

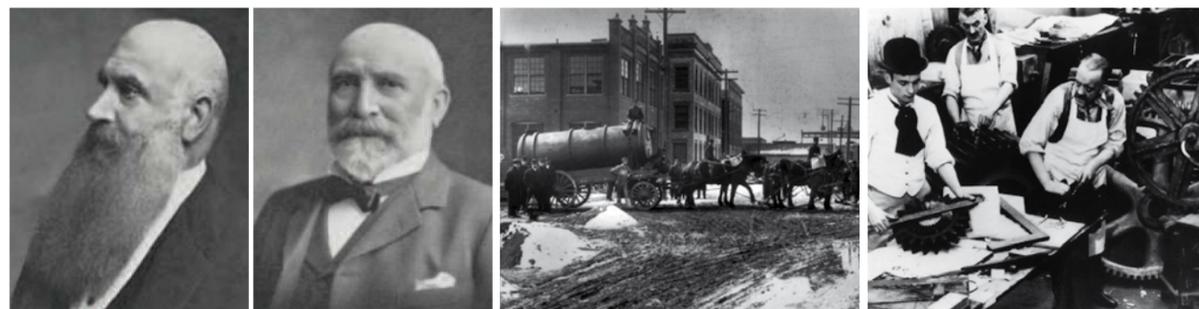
Innovation, Design, Manufacture & Aftermarket Services:
Pumping solutions for a better world

downstream oil & gas



Generations of experience

While the name is comparatively recent CLYDEUNION Pumps is one of the most experienced specialised engineering companies in the world. Formed through the acquisition and integration of a series of highly respected pump manufacturers and designers on both sides of the Atlantic, CLYDEUNION Pumps incorporates an accumulation of over 300 years of engineering expertise.



George Weir: The eldest of the brothers, George trained as a ships engineer.

James Weir: The second eldest, James began work at 15 in a consulting engineers in Glasgow. He was the inventor of the celebrated direct-acting feed pump.

The Early Days: Moving a boiler at Union Pump and David Brown employees producing gears in the early 1890's.

The history of CLYDEUNION Pumps begins with the formation, in 1871, of the engineering firm of G&J Weir. Founded by brothers George and James Weir in Glasgow, the company quickly prospered as a result of the improvements they introduced to pump machinery and valve technologies. Their work found applications across the world, from marine engines and power stations to desalination plants.

By the end of the twentieth century G&J Weir had acquired Drysdale Pumps, Harland, Mather and Platt, and WH Allen. They had also, under

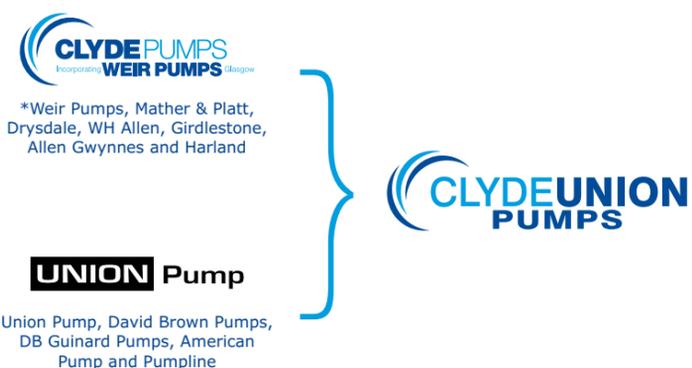
the name *Weir Pumps, grown into one of the most respected and iconic engineering enterprises in Scotland.

Meanwhile just 14 years after the establishment of G&J Weir, the Union Manufacturing Pump Company was incorporated in 1885 in Michigan USA. Specialising in the design and manufacturing of steam pumps they grew prosperous, adopted the name Union Pump and established a Canadian sister company.

In 2006, two other highly respected specialist companies, David Brown Pumps of England and DB Guinard

Pumps of France, were brought under the Union Pump umbrella.

A new chapter in the development of both companies began in 2007, when *Weir Pumps was bought by Clyde Blowers, a company owned and run by Jim McColl (who had started his working life as an apprentice with Weir Pumps). At this time the name changed to Clyde Pumps. In 2008, Clyde Blowers bought Union Pump and amalgamated the two specialist engineering companies into CLYDEUNION Pumps.



**This is a heritage product acquired when the Weir Pumps business transferred to Clyde Pumps in May 2007.*



Today, CLYDEUNION Pumps is recognised as a world-leading centre of excellence in pump technology and bespoke pumping solutions. We are active across many market sectors, with our main operations relating to highly critical areas throughout oil extraction and processing, nuclear power, conventional power, water treatment, desalination, minerals and mining and industrial applications.

Downstream Oil & Gas - driven by customer service

Downstream oil & gas is a term commonly used when referring to the refining of crude oil and selling and distribution of natural gas and products derived from crude oil. Such products include liquefied petroleum gas, gasoline, jet fuel, diesel oil, other fuel oils, asphalt and petroleum. The downstream sector includes oil refineries, petrochemical plants, petroleum product distribution, retail outlets and natural gas distribution companies.

CLYDEUNION Pumps has within its product range all the Downstream Oil products of Union Pump and Clyde Pumps providing us with not only an extensive product portfolio, but also a history of experience and knowledge of the industry. CLYDEUNION Pumps provide products to the downstream industry for handling the pressures and demands of modern downstream oil processing.

Maximum reliability and functionality are provided by CLYDEUNION Pumps product range which has multiple applications such as: Crude Charge, Furnace Charge, Delayed Coker, Catalytic Cracking, Alkylation, Hydro De-sulphurisation, Internal Reflux, Topped Crude, Flash Drum, Atmospheric Tower Reflux, General Hydrocarbon and Water Based Services.

CLYDEUNION Pumps place great emphasis on product design and development, and we are constantly revising, developing, improving and

re-branding our products in response to changing market conditions and industry specifications.

CLYDEUNION Pumps is a leading manufacturer of centrifugal, power and steam driven reciprocating pumps for both onshore and offshore applications in the Hydrocarbon Processing market. Our pumps are designed to API 610 and 674 standards and are utilised in refineries, gas plants, offshore oil platforms and pipelines around the world. Custom pump and hydraulic designs are also available to improve reliability by replacing existing units. A wide choice of materials is available for all product lines.

CLYDEUNION Pumps is proud of its varied heritage and the engineering expertise that has been brought together under one global brand. This new brand has for many years provided innovative engineered solutions in the Hydrocarbon Processing market.

world class engineering



refinery

Today's complex refinery processes demand specialised pumping solutions. Extremes of temperature, high-pressure and the ability to handle volatile fluids, calls for highly engineered pumps that can perform reliably in such arduous conditions. CLYDEUNION Pumps has many years of worldwide experience in supplying process pumps to the refinery industry and is committed in providing its customers with solutions to the most complex of pumping requirements.

The broad range of refinery applications demand the widest spectrum of pump types of any industry. Due to the careful amalgamation of our heritage companies forming CLYDEUNION Pumps, we have a pump product to meet every refinery process.

The single stage overhung pump is the workhorse of any refinery and the CLYDEUNION Pumps CUP-OH2 is designed with versatility in mind. Its rigid construction makes it suitable for a variety of process applications as well as the transfer of specialised fluids such as hot oil at 426°C and hydrofluoric acid.

Higher flows and pressures are accommodated by the CLYDEUNION Pumps CUP-BB2 between bearing pump range, equally robust and once again designed to meet the exact requirements of modern refineries.

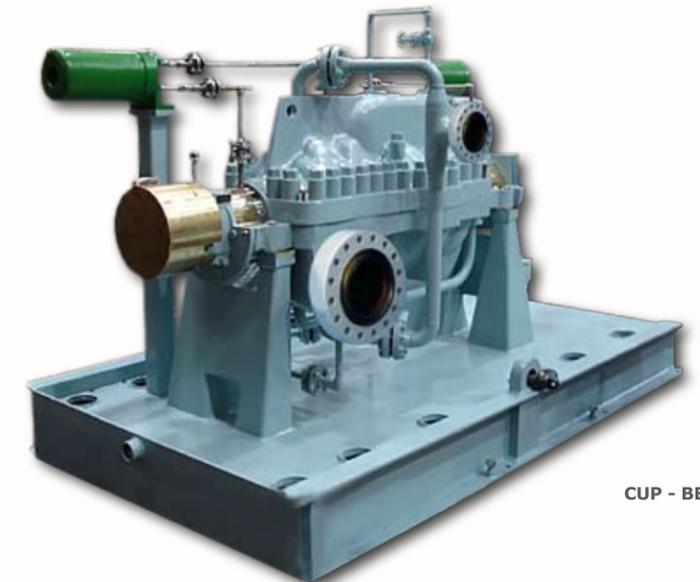
For applications requiring very high pressures such as boiler feed the flagship multistage CUP-BB3 and CUP-BB5 pumps are supplied delivering class leading performance and reliability. Vertical pump ranges such as the CUP-VS6, specifically designed for low NPSH conditions, and the CUP-VS4 for draining sumps reinforce our status as a full package supplier.

In addition to the broad spectrum of centrifugal pumps, CLYDEUNION Pumps are one of the market leaders in API 674 reciprocating pumps. These machines are used within the refining industry for high pressure applications and have a proud heritage stretching back for more than a century. A by-product of the refining process is a copious quantity of steam and the CLYDEUNION Pumps reciprocating

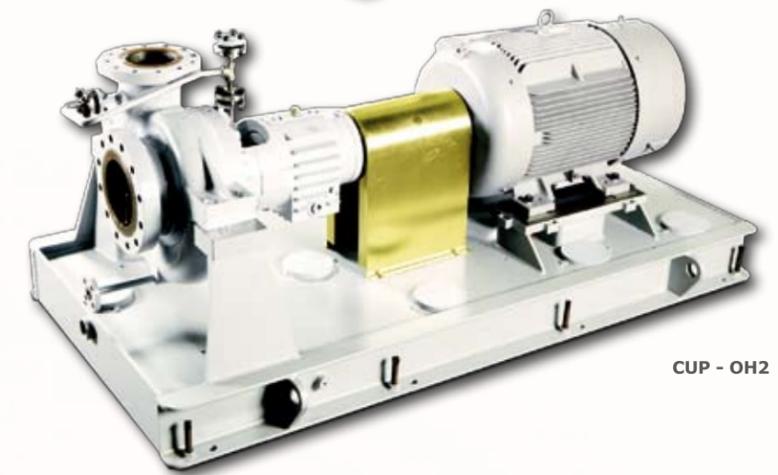
pump has been developed to use this steam as a driving element converting a waste by-product into a useful energy source.

A recent intensive product review and product enhancement process has ensured that, not only do CLYDEUNION Pumps have machines suitable for all refinery processes, but that our products also incorporate the latest advancements in materials, bearing and sealing technology.

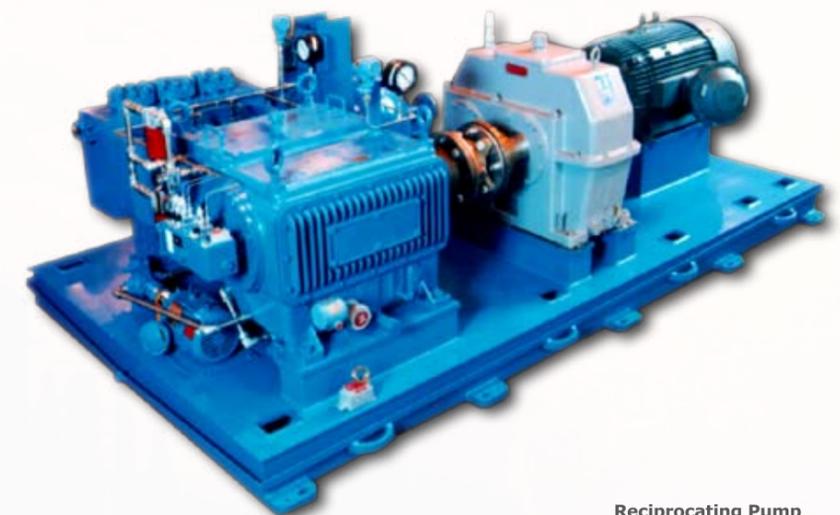
CLYDEUNION Pumps has been extremely successful with its patented 'saphite' coating system in minimising pump erosion on the problematical Catalytic Cracker, considerably extending the period between overhaul.



CUP - BB3



CUP - OH2



Reciprocating Pump

petro-chemicals

CLYDEUNION Pumps has worldwide experience of engineered pumping systems for petrochemical applications. The process and transferring of petrochemicals demands a high level of pumping reliability. CLYDEUNION Pumps has a reputation for supplying reliable pumps which are found working throughout the world in the most aggressive applications.

Reliability, simplicity, safety, and emission control are synonymous with the petrochemical industry and CLYDEUNION Pumps has ensured its products are suitable for these key requirements.

Reliability has always been a benchmark for CLYDEUNION Pumps products and notable features have recently been introduced to enhance reliability well above market levels. One specific example is improved bearing arrangements extending bearing operating life beyond

specification requirements and customer expectations. CLYDEUNION Pumps is proving that 'attention to detail' in design and manufacture can extend mean time between failure (MTBF) above what has been recognised as acceptable in the past.

CLYDEUNION Pumps recognises current environmental regulations limiting toxic emissions and has reacted positively by introducing the patented CP system. This system is capable of providing product pump sealing with 'zero'

emissions to the atmosphere. The CP system also contributes to health and safety reducing the risk of contact with hazardous liquids.

The CLYDEUNION Pumps CUP-VS4 is a prime example of our drive towards simplicity. It neatly mounts within and is supported by the suction and discharge pipework, obviating the need for pump foundations thus reducing installation costs and also minimising the footprint size required for the pump.



storage & distribution

The ability to reliably distribute refined product in the most energy efficient way is at the heart of requirements for this Downstream sector. From tanker loading to pipeline networks covering many kilometres, CLYDEUNION Pumps has offered products which have been for many years a major focus of our activities.

For many years CLYDEUNION Pumps multistage CUP-BB3 pump range has been the product of choice for clean product pipelines due to its ability in generating the high pressures required to deliver product down lengthy distribution systems. The CUP-BB3 is also extremely reliable which is a major advantage in this sector where the majority of pumps are operated remotely. Every feature of the CUP-BB3 has been evaluated to improve reliability and

it's not uncommon for a CUP-BB3 to operate continuously for periods in excess of ten years without failure. With an ever increasing drive to reduce the energy cost associated with distribution maximising pump efficiency has been a focus of our attention for many years. Computer modelling, improved casting processes and the introduction of composite bearing materials have all contributed to the CUP-BB3 being one of the most efficient pumps in this industry.

The CLYDEUNION Pumps vertical range has proved to be the right choice for high flow loading applications where NPSHA is limited. Also with the incorporation of high pressure volute construction the pump length can be dramatically reduced, limiting installation costs.



CUP - BB3



CUP - VS6

gas processing & treatment

CLYDEUNION Pumps has always been a leader in the supply of engineered pump solutions for both onshore and offshore gas processing and separation. Our product range covers simple Glycol Dehydration reciprocating pumps through to high powered CUP-BB3 and CUP-BB5 pumps used on Gas Scrubbing Services.

CLYDEUNION Pumps is at the forefront of product development for cryogenic applications. Our CUP-OH5 and CUP-VS6 ranges have the capability of operating down to minus 180°C with 'zero' emission to the atmosphere using our patented CP systems. Over 1,000 units are installed world-wide with safety and reliability being key factors when customers select our products for these highly demanding services.

The removal of CO₂ (carbon dioxide) and H₂S (hydrogen sulphide), commonly referred to as Amine gas sweetening, is a further area where CLYDEUNION Pumps

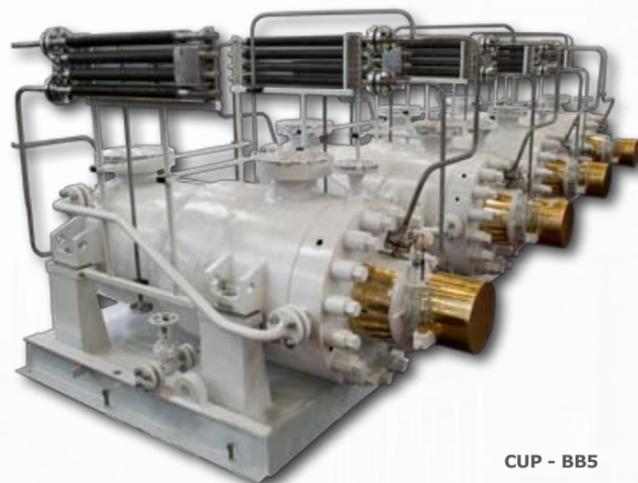
have 50 years of operational experience. The smaller process plants are equipped with our high pressure reciprocating pump range whilst our multistage CUP-BB3 and CUP-BB5 ranges are installed in major gas plants in the Middle East, Russia, China, South America and a number of floating production units. These pumps can be custom engineered with impellers designed for optimum NPSH performance, high integrity bearing arrangements and condition monitoring instrumentation.



CUP - VS6



CUP - OH2



CUP - BB5



Lifetime worldwide support



Parts: Any brand, any material, anytime. CLYDEUNION Pumps supplies parts for all of the heritage brands as well as upgrades and improvements.



Installation and commissioning: Trouble free commissioning anywhere in the world.

Every product CLYDEUNION Pumps supply is supported by a full lifetime commitment. CLYDEUNION Pumps provides a full aftermarket service, drawing on either its own engineers or fully trained and highly experienced service partners, depending on the location of the installation. CLYDEUNION Pumps has service facilities in over 40 countries spread throughout Europe, America, Asia, the Middle East and Africa.

CLYDEUNION Pumps after sales support extends across all of its legacy brands as well as new equipment, and provides full backup for obsolete products and for third party equipment. The parts CLYDEUNION Pumps supply meet the original specification, or are upgraded where appropriate, and many components can be covered by a Rapid Response option which can have parts on site within 24 hours.

CLYDEUNION Pumps after sales support is subject to the same supply chain management as the pump manufacturing. This provides customers with the lowest lead times and costs whilst meeting the highest standards of quality assurance.

In addition to spare parts, routine servicing, overhauls and inventory control, the aftermarket support covers upgrades and comprehensive technical advice about the potential

refitting of existing installations for greater efficiency and reliability. CLYDEUNION Pumps can work with your own engineers to carry out meticulous inspections and advise on maintenance schedules, carry out full vibration analysis, pressure and pulsation testing, and train your service personnel.

CLYDEUNION Pumps history and breadth of experience, as well as its geographical coverage and expertise, make it the natural first choice for any pump related problem or enquiry, no matter what the location, the scale of the task or the original manufacturer.

We Guarantee Supply Of Parts For All Heritage Brands & Or Obsolete Products, Including:

- *Weir Pumps
- Clyde Pumps
- Union Pump
- Girdlestone
- Mather & Platt
- Harland
- Drysdale
- WH Allen
- Allen Gwynnes
- David Brown Pumps
- DB Guinard Pumps
- American Pump
- Pumpline



*This is a heritage product acquired when the Weir Pumps business transferred to Clyde Pumps in May 2007

*downstream
oil & gas*

**CLYDEUNION
PUMPS**



Map Key

- Sales
- Service Facility / Authorised Service Provider
- Manufacturing
- + Service Facility in development

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OUR EXTENSIVE BRAND HERITAGE :

*Weir Pumps, Mather & Platt, Drysdale, WH Allen, Girdlestone, Allen Gwynnes, Harland



Union Pump, David Brown Pumps, DB Guinard Pumps, American Pump, Pumpline



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We are constantly endeavouring to improve the performance of our equipment and as a result, we reserve the right to make alterations from time to time, and equipment may differ from that detailed in this brochure.