their legal obligations and to ensure assets and equipment comply with the ever increasing demands of the various offshore and working environment legislation.

Crucially, this includes the audit and review of all statutory HVACR responsibilities, compilation of reports and the making of recommendations.

HVACR equipment installation, commissioning, maintenance and system integrity are core to our service offering and, as specialists in our field, we offer our customers the assurance of a high level of expertise. We also provide dedicated campaign maintenance and integrity management services, incorporating systems performance monitoring, ensuring equipment is operating as per design and operational requirements.

## Breakdown & Planned Repair & Maintenance

Our team of service engineers and technicians travel the globe, often at very short notice, to assist clients with equipment breakdowns and system failures. They also carry out scheduled maintenance to specialist HVACR equipment that the client's core crew may not be entirely familiar with.

The cost of preventing system failure, particularly in warm climates, is far less than the potential consequences arising from such breakdowns, in terms of lost drilling or production, and the effect of HVACR system failure on the health, safety and welfare of offshore personnel.

## Installation

Our team of installation engineers and technicians are qualified and experienced at installing all component equipment and parts that make up an HVACR system, including: ductwork, dampers, fans, air conditioning equipment, refrigeration plant, electrics and instrumentation.

We specialise in both hazardous and non hazardous areas offshore.



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## Commissioning

Commissioning and rebalancing is essential to ensure that systems are achieving their design performance. We perform commissioning and recommissioning of all air conditioning and refrigeration plant as well as air balancing of ventilation equipment.



## Compliance

With the growing volume and complexity of legislation governing offshore installations We provide our clients with the management of their compliance in terms of HVACR responsibilities for health & safety on board the installation.



## Baseline Audits & Inspection

Baseline auditing and inspection enables an accurate picture to be developed as to the condition and performance of system equipment.

This enables client to identify where remedial action is required and to produce accurate budgets for future years' expenditure based on actual, rather than perceived, equipment replacement needs.



## Duct Cleaning

Regular inspection and cleaning of ductwork is a basic requirement of health & safety, since spores and micro organisms that grow in dirty ducts can be responsible for respiratory problems suffered by offshore personnel.

Ducts which have become clogged with debris can also lead to systems underperforming.



## Spares Unlimited

We have established relationships with a wide variety of major manufacturers enabling us to source a large range of engineering equipment & spares efficiently at competitive prices.

Spares Unlimited also supports our repairs and maintenance operations by ensuring prompt intake then delivery of materials to site.



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Compliance Services	Installation, Maintenance & Integrity Services	Health, Safety & Environment Services	System Performance Services
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- COSHH, LEV testing, noise surveys
- PFEER, module leakage testing, pressure relief valve audits
- Refrigerant leak detection, fire damper audits
- Refrigerant conversion, compEx / ATEX surveys
- Refrigerant gas reclaim and disposal

- Reactive maintenance / breakdown ductwork installation
- Planned maintenance / campaign maintenance
- Fire damper installation
- Instrument pipe work installation, ventilation systems installation
- Refrigeration system installation, mechanical equipment repair and refurbishment

- Engine room environment testing
- Air quality testing & analysis
- Noise surveys
- Air balancing surveys
- Ductwork cleaning

- Engine room combustion air testing, module temperature / humidity profiling
- Evaporator / condenser coil treatment, vibration analysis
- System performance audits, system load performance testing
- System commissioning and re-commissioning.

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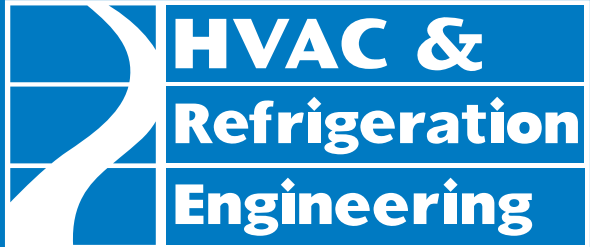
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## Projects Division

Our Projects Division is fully resourced in-house to provide a complete engineering, procurement, installation and commissioning (EPIC) package, managed by project managers who act as single points of contact (SPOC) during the entire project life cycle.

Our project managers are responsible for coordinating all inter-disciplinary activities and interfaces relating to HVAC and Refrigeration (HVACR) engineering through working closely with the customer. As a company we are highly experienced at executing both Brownfield and Greenfield projects on a world-wide basis, on a varied range of petrochemical asset types and facilities.

Our engineering processes focus on managing deadlines and deliverables from conceptual design and engineering through to manufacture, supply, installation and commissioning. Ongoing proactive interface and communication with the client ensures that we meet quality plans, key performance indicators and project milestones.

Starting at the CAD station, our project service ranges from conceptual design to the production of detailed plans, engineering drawings, calculations, construction work packs, related documentation and certification packs, whilst working to a variety of international design standards including ISO, ASHRAE, CIBSE and NORSOK.

Design and engineering is supported by our own in-house manufacturing capability, as well as our procurement expertise in sourcing and supplying 3rd party 'off-the-shelf' equipment. We also draw upon the extensive installation and commissioning expertise of our Services Division to provide a seamless integrated service to our customers.

We are competent and experienced in undertaking the project management of multi-facet projects, beyond the normal HVACR scope. This is achieved through working closely with our approved subcontractors and vendors to deliver associated works such as architectural services, structural engineering, piping, electrical, instrumentation and fire and gas engineering, and provide an integrated solution with a single point of contact.



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## Greenfield Projects

Whether we are involved at the conceptual design and engineering stage, or following the production of a mature design by the client, we have the experience to deliver the complete project on a turnkey basis.

Our project expertise covers a wide range of international client specifications delivered in most areas of the world where there are offshore petrochemical assets and onshore facilities located. Our extensive knowledge base enables clients to use our depth of experience to assist them in achieving the right solution for all of their HVACR project needs.



## Brownfield Projects

Brownfield projects, involving modification or upgrade of existing HVACR systems, can often be particularly challenging due to the need to carry these out while the asset continues to operate.

Our extensive experience in executing such projects both while the asset is still operating, or as part of a time critical shutdown, or shipyard scope of works, enables us to deliver the project seamlessly, on time and on budget.

Critical to the success of such works is the level of planning that goes into interfacing with other services on the asset and we have a well tried and tested method of achieving this via our project interface planning (PIP) system.

Utilisation of PIP alleviates the likelihood of unwelcome surprises at a critical stage of the works and ensures that these potential problems are designed out at an early stage in the project.



## Project Work Plan

To ensure we provide our clients with a safe, efficient, and cost effective HVACR solution, we apply a tried and tested work plan regime:

- Designate Project Manager.
- Agree work scope and responsibilities.
- Conduct site survey, if required.
- Verify work scope and agree engineering concept with client.
- Present basis of design, time scales, and costs.
- Client review and approval.
- Manufacture, Install and Commission.
- Review and close out meeting with client.



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Asset Expertise	Areas of Expertise	Engineering Deliverables
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- Drillships
- FPSO / FSO
- LNG vessels
- Fixed platforms
- Onshore refineries
- Accommodation barges
- Mobile offshore drilling units

- Accommodation modules
- Engineering modules
- Galley & mess areas
- Laundries
- Drilling modules – shaleshakers, mud pits, sack stores
- Switchgear & transformer rooms
- Engine rooms
- LER / control rooms
- General machinery spaces
- Temporary refuges (TR) / shelters in place (SIP)
- Analyser houses / metering stations
- VSD modules
- Power generation modules
- Hazardous areas, doghouses, drilling cabins

- Survey & definition of worksopes
- Front end engineering design studies
- Project detailed design engineering
- Project procurement
- Turnkey packages
- 2D & 3D draughting
- Full documentation & certification packs
- Overall project management
- General arrangement drawings (GAs)
- Heating & cooling load calculations
- Installation workpacks
- Electrical calculations
- Duct pressure loss calculations

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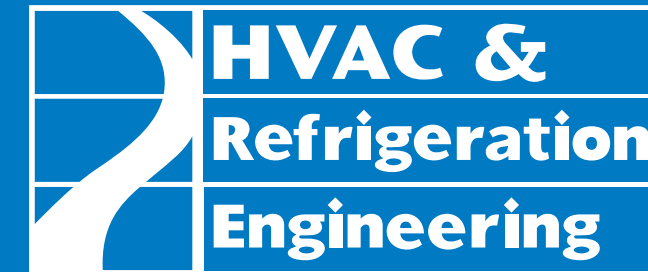
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# Providing Services Globally...



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