

A single UK source for worldwide hydraulic knowledge, manufacture, supply and technical support



The DCA sales structure

DCA acts as a central source for sales and technical assistance, supplying dependable and cost effective hydraulic components, systems and electronic solutions through our partner companies.

Our structure is both unique and effective. It provides a nationally based sales team, an extensive and cost effective equipment portfolio, an accessible engineering resource, hydraulic design capability and technical support. It's the proven combination and provides our customers with the total service they require.

DCA www.dca-ltd.com

Hydrastore www.hydrastore.co.uk

Related Fluid Power www.relatedfluidpower.com

Valley Hydraulics www.valleyhydraulics.co.uk

Hydrastore

Stockists & partners: hydraulic pumps, valves, motors, actuators, electronics and radio control solutions

DCA

Fluid Power Partnership

Related Fluid Power

Manufacturers of integrated hydraulic manifolds, specialist cartridge valves and mini power units

Valley Hydraulics

Manufacturers of standard and specialist bespoke hydraulic cylinders

We design and manufacture complete systems for all applications and sectors.

Established over 50 years ago, DCA has a depth of hydraulic application experience rivalled by few. To provide the ideal solution, understanding the application and its function is critical. At DCA we pride ourselves in our application knowledge and the associated hydraulic solutions we deliver through our fluid power partnership.



Logistics



Marine



Waste and recycling



Aviation



Offshore oil and gas



Mechanical handling



Automotive



Scientific/research/testing



Plastics machinery



Food machinery/production



Transport



Agriculture & environment



Process machinery



Machine tools



Printing



Metal processing/supply



Energy and utilities



Industrial



We provide any number of components from our vast stocks of premium brand products

Our product portfolio consists of components designed and manufactured by our expert engineers on state of the art design packages, simulation systems and machining centres as well as premium brand components whose products we trade exclusively within the UK. Manufacturing products, holding considerable stocks and trading at tier 1 level provides our customers with quick deliveries, favourable terms and appealing prices.



Pumps



Industrial valves



Manifold systems







Brakes



Cartridge valves



Radio controls



Flow dividers

Mobile valves





Welded construction cylinder



Industrial tie rod cylinders







Hydraulic power units



Mini AC & DC **Power Units**



Heat exchangers and hydraulic coolers



Electronics



Line mounted valves



We design and supply a huge range of power unit sizes and solutions

With well over 1500 power units of various designs being delivered to customers each month, the Fluid Power Partnerhip has established itself as one of the largest power unit solution providers within the UK.



Micro and Mini AC and DC power units. 0.3kW up to 7.5kW



Specialised power units 2.2kW up to 500kW

Standard power units 0.5kW up to 37.0kW



Designers and Manufacturers of: Hydraulic manifold systems, hydraulic power units and hydraulic cartridge valves

Operating from our facility in Scotland, Related Fluid Power design and manufacture hydraulic control valves, custom manifold controls and hydraulic AC and DC power units. Customer focus, innovative design, exceptional application knowledge and engineering experience are just some of the attributes which enable us to provide hydraulic solutions to original equipment manufacturers in both the Industrial and mobile sectors.



Related Fluid Power Ltd is accredited to ISO 9001:2015 and has adopted many procedures recognised under the QS 9000 standard.

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Manifold assemblies

Related Fluid Power is a market leader in the innovative design and manufacture of hydraulic manifold systems. Specialist application knowledge along with expertise gathered from the development of our large portfolio of cartridge and sub-plated mounted valves, allows us to offer OEM customers control solutions that meet all expectations in terms of performance, quality and cost.





Mini power units

Designed to function in wide and varied applications Related Fluid Power standard and custom hydraulic power packs are up to the task. From simple motor pump units to multi-functional power unit assemblies, we provide solutions that often extend beyond expectation. Continued investment in design and manufacturing, together with wide application and engineering experience, has not only led to the development of our latest range of standard hydraulic power packs but has also provided our OEM customers with custom power units that specifically meet requirements in terms of power, control, size and flexibility.





Hydraulic cartridge, sub-plate mounted and line mounted valves

In addition to use in manifold assemblies we offer a wide range of "screw in" cartridge valves and sub-plate mounted valves, all of which are available as individual items or as standard line mounted valves. A wide range of valve options are available covering flows up to 600 lpm and pressures up to 420 bar.

The options include:

- Directional
- Flow
- Pressure
- Electro hydraulic
- Mechanical
- Proportional
- Custom / OEM /
- application specific







Flow dividers

Related Fluid Power rotary geared flow dividers have been designed to accurately divide and combine flows from a single hydraulic source into two or more separate outputs. Compared to spool type flow dividers, which rely on high pressure drop to achieve their function, rotary geared flow dividers are a highly efficient solution. Flows can be divided equally or into a series of percentage splits and in specialised applications they can also be used as pressure intensifiers.



High pressure ball valves

Related supply both standard and specialised high pressure ball valves for hydraulic and other industries. Multiple options are available and include 2/3/4/multi-way, various port types, actuation methods and a variety of body and seal material options.





Design

Our design and engineering department, supported with CAD, 3D solid modelling and simulation software, works closely with all our customers to ensure that the end design meets expectations. This is supported by a technical sales team with a depth of application expertise.

Manufacture

Working 24/7, our large CNC based machine shop with multi-pallet machining centres offer the flexibility of both large and small batch production.















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Washing

The Mecwash Midi 400 system ensures that manifolds and component parts are produced to the high cleanliness levels required in today's hydraulic systems, ensuring that Related Fluid Power continues to meet and surpass the stringent cleanliness and 'wash down' standards set by many global OEMs.



Assembly and testing

This is complemented by a modern, cell based assembly area where our product lines are assembled and tested in a clean environment to strict production and quality controls.













Stockists and partners: Hydraulic pumps, valves, motors, actuators, electronics, and radio control solutions

Martin S

Hydrastore



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Stock

Extensive stock Available for next day delivery

Quality

Operates a management system accredited with ISO 9001:2015

Brands

Premium brand partnerships Tier 1 supply

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Hydrastore

Specialists

Highly qualified knowledgable team provide extensive free consultancy

Support

Strategically located depots. National sales network

Range

Hydrastore

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From complex hydraulic, electrical and radio control systems to single component supply.



Hydrastore power units

When it comes to hydraulic power units we have a depth of experience and consider ourselves experts in the design, build, installation and commissioning of such equipment. Some industries have particularly demanding requirements and we make it our goal to deliver solutions that not only meet but more often than not go beyond expectations.



Energy recycling system HPU

Consists of variable flow proportional Kawasaki piston pumps, Atos proportional valves, TTP heat exchangers, specialised sensors and field bus control interfaces.





Industrial application HPU



2.2 kW & 3.0 kW agricultural applications HPU



Stainless steel operating consoles for offshore applications





Marine, zone rated power unit suitable for containerisation

Offshore power unit



Hydrastore components

Our mainline portfolio consists of premium brand components which we trade exclusively within the UK.

Hydraulic mainline



Atos is a market leader in the supply of electro hydraulics, the advanced technology that combines oil hydraulics with electronics to improve the performance of modern machinery. Hydrastore is Atos's exclusive partner in the UK and carries extensive stocks. To ensure the successful application of this advanced product range, we also offer a full support team of highly qualified technical and sales staff.

Products include:

- Vane and piston pumps
- Hydraulic cylinders
- Directional control valves
- Conventional and modular valves
- Cartridge valves
- Proportional valves
- Electronic controls







Hydrocontrol boasts one of the most complete mobile control valve ranges of any manufacturer in the world and has a reputation for high quality, innovative and cost effective products.

Products include:

- Sectional valves
- Standard
- Load sensing
- Flow sharing
- Monoblock valves
- Remote controls
- Selector valves



Thermal Transfer Products

An API Heat Transfer Company

TTP are a division of API Heat Transfer who merged with Thermasys Corporation to become one of the world's largest manufacturers of heat exchangers. For Hydrastore and our customers this exclusive UK partnership provides access to a range of reliable, innovative, highly efficient and cost effective heat transfer solutions.

Products include:

Air cooled, hydraulic and electric motor driven fan systems

- Combination coolers for engines, hydraulic systems, water and air water cooled

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A4 Anfield Sensors Inc. is a leading manufacturer of hydraulic and pneumatic sensors, specializing in pressure, vacuum, differential and temperature switches/transducers. The full product range allows us to serve various markets including: industrial, mobile, food service, medical and military industries.



Ronzio Oleodinamica manufactures gear pumps, motors and flow dividers in both aluminium and cast iron construction for a wide range of industries including: construction, forestry, agricultural, commercial vehicles, earth moving and machine tools. Hydrastore having varied stock options are able to supply single or multiple pumps to meet a wide range of applications in today's market.





HANSA-TMP manufactured products provide the perfect solution for high power closed circuit transmission systems where space is of a premium.

Pumps:

- Displacements from 7.4 to 64 cc/rev.Pressures up to 400 bar.Single and
- through drive options. • Wide and versatile range of control functions.
- Motors:
- Torques from 110Nm to 350Nm.
- Displacements from 20 to 64 cc/rev
- Speed's from 700 to 4000 rpm.
- Fixed and variable displacements.





Electronic & radio control mainline



Operator safety being of paramount importance and machine efficiency ranking high on the priority list radio remote control has become a standard feature on many mobile and industrial applications. Hetronic supplies a range of standard off the shelf radio remote control systems and where the application demands something special, they have the resources and skill set to assist with something more specific. Our Hetronic range of radio remote control systems





The significance of electronics in optimising hydraulic solutions plays an ever increasing role. The exclusive UK partnership Hydrastore formed with Finish control development company Exertus provides our customers with the ideal solutions. Supported by our team of in-house control specialists these products are being demanded more and more by our innovative customers.

Controllers

Rugged in design. Intuitive and versatile programming. Inputs for analogue, digital, diagnostic and pulse signals. Digital, PWM or current-controlled outputs. Supporting CAN open protocol. Options with built in inclinometer and or Gyro system. **Displays** Rugged in design. Crisp in view. Intuitive, versatile programming. Options with programmable I/O.





Hydrastore system partners

We also represent world renowned manufacturers as system partners. Holding considerable stocks and trading at tier 1 level provides our customers with quick deliveries, favourable terms and preferential pricing.



As one of the largest companies in the mobile hydraulics industry, Danfoss designs, manufactures and sells a complete range of engineered hydraulic and electronic components including:

- Hydrostatic transmissions
- Orbital motors
- PVG spool valves
- Steering components
- Mobile electronics

Hydrastore being an official partner now benefits from tier 1 pricing levels and the exceptional worldwide support provided by Danfoss.





As part of our continued growth we have formed a partnership to supply Gates hydraulic hose assemblies from our new dedicated facility in Birmingham. Renowned as a market leading product Gates provides the quality and peace of mind expected by UK manufacturers. Each assembly manufactured by us on state-ofthe-art production machinery comes labelled and complete with full traceability as standard.

Powering your potential

Hydrastore is Kawasaki UK's official system partner and benefit from tier 1 pricing and direct access to the Plymouth factory. Kawasaki manufactures a wide range of piston pumps and motors, for both open and closed circuit applications. Around the world, in virtually every area of construction, marine and manufacturing industry, Kawasaki pumps and motors provide cost effective and reliable solutions.

Pumps

- Displacements- 28 up to 270 cc/rev
- Pressures up to 400 bar
- Wide and versatile range of control functions

Motors

- Torques from 541Nm to 25,000Nm
- Displacements from 85 to 6,800 cc/ rev
- Speeds from 1 to 6150 rpm
- Both radial and axial piston designs
- Fixed and variable displacements





Operating globally for over fifty years, White develops innovative, durable, high performing, and efficient hydraulic motors and associated products across many market sectors and in the most challenging applications across the globe.









Systems

We design and manufacture complete systems for a huge range of applications in many different industry sectors.

Electrical combination



Hydraulic and electrical combination





Hydraulic ancillary

This range of products complements our mainline portfolio



Hydrastore's range of high quality and durable line mounted valves offer an available and cost effective solution for systems from 10 to 300 litres per minute and up to 400 bar. Check valves, shuttle valves, flow controls, P.O. checks, relief valves, cross line relief valves, over centre valves and more.





Exclusive UK partner, engineering and delivering a solution within competitive timeframes.

Wide range of double-acting and spring return/failsafe actuators. Pressure rating up to 350 bar torque up to 350,000Nm. Wide capabilities and applications.

ATEX, DIN and SIL certification and standards.





As one of Europe's leading manufacturers of industrial lubricants Morris have been delivering lubricant innovation for over 140 years. They select the highest quality base oils and additive systems available today and are accredited to BS EN ISO 9001, BN EN ISO 14001 and BS EN 18001. At Hydrastore we will support you with your fluid selection, oil care practises and meeting your system cleanliness targets.





With variations in displacement from 6 to 70 cc/rev, a wide range of control options, in-line or tank mounted and constructed from durable materials and housed in cast iron bodies, the hand pumps stocked by Hydrastore provide a reliable and cost effective solution.



MiniBOOSTER are able to provide solutions for most applications requiring pressure intensification. The product range includes solutions for pressure up to 5,000 bar, flow up to 400 l/min and almost every fluid media.





Manufacturers of air driven pumps, hydraulic power units, pressure boosters and intensifiers offering pressures up to 840 bar (12,000psi). Suppliers of a full range of accessory products including zero leak directional control valves, pressure reducers, reservoirs, pulsation dampeners, fluid and air filters.





Hydraulic systems & electrical control

Our experience in hydraulic and electrical component and power unit applications is complemented by the skill set of our technical department, design team and sales engineers. Working closely with our customers and applying our experience in conjunction with the latest platforms in CAD, 3D modelling and hydraulic and electrical simulation software we are skilled in taking a concept and delivering efficient, safe and cost-effective hydraulic and electrical control solutions.





HPUs

We design systems from power outputs as low as 0.5 up to 750 kW for a vast array of application, from offshore oil and gas, agriculture, renewables, recycling, construction, industrial and many more.





Electrical capabilities

When providing turnkey solutions, no longer do our customers consider the hydraulics and electronic control to be separate entities and at Hydrastore we are able to provide both. This can range from a simple on/off starter to a full control panel with system monitoring. As part of our controls packages we offer a range of ruggedised controllers, HMI screen displays and radio remote controls. We have in house capability to produce control panels and develop control software and have experience of conventional switch gear, on/ off control, analogue, digital, along with proportional and servo equipment.







Radio control

Hetronic produce a range of radio control systems that comply with international safety standards and as an exclusive partner Hydrastore supports the UK with a vast range of radio control applications.

Whether it is a mobile flail mower, an overhead gantry crane, an excavator system, an application requiring Ex certification for use in hazardous areas, or a retrofit to convert a manually operating machine into remote control, Hydrastore can provide a solution.











System design

Whether it's mechanical, hydraulic, electrical or a combination of the three our design engineers, in conjunction with modern CAD, 3D modelling and hydraulic and electrical simulation software, take concepts and convert them into, functional, cost effective and efficient solutions.









Manufacture, assembly & factory test

All of our systems are assembled and tested in our facilities by our trained technicians. Test certificates are provided with every power unit and if necessary operating manuals and technical files can also be supplied.







Workshop & site services

PPM Maintenance & condition monitoring

Hydrastore can implement maintenance contracts throughout the UK in a wide range of sectors. We can provide tailored PPM (Planned Preventative Maintenance) plans that suit individual machines/ systems extending machine life expectancy and reducing overall running costs. Servicing and condition monitoring can also be provided and with this service a machine history can be logged helping to predict and alleviate machine downtime.



Official Atos service & repair centre

With Atos licensed diagnostic and test equipment and fully trained technicians, Hydrastore can provide a fault finding and repair service for the latest generation Atos digital electronic products.





On-site troubleshooting & diagnostics

All Hydrastore branches are equipped with hydraulic test equipment, these provide our technicians a platform where diagnostic and functional testing can be performed to resolve reliability issues.



Machine upgrades

Hydrastore has experience in upgrading old machines. Whether it's a refurbishment of an existing system or a hydraulic upgrade, Hydrastore can complete most projects to most specifications. We can also support in achieving CE Certification.

Breakdown and repair

We provide a breakdown and repair service to customers who take out maintenance contracts. In doing this technicians are already familiar with the customers machines/systems/equipment, providing a more efficient and effective diagnostic process should a failure occur.



Accumulator recertification

We provide an accumulator recertification and bladder replacement service.

Specialised hydraulic support

For nearly 30 years we have gained a vast knowledge of engineering/manufacturing process machinery, so can assist in most aspects of support.



System supply & Installation

Project management

Having successfully managed numerous mechanical, hydraulic and electrical installations we are appropriately resourced to assist in the planning, installing, testing, commissioning and hand over of most projects.

Bespoke pipe bending

All technicians are equipped and can complete bespoke jobs on site to required specifications. Pipes can also be produced in our workshops in accordance to engineering drawings. Our workshops are furnished with a range of pipe bending equipment from small bore hand powered to large electrohydraulic benders.

Installation

The installation will be completed by competent Hydrastore technicians or approved hydraulic contractors with appropriate safety certification.









Electrical installation

We can provide COMPEX qualified electricians for electrical builds and installations in potentially hazardous areas such as off-shore, chemical or pharmaceutical plants and anywhere where there is a potential risk of explosion due to dust or gas in the atmosphere. All work is carried out to the highest standards and complies with current industry regulation.



Health and safety

The health and well being of our staff, customers and sub-contractors is at the forefront of our considerations when tackling any project. To this end our managers are qualified to IOSH Managing Safely standard as a minimum and competent in preparing risk assessments and safe systems of work. All site engineers have current CCNSG safety passports and site supervisors have CITB Site Safety Plus certificates.

Commissioning

During the commissioning phase systems will be flushed to the relevant ISO Standard and each discrete circuit tested for correct flows and pressures. Specific function testing can be performed and relevant test certificates provided in accordance with the hand over process.

Type approval

If your application demands classification Hydrastore is experienced in providing solutions with approval from some of the world's leading classification authorities such as DNV & Lloyd's Register.



Quality management system

In accordance with ISO standards and a management system complying with ISO9001:2015 Hydrastore works to a set of policies, processes and procedures that ensure we meet our customer expectations and requirements.





The UK's leading designer and manufacturer of customised hydraulic cylinders

Valley Hydraulics are specialists in hydraulic cylinder design and manufacture. Unlike most hydraulic cylinder suppliers, we offer a range of standard arrangements that are tailored to your exact requirements but... when it comes to something special we excel.

Specialist Manufacturers of Hydraulic Cylinders





No matter what your hydraulic cylinder requirements are, Valley Hydraulics can offer advice and support. We pride ourselves in our design and manufacturing expertise, our skill base provides customers with a helping hand, should they need it, on specifying the right cylinder for the right application.



Valley Hydraulics operate with ISO 9001:2000 quality assurance.

Services:

- · Hydraulic cylinder application advice and design
- Full 3D CAD capabilities
- · Competitive pricing for small and large batches
- · Flexible approach to modern delivery and scheduling
- Repair service
- Strategically located support team highly skilled in hydraulic applications

The range:

- Bore sizes from 25mm to 250mm
- Double acting
- Single acting
- Displacement
- Retraction
- Telescopic
- Synchronised
- Master/slave
- Phaser check bleeding systems
- Specialist applications
- · Fixed and adjustable cushioning





Multi-stage single acting telescopic cylinder - (often used on large tilt trailers)

Synchronised single acting telescopic cylinder. Smooth operation between stages makes this ideal for lift applications



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Small bore double acting locking cylinder





Integrated valve built into the cylinder base, trunnion mounted with external pipework



	December 1964	DCA company formed. Working as a specialist hydraulic sales agency.
Related	January 1977	DCA begin representing RFP.
Lodematic	September 1981	DCA begin representing Lodematic.
Related	February 1989	DCA takes a shareholding in RFP.
Hydrastore	September 1989	DCA form Hydrastore.
hydro	November 1990	Hydrocontrol partnership starts.
atos 🛆	March 1995	Atos partnership starts.
Sellison Hydraulics	June 1998	Hydrastore purchase Allison Hydraulics.
We Turn the World.	April 2000	HKS partnership starts.
	August 2003	White Hydraulics partnership starts.
	October 2004	Ronzio partnership starts.
Thermal Transfer Products An API Heat Transfer Company	November 2008	Thermal Transfer Products (TTP) partnership starts.
Powering your potential	February 2011	Kawasaki systems partnership starts.
A G Hydraulics	February 2012	Allison Hydraulics purchase AG Hydraulics.
	November 2012	Exertus partnership starts.
	January 2016	Hansa partnership starts.
Hydrastore Hydraulic Systems & Components	February 2017	Allison's merge into Hydrastore.
Danfoss	May 2017	Danfoss partnership starts.
Valley Hydraulics Specialist Manufacturers of Hydraulic Cylinders	July 2017	Lodematic's name changed to Valley Hydraulics.
	January 2020	Minibooster partnership starts.
	March 2020	Hetronic partnership starts.
Fates.	May 2021	Gates partnership starts.

Formulas

Fast Track hydraulic formulae

Pumps and Motors		Cylinders	
Flow Rate (I/min)	$Q = \frac{D \times n}{1000}$	Force (N)	F = p x A x 10
Shaft Torque (Nm)	$T = \frac{D \times \Delta p}{20\pi}$	Velocity (m/s)	$v = \frac{Q \times 0.167}{A}$
Shaft Power (kW)	$P = \frac{T \times n}{9550}$	Area (cm2)	$A = \frac{\pi d^2}{400}$
Hydraulic Power (kW)	$P = \frac{Q \times p}{600}$		

Note: component efficiencies need to be considered for a more precise analysis.

Where:

Q = Flow Rate [L/min]	v = Velocity [m/s]
n = Shaft Speed [rev/min]	T = Torque [Nm]
p = Pressure [bar]	A = Area [cm ²]
P = Power [kW]	d = Pipe Diameter [mm]
D = Displacement [cm³/rev]	Δp = Pressure Drop (bar)
D = Displacement [cm³/rev] F = Force [N]	$\Delta p = Pressure Drop (bar)$



Flushing formulae

Flushing is a process designed to remove dirt introduced into the system during manufacture, assembly and initial operation. It is also used when significant maintenance is undertaken. The requirements are summarised below:-

- A turbulent flow regime to pick-up the particles from the walls of components and transport them to the flushing filter.
- The Reynolds number (Re) defines the flow condition and should be greater thn 4,000 and can be calculated using:

		Where:
		Q = Flow Rate (I/min)
Reynolds Number	Re = 21,200 x Q	v = Viscosity (cSt)
	v x d	d = Pipe Diameter (mm)
	V X U	Re = Reynolds Number

Or, to achieve $Re \ge 4,000$ Q > 0.189 x v x d

· A 'fine' filter to capture transported particles quickly and effectively.

Hydraulic pipes and hoses formulae

Velocity of fluid in pipe (m/s)

Where: d = Pipe Diameter (mm)

Recommended fluid velocity ranges:

Suction lines: 0.625m/s – 1.25m/s

Pressure lines: 2.1m/s - 4.75m/s

 $v = \frac{Q \times 21.22}{V}$

d²

Based on oils having a maximum viscosity grade of 70 cSt at 38°C and operating between 18°C and 51°C.

Note: For pipe runs greater than 10m the pipe size should be increased correspondingly. The intake line should never exceed 1m in length.



DCA's regional sales managers provide national coverage





Hydrastore Belton



version 6.0 March 2022

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Hydrastore Birmingham

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Related Fluid Power