CALDER

Hazardous Area

Pump, Vacuum and Compressor Systems

Process

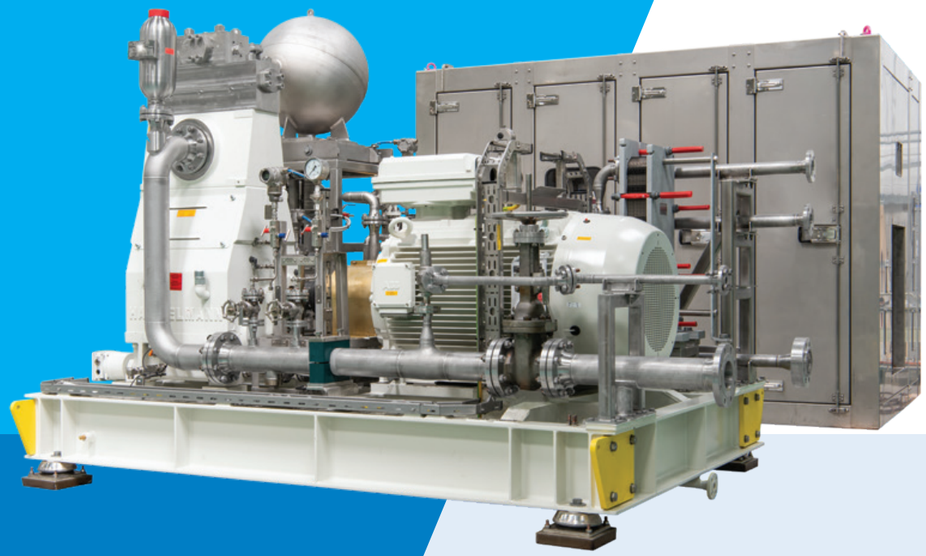
Energy Transition

Well Service

Fabric Maintenance

STANDARD UNITS | BESPOKE DESIGN | HAZARDOUS AREAS | HIGH PRESSURES | HIGH FLOWS | SPECIFICATION COMPLIANT

Process



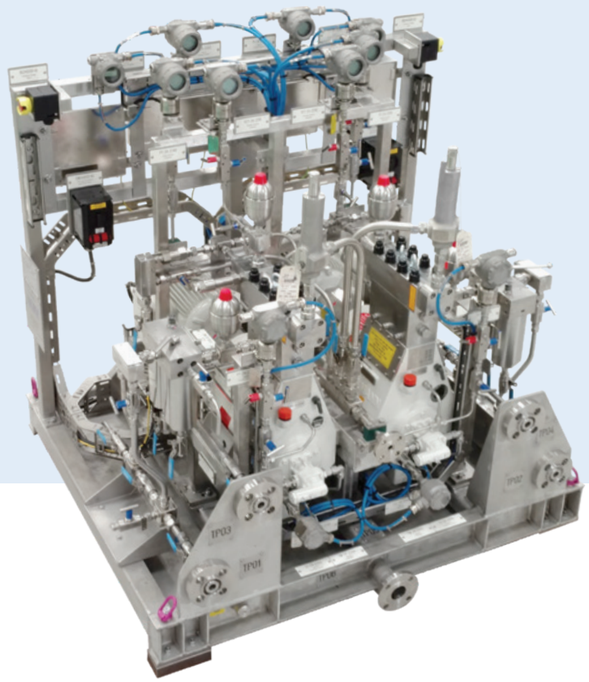
DESIGN | BUILD | TEST | COMMISSION

ATEX
NORSOK
IECEX
CSA

The range of pumped fluids is extensive, and the pressures and flows are configured to suit your exact requirements. From basic chemical injection skids to complex, bespoke packages, our pump systems meet the high standards of specification, quality and reliability required by hazardous area operators.

MEG, TEG and Methanol Injection

Methanol and glycol injection are used in process lines where there is a risk of hydrate formation at low temperatures.



Boosting, Circulation and Cooling Pumps

Applications include pressure boosting for main water lift/injection, gas cooler medium circulation, submerged pumps, heat exchanger, utility cooling, and water make-up applications.

Produced Water Injection

Designed for the injection of seawater, brine, produced water, LNG, water condensate and corrosion inhibitors. Skid mounted, crash frame mounted, or containerized and with a range of flows and pressures.

Chemical Injection

We have units operating around the world for injection applications such as oxygen scavenger, hydrate inhibitor, and gas & water condensates. Many of the chemical injection pump systems we supply feature integral storage tanks. Our speciality is CIP packages with injection pressure between 100 bar and 1,500 bar.

Subsea

The HAMPRO® 70V subsea injection pump unit brings reliability to your submerged deep-water marine pumping applications. The unit is suitable for a host of applications and is capable of pumping most fluids – even those with an extremely thick, 2000 centipoise viscosity. We have the pumping technology to place process equipment safely on the seabed.

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As innovative green technology pushes the boundaries, we are here to help with the complex task of pump selection, unit design and configuration to suit high pressure applications. Whether it is the hazardous nature of hydrogen, the particularly high flow requirements of CO_2 injection, power-from-shore modifications, or the challenges posed by P2X high pressure pumping applications, we are here for you.

Geothermal Energy Recovery

Our experience lends itself well to pumping in deep geothermal applications. Indeed, this was borne out with our first geothermal energy recovery project, a Thermal Testing and Pumping System for Geothermal Energy Recovery. This was a deep, closed loop, downhole heat exchanger system that is now in operation in the UK.

CO_2 Injection

Typical CO_2 injection pump pressures required to maintain its supercritical state are very similar to our traditional experience in produced water injection and drill cuttings re-injection. The flow rates for carbon dioxide injection can be considerably higher and our range includes numerous pumps capable of continuous duty at high flows. We are actively involved in several high profile CO_2 sequestration projects within the CCS markets.

Cooling - Power from Shore

Power-from-shore cooling medium systems. These applications generally utilise high flow technology in a closed loop system. A choice of pump head metallurgy is available to suit many cooling mediums.

Marine Propulsion

An immediately available technology in our quest for net zero is the replacement of fossil fuels with CO_2 neutral green fuels such as methanol. One area that is already benefitting from green fuel is the marine sector. New combustion engines are being equipped with this technology, existing ones are being converted. Our pumps inject methanol (MeOH, CH_3OH, CH_4O), ethanol (C_2H_6O), and ammonia (NH_3).

Hydrogen Pumping

If it is pre- or post-feed hydrogen PEM electrolyzer or hydrogen fuel cell, we can support our customers by designing skid-based pre-feed or post-PEM hydrogen delivery systems. We can design bespoke hydrogen pressure systems compliant with PED requirements for 350 bar or 700 bar to suit your applications.

Power-to-X Pump Systems

Our knowledge and experience will provide you with bespoke pump units that optimize safety, efficiency, and performance for the Power-to-X industry. Applications include electrolysis, methanation (power-to-gas), and synthetic fuel production (power-to-liquid).

Well Service

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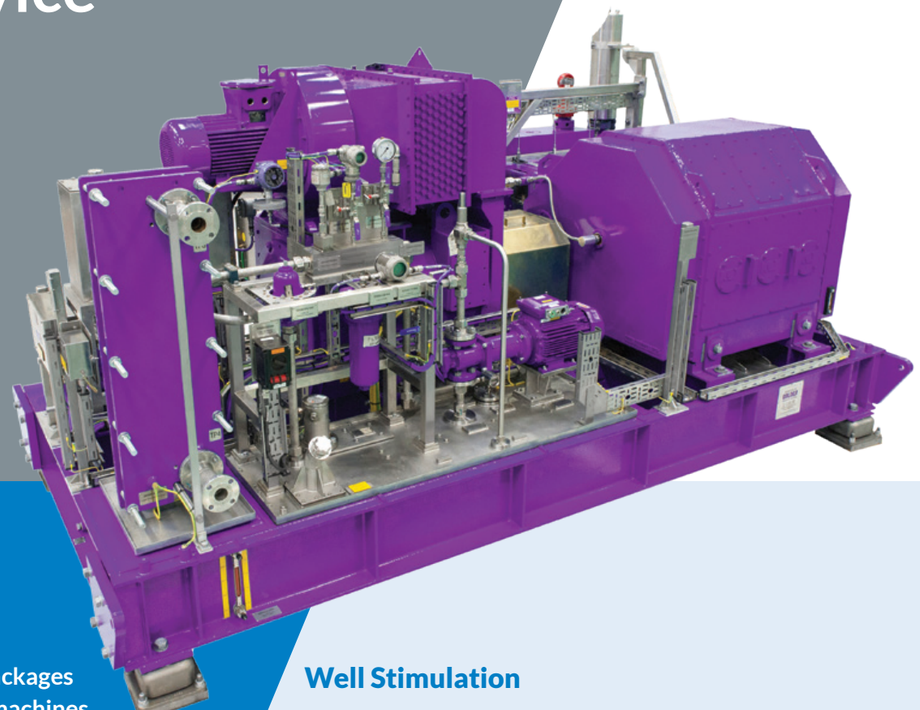


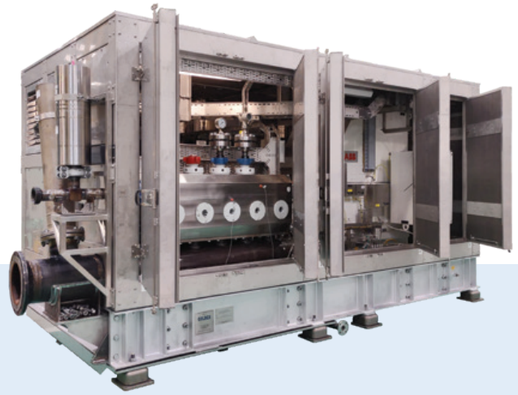
Our well service pump packages are field-proven, robust machines designed and built for the harsh environments in which they operate. Our units achieve your application-specific flow and pressure requirements and meet the hazardous area standards and specifications of the operating region including NORSOK, ATEX, and IECEx.

Well Stimulation

Many of the jobs that come under the broad well stimulation banner require the use of higher pressures with lower flows, necessitating the use of a different kind of pump. Often it is the technically advanced Hammelmann pump that is employed. These pumps lend themselves well to pipeline pressure testing as well as scale squeeze, coiled tubing, acidising, and methanol injection.

Subsea Trenching

To accommodate the need to control trench depth and width, our pump units can be supplied with variable pressures and flow rates. Units can be designed for permanent installation on a vessel, or mounted in a crash frame or container for easy transportation between projects.



Fracturing & Well Kill

As part of our range of well service pump units, we employ traditional horizontal pump designs that can withstand the rigours of formation fracturing and well kill operations. These units range from 40 kW Scale Squeeze to 1,800 kW Frac Pumps.

CRI/Drill Cutting Re-injection

Full range of pump units for well service and waste injection duties, with electric, hydraulic or diesel-engine drives; containerised or skid mounted.

Well Intervention

Post completion, there are many well service applications requiring a large range of pressures, flows and pumped medium. With maintenance and well integrity critical, our in-house design and engineering team focuses on safety and reliability to ensure our well service pumps meet the high expectations of our customers.

ATEX
NORSOK
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Managed Pressure Drilling

For the circulation of high pressure oil-based and water-based drilling muds weighted with barite slurries for MPD duty in Zone 1 hazardous areas. We can incorporate an optional boost pump when required.

Hydraulically Driven Packages

Lightweight, compact, hydraulically driven, high pressure pump packages. The package consists of a hydraulic power pack and a high pressure pump, both mounted in compact, offshore-certified containers. Where there is no suitable electric supply in the area, these units offer maximum flexibility of flow via a hydraulic swashplate.

Pressure Testing

We design and manufacture pressure testing pumps for both pipeline fill/flooding and high pressure testing. We generally select high pressure, high flow, multistage, centrifugal pumps.

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These units are for operation in offshore or explosion-proof hazardous areas for superstructure and fabric maintenance applications. Whilst our range includes standard units, we have significant experience in the design of bespoke packages. They are generally mounted in crash frames or containers. In both cases they are certified to ISO 10855-1 and are supplied with fork lift entry points and a certified, 5-leg sling set.

Water Jetting

Our range of Calder MultiJet High Pressure Water Blast units is extensive – from 20 kW to 1,100 kW and pressures up to 4,000 bar (58,000 psi). Applications include large- or small-scale coating removal, tank cleaning, NORM scale removal from tanks and pipelines, decommissioning and abrasive cutting. Whether skid mounted, containerized, diesel-powered or electric, we have the solution for you.

Lightweight Range

Our lightweight offshore pumps, vacuums, and compressors are an innovative solution for facilities which have reduced crane lift capacity or limited deck space. We design these units for hazardous area operations including ATEX, NORSOK and IECex.

A unit gross weight of less than 4,500 kg (1,500 kg with our modular options) makes the range truly lightweight.

Vacuum

Our Zone II hazardous area vacuum units are used for a multitude of applications including material/waste removal, chemical/liquid recovery from bunded areas, pigging support operations, and online/offline de-sanding. Our versatile vacuum units, both liquid ring and blower technologies, can be container or crash frame mounted.

Variable Speed Electric Waterjet

To support offshore platform electrification we have further developed our high pressure, electrically driven waterjet unit for ATEX Zoned operation. We have combined proven reliability with state-of-the-art motor drive technology to provide the latest in high pressure pumping. The unit Utilises an integrated, explosion-proof VSD to provide the ability to control the pump speed.

The Calder HotJet Units

The Calder HotJet units are ideal for high-temperature washdown in Zone I hazardous areas. There are two standard models: the inline heater unit provides rapid water heat-up times, and the immersion heater unit is designed for use where the site water supply is less than 1 bar or intermittent. Both units deliver 15 lpm at 210 bar at operating temperatures up to 70°C.

Compressors

Our new range of stackable diesel-engine-powered Zone 2 ATEX & NORSOK compliant offshore compressors incorporate many of the unique Calder design features which have established our high pressure units as the industry standard for operators and contractors who demand the highest levels of reliability. Calder MultiAir compressors are designed to be moved around the world to operate in ambient temperatures up to 45°C.

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Standard Units

With over forty years' experience in the design and manufacture of high pressure and hazardous area systems, we have developed a range of standard units. On occasion, we modify standard units to suit your applications or operating location, thus reducing the need for a fully bespoke solution.

Bespoke Design

Where a standard unit design is not suitable, our engineering team works closely with clients to create custom units that integrate seamlessly into their operations. Utilizing advanced technology and extensive industry expertise, we ensure that each system is optimized for performance, efficiency, and reliability, even in the most challenging environments.

Hazardous Areas

Our expertise extends to designing equipment for hazardous areas, ensuring safety and compliance without compromising on performance. We understand the critical demands of operating in such environments and provide robust, certified solutions that meet stringent regulatory standards, safeguarding both personnel and operations. Our designs incorporate advanced safety features and materials, ensuring reliable operation even under the most dangerous conditions.

High Pressures

We deliver high pressure solutions capable of producing pressures up to 4,000 bar. Our systems are designed to handle the most demanding applications, ensuring consistent, reliable performance. We offer a wide range of pump selections, meticulously chosen to match your specific requirements.

High Flows

Our experience in high flow applications ranges from power-from-shore cooling medium pump systems to emergency cooling pumps for nuclear installations. We have the capability to offer pump systems with flow rates of up to 5,734 litres per minute.

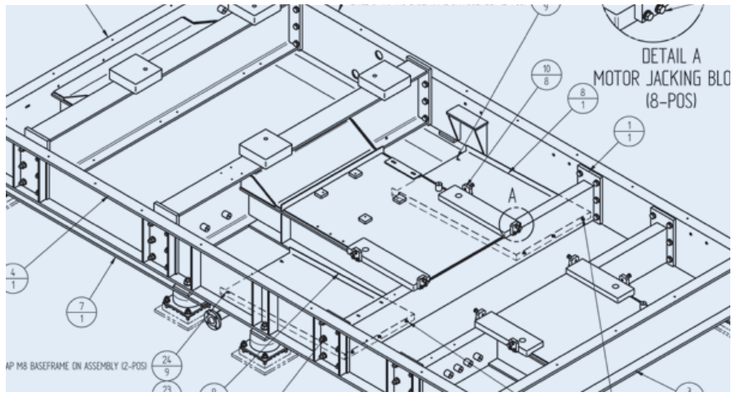
Specification Compliant

Many projects demand our packaged systems comply with detailed engineering standards, legislative requirements, and metallurgy, piping, and electrical specifications. We deliver compliant and certified solutions with minimal deviations in a cost-effective way.

Modular and Compact - options

On existing offshore platforms, space and access are often an issue. Thus, where a pump package is an addition to existing equipment, the unit footprint is crucial. Even where the pump package is to replace an existing unit, getting the pump package to the location is generally challenging.

Designing a pump package for these situations is something we relish. However, despite efforts to reduce the size of the pump skid, there are instances where a modular skid remains the only viable option for on-site positioning of the equipment. In fact, we have seen a significant increase in requests for modular pump designs over the last 10 years.



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We are **Calder**

A team of skilled, dedicated people striving to build the best at our base in Worcester, UK. From design to build, from installation to commissioning, we are there with you from start to finish.

We **Design**

In addition to our standard units, we have in-house design teams producing bespoke fluid-handling products from scratch.

We **Build**

Our pump units are built by our own engineers at our factory in Worcester, UK - and they have been for over 40 years.

We **Test**

We have two substantial, fully equipped test bays which allows us to ensure all units receive comprehensive testing before despatch. Customer witness testing of unit performance, vibration and noise is available due to our state-of-the-art facilities.

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