



Technical advice | System development
Troubleshooting

Expertise & support | Application
Circuit simulation | analysis

System Design

Electronic control

Component supply | Radio
Integrated systems | control

Hydraulics | Electrification

Delivering value-driven, energy efficient solutions

The DCA Company Charter

We excel in producing innovative solutions.

We invest time to build valued relationships, developing our people and our technical expertise, delivering on customer needs and adapting to market changes.

We collaborate to establish optimal working practices. Clarity, empowerment, empathy and understanding are our guiding principles.

We evolve, adapt and grow

We provide our customers and clients:

- Initial advice.
- Technical support.
- Full system design, application analysis and development.
- Hydraulic circuit simulation.
- Onsite support, testing and datalogging.
- Commissioning and troubleshooting.

DCA
www.dca-ltd.com

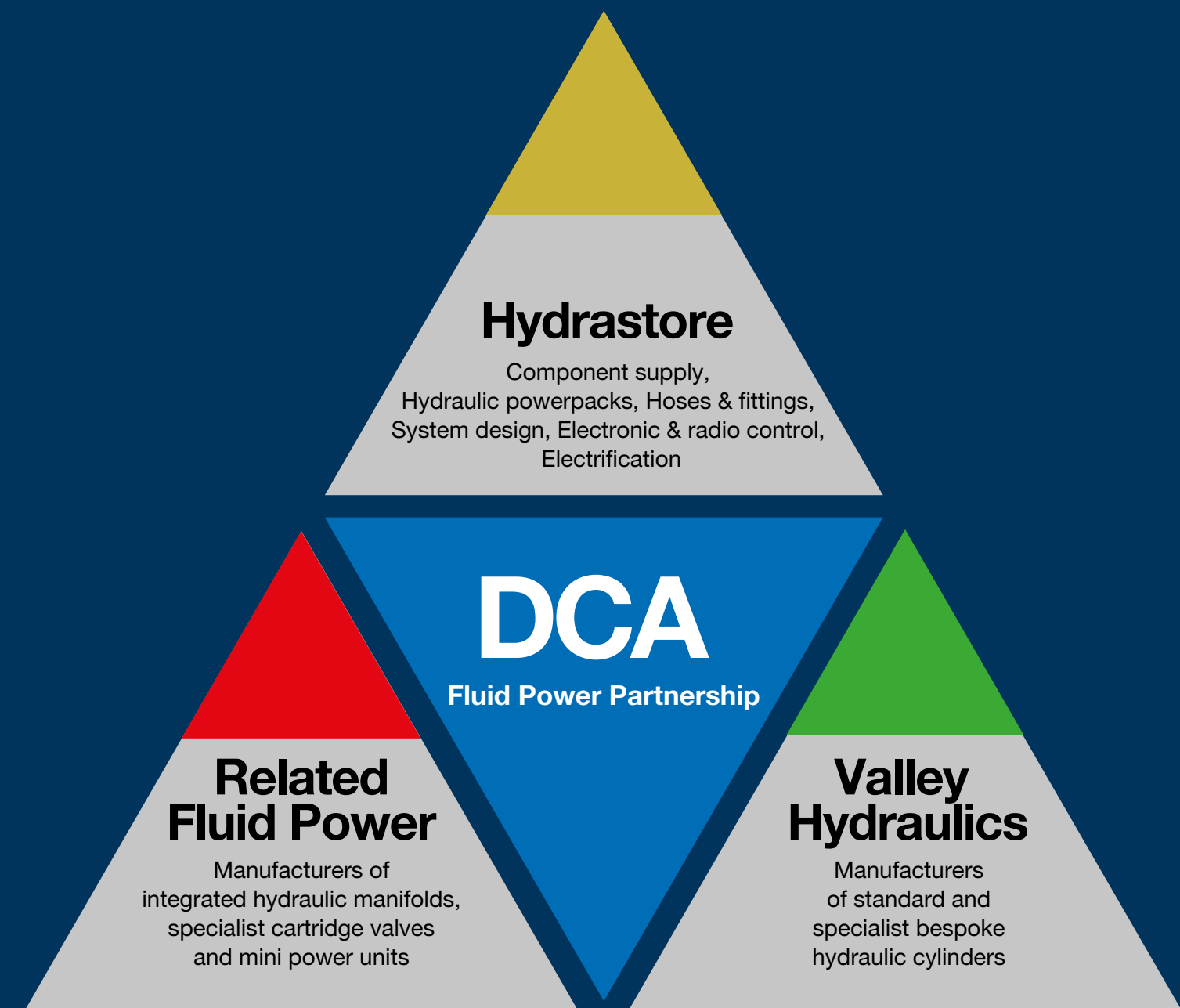
Hydrastore
www.hydrastore.co.uk

Related Fluid Power
www.relatedfluidpower.com

Valley Hydraulics
www.valleyhydraulics.co.uk

The DCA Structure

Established in 1964, DCA has a depth of hydraulic, electrification, electronic and radio control experience rivalled by few. To provide the ideal solution we pride ourselves in our application knowledge and the associated solutions we deliver through our fluid power partnership.



Our Core Capabilities

Optimised Application of Components

Our portfolio ranges from precision-engineered components and assemblies - developed and manufactured in-house with advanced design, simulation, and machining technologies - to premium Tier 1 brand components. This breadth of supply ensures customers have access to the right component for every requirement, backed by our technical expertise.



Integrated System Design and Development

- Hydraulic component and system applications
- Radio control, standard and customised solutions

- Electronic control with in-house software development
- Electrification and its application

Hydraulic Power Units - Design and Production

- Standard or customised solutions
- Energy efficient and functional
- Designed, built and tested in-house
- Wide range of application

Electronic Control, Electrics & Panel Building

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.

Hoses & Fittings

- Hydraulic & Industrial Hoses
- Hose Assemblies
- Adapters, Fittings & Couplings
- Hose Kitting Services
- Hose Assembly Machinery

Radio Control Solutions

We supply high performance radio control systems engineered to meet rigorous international safety standards. Trusted by engineers across the UK, our solutions deliver precision, reliability, and flexibility for a wide range of radio control applications.

Electrification

With extensive experience in transmission, drive systems, and their control electronics, DCA has transitioned seamlessly into electrification. By adopting advanced technologies, we help clients lower their environmental impact and improve efficiency.

Hydraulic Components

Access to tier 1 premium engineering Stock from some of the world's most trusted names in hydraulics, working in partnership with brands in the UK, Europe and beyond.

Our approach delivers value-driven, energy efficient solutions



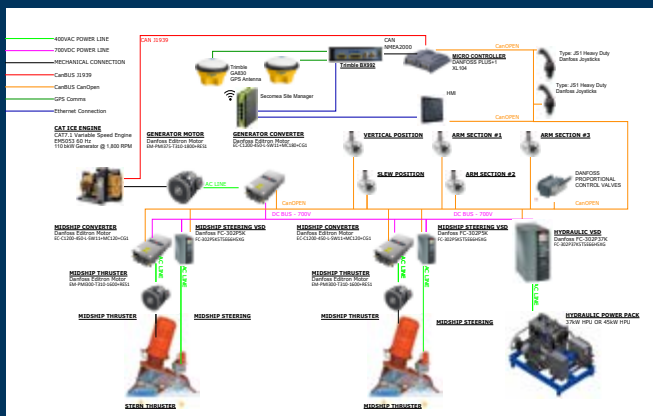
Initial Advice

- Clear assessment of objectives, requirements, and challenges.
- Expert guidance on components and systems for optimal performance and cost.
- Compliance with all industry, legal, and safety standards.
- Transparent quotations aligned with budget.



Technical Support

- Expert support from DCA at every project stage.
- In-house and partner expertise for tailored solutions.
- Precision ensured from assessment to commissioning.
- Optimised hydraulic solutions with expert guidance.



System Design

- Provide innovative, high-performance solutions.
- Identify inefficiencies and enhance performance.
- Full system design tailored to operational needs.
- Transform visions into competitive advantages.



Circuit Simulation

- Model hydraulics, electrical controls, and PLC integration.
- Predict component interactions under various conditions.
- Design new and optimise existing hydraulic systems.
- Visualise operations with 3D animation tools.



Support & Testing

- Ensure seamless integration into existing operations.
- Provide fast testing and troubleshooting services.
- Reduce downtime and maintain peak performance.
- Monitor systems with datalogging analytics.



Commissioning

- Identify and resolve issues early.
- Minimise disruptions and maximise efficiency.
- Thoroughly test and verify all components.
- Ensure smooth system operation from the start.

Applications - Our Systems in the Field



Agriculture & Environment

Ground care	Flail mowers
Harvesting	Sweepers
Forestry & Landscaping	Potato harvesters
Hedge Trimmers	Celery & Leek rigs
Drills	Chippers & Stump Grinders
Presses	Post drivers



Industrial

Automotive	Scientific/Research/Testing
Presses	Machine Tools
Process Machinery	Food Machinery/Production
Plastic Machinery	Metal Processing/Supply
Printing	Transport & Logistics



Offshore/Oil & Gas

Offshore	Tensioners and Under rollers
HPU's	Offshore Reeler Power Unit
ROV Support	Flushing Rigs
Subsea Systems	Process Actuation Systems
Ballast Control Systems	Torque Units
Cable/Pipe Deployment	



Mobile

Automotive	Winches
Construction equipment	Transport and logistics
Military	Mining
Quarry and plant	Bulk handling
Railways	



Aviation

Aircraft Support	Baggage handling equipment
Aircraft Stairs	Aircraft power supplies
Aircraft catering vehicles	Tugs



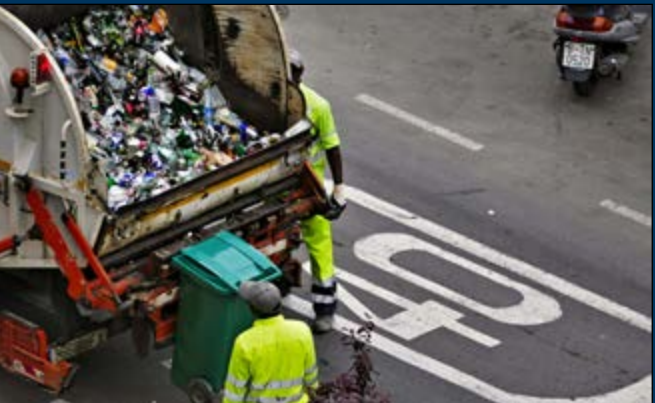
Marine

Boats	Cable - Constant Tension
Winches	Man riding
Water pumps	Anchor Management
Cranes	



Mechanical Handling

Handling	Pallet inverters
Fork Tracks	Hook Loader
Personnel Lifts	Skip Loader
Tugs	



Waste & Recycling

Recycling	Compactors
Waste	Shredders
Bailing machines	Shears



Entertainment

Sports & Leisure	Event TV Screens
Staging	Exercise machines



Energy & Utilities

Renewable	Landfill Waste (Combustors)
Food Waste (Anaerobic)	Wind Energy



Security

Bollards	Traffic Security System
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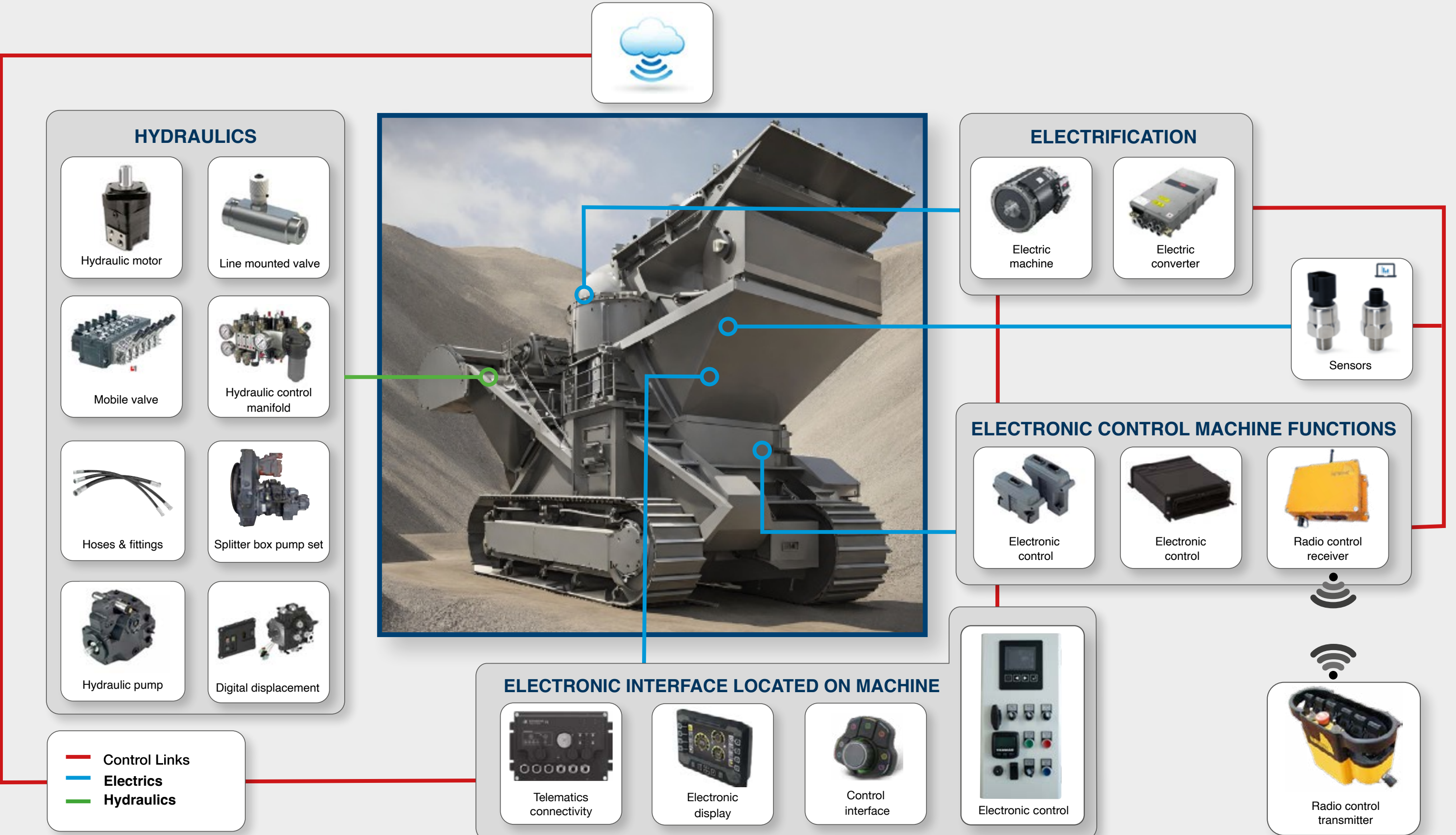
Healthcare

DCA specialise in hydraulic, electrification, electronic and radio control solutions

Mobile applications

DCA specialise in the development of innovative hydraulic and electrification solutions as well as the application of electronics, and radio controls, all specifically tailored for the dynamic demands of the off highway mobile industry. Our commitment to excellence extends beyond just providing products; it's about delivering comprehensive solutions that empower our clients to stay ahead in their respective fields.

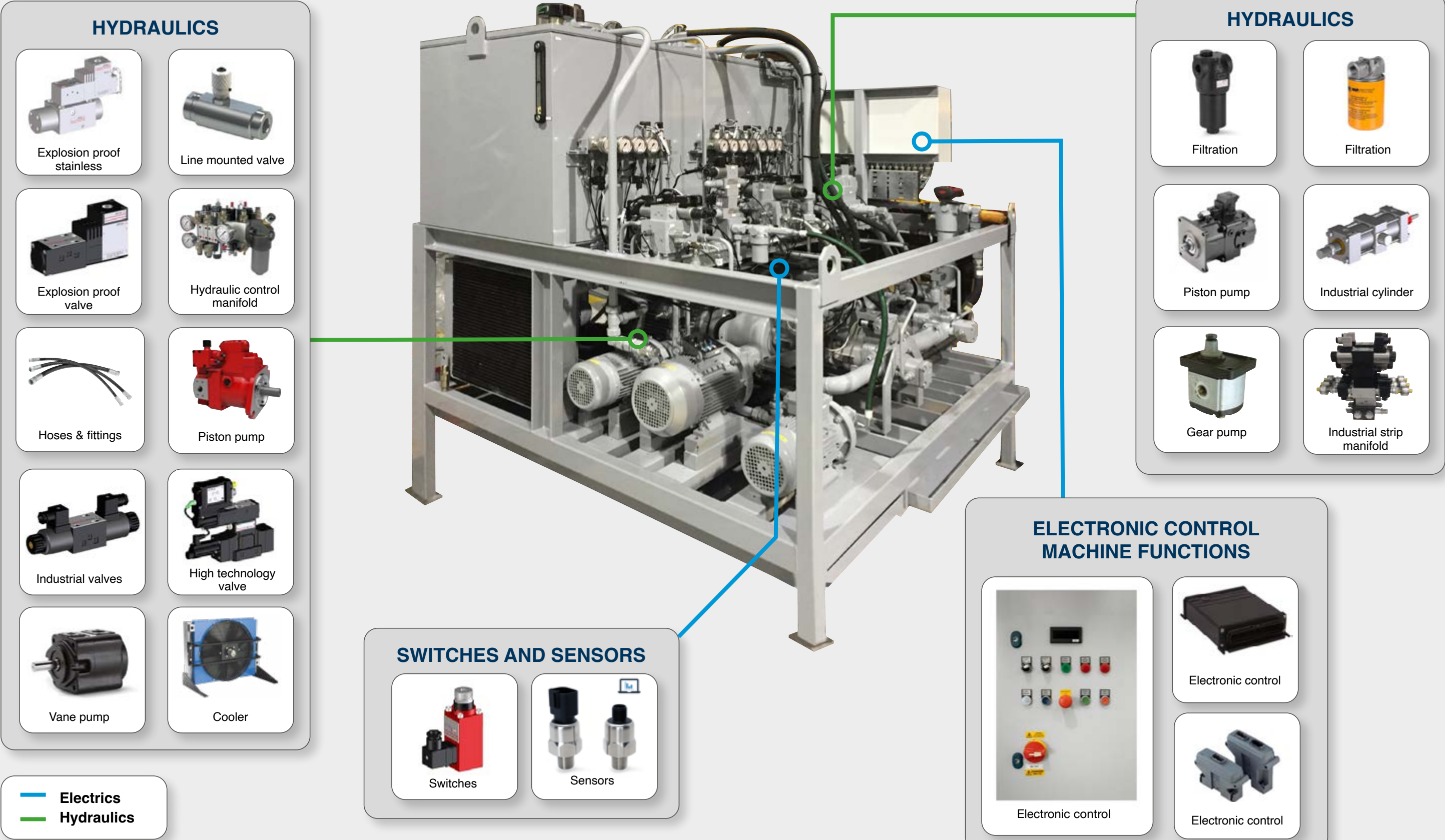
Whether it's optimising fuel efficiencies, maximising productivity, or ensuring safety, our bespoke solutions are meticulously designed to meet the unique needs of each project. With our dedication to quality and innovation, we invite you to explore the possibilities of partnership and experience the difference that our specialised knowledge and tailored solutions can make for your applications.



DCA specialise in hydraulic, electrification, electronic and radio control solutions

Industrial applications

Since Hydrastore's inception in 1989 industrial applications and power units have been integral to our identity, and we take pride in our ability to transform concepts into solutions that surpass expectations. Our strong partnerships with industrial product suppliers together with extensive technical abilities allow us to provide high technology solutions. Using premium components our systems are often more accurate, efficient, versatile and cost effective compared to those provided by others.

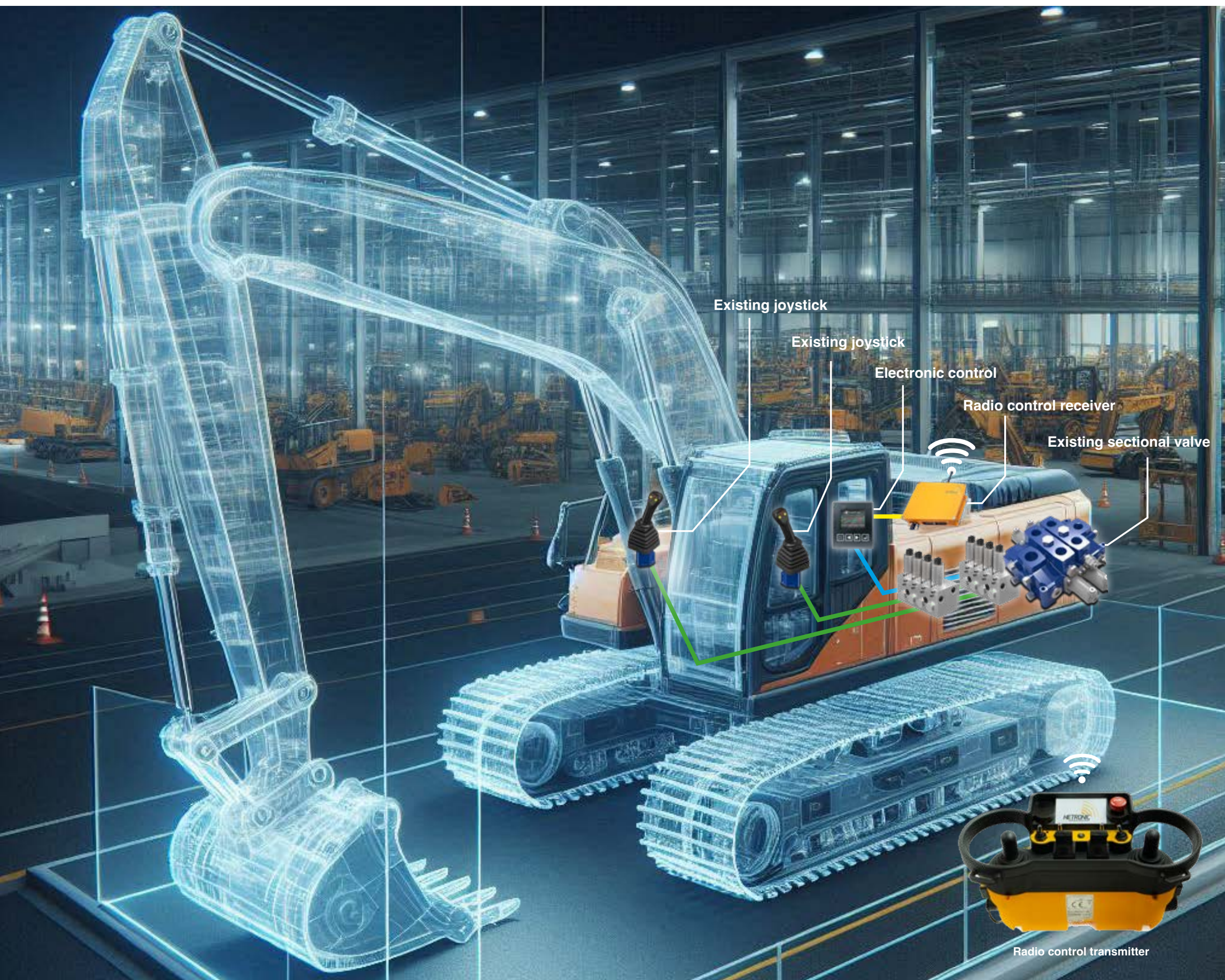


DCA specialise in hydraulic, electrification, electronic and radio control solutions

Mobile application example -
Excavator conversion for radio control operation

Transforming an excavator with Hydrastore's innovative conversion kit, enables seamless switching between conventional operation and advanced radio control. This cutting-edge technology enhances jobsite efficiency by providing the flexibility to manage tasks from the cab, or remotely, whilst ensuring safety and productivity in challenging environments.

Hydrastore's conversion kit is designed for versatility and ease of use, offering an optimal solution for modern construction demands. Experience the future of excavation with enhanced operator-assist and remote-control capabilities which allow for precise and safe operations in all conditions.



- Camera integration
- 30m to 1000m range
- Expandable I/O providing versatile control solutions

Key

Control Link

Hydraulic Pilot Signal

Electronic Control Connections

Radio Communication

Radio control transmitter



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

Based in the UK, Related Fluid Power are market leaders in the design, development, manufacture and supply of hydraulic valves, hydraulic manifold systems, hydraulic power packs and geared flow dividers. Customer focus, innovative design, exceptional application knowledge and engineering experience are just some of the attributes which enable us to provide both standard and custom designed products to customers worldwide.



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





Manifold assemblies

Related Fluid Power is a market leader in the innovative design and manufacture of hydraulic manifold systems. Specialist application knowledge along with our large portfolio of cartridge and sub-plate mounted valves, allows us to offer energy efficient, compact and cost-effective solutions to meet the needs of a range of different applications across many industry sectors.



Mini power units

Designed to function in wide and varied applications Related Fluid Power standard and custom hydraulic power packs are manufactured to reduce energy consumption, noise and are built to last. From simple motor pump units, to multi-functional power unit assemblies combining our manifold systems, we provide solutions that often extend beyond expectation.



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.



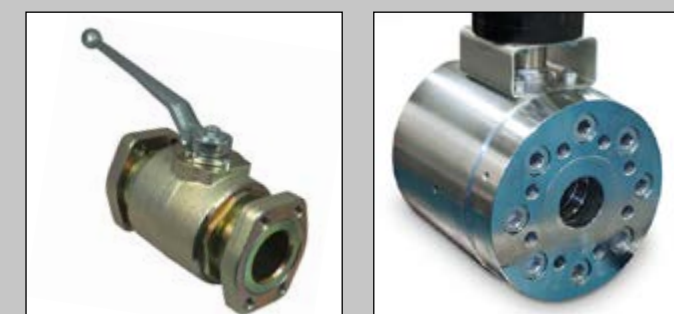
High pressure ball valves

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.



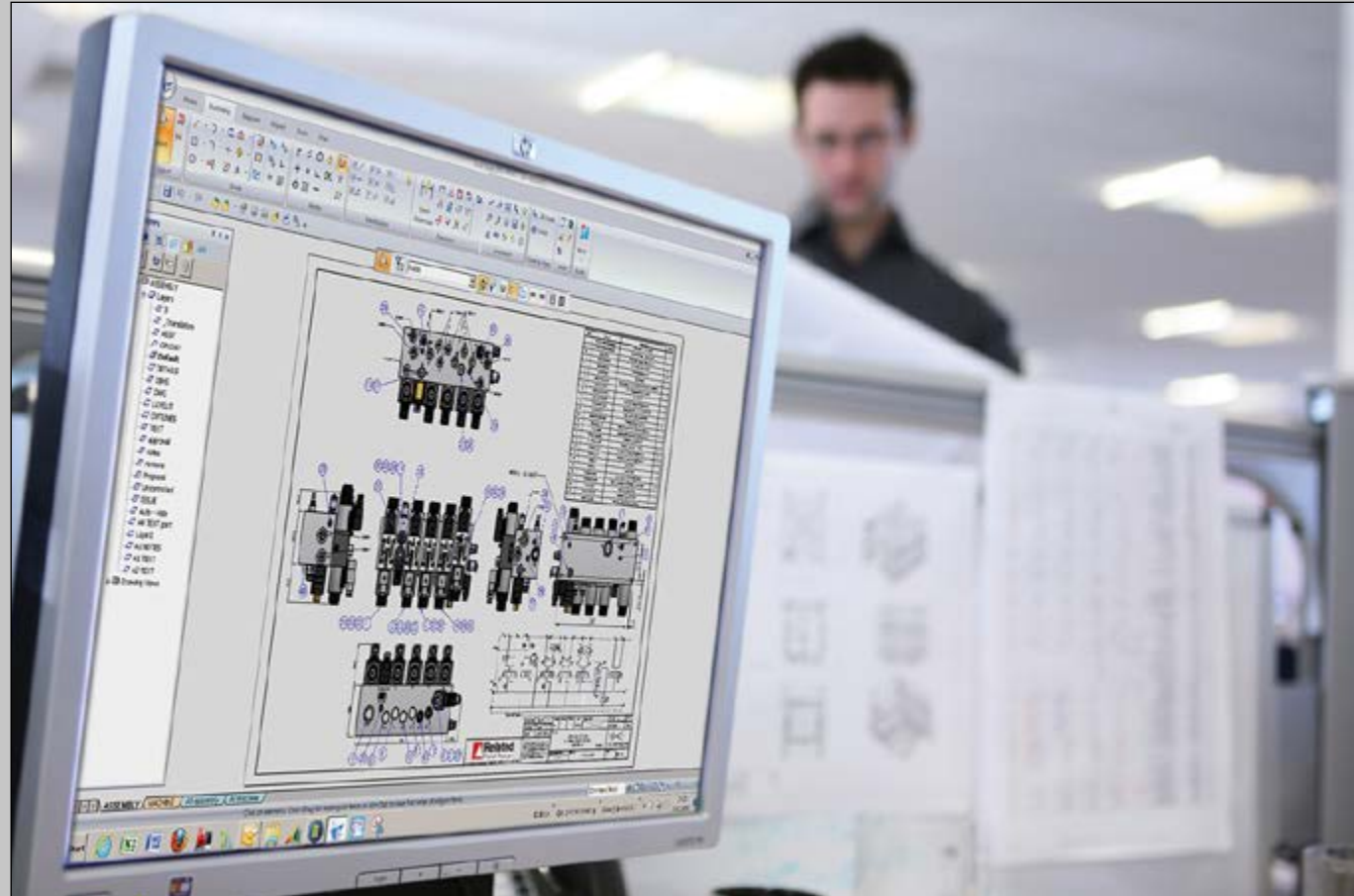
Flow dividers

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.



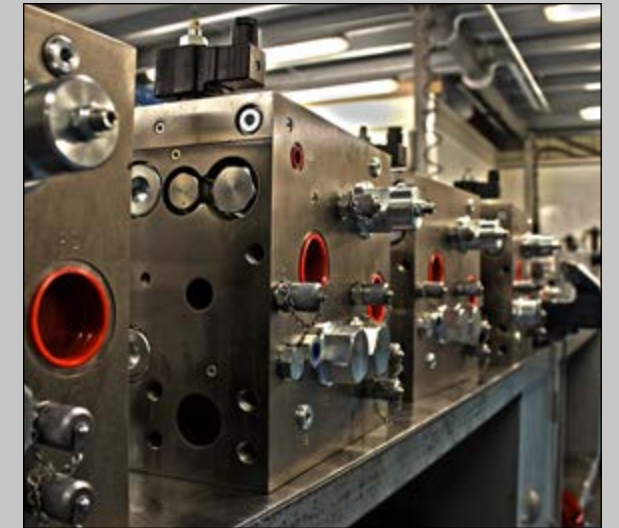
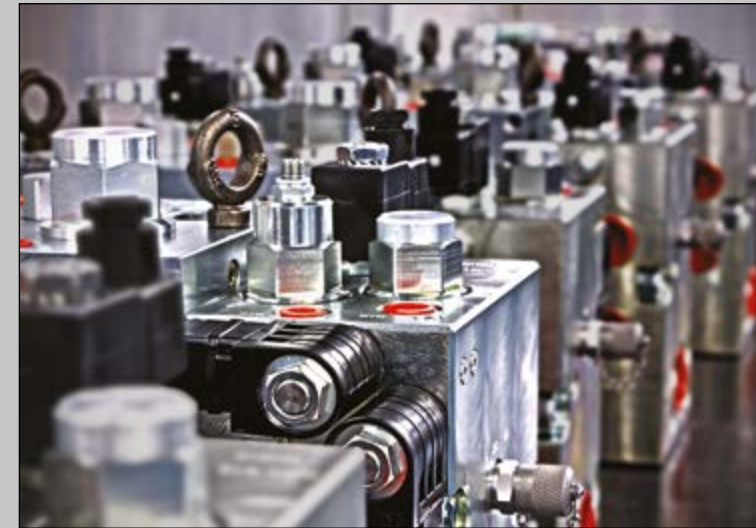
Design, Manufacture, Assembly & Test

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.



Design, Manufacture, Assembly & Test

Our manufacturing facility utilises the latest in CNC machining technology and tooling, with a range of 4 and 5 axis machining centres, CNC Saws and Automatic Parts washing system. From design, manufacture, assembly and test, right through to after-sales support, the entire process is carried out in-house by our dedicated and passionate team.





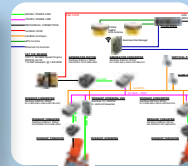
Component
Supply



Hydraulic
Powerpacks



Hoses
& Fittings



System
Design



Electronic &
Radio Control



Electrification

▲ 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

▲ Specialists

Highly qualified knowledgeable team
provide technical support

▲ Support

National technical support network.
Meeting industrial standards and type approval.

▲ Range

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



Hydraulic component supply

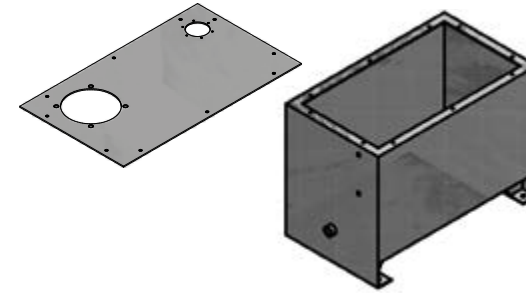
Pumps



Industrial valves



Tanks and lids



Bell housing and coupling



Subplates and manifolds



Mobile directional valves



Tank furnishing accessories



Electric motors



Line mounted valves



Circuit savers



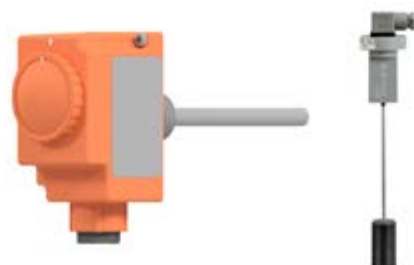
Filtration



Hydraulic motors



Switches and sensors



Coolers



Hydraulic powerpacks



Pressure test equipment



Hydraulic power units - design and production

- Standard or customised solutions
- Energy efficient and functional
- Designed, built and tested in-house
- Wide range of applications



Hoses and fittings

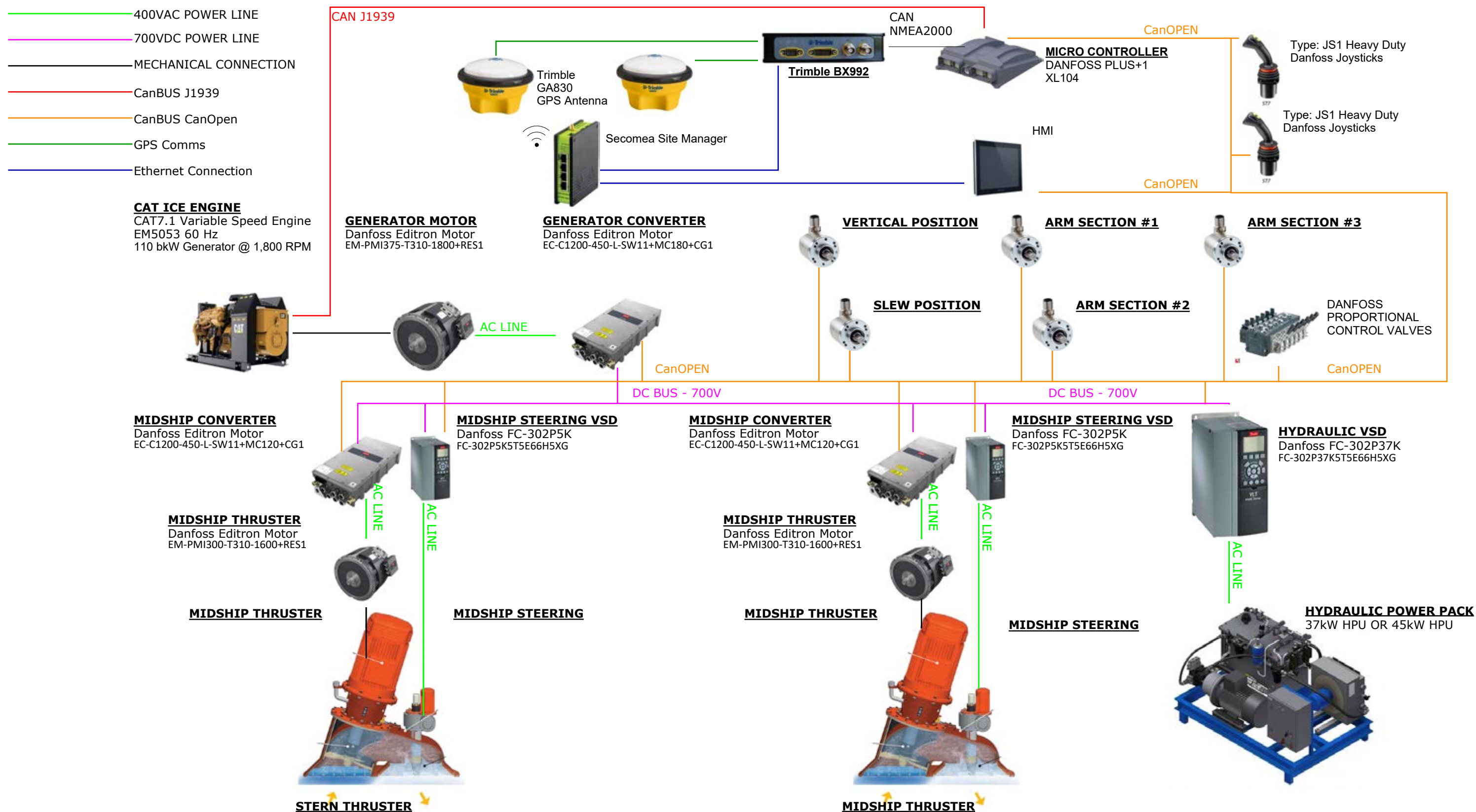
- Hydraulic & Industrial Hose
- Hose Assemblies
- Adapters, Fittings & Couplings
- Hose Kitting Services



System design and development

Experts in:

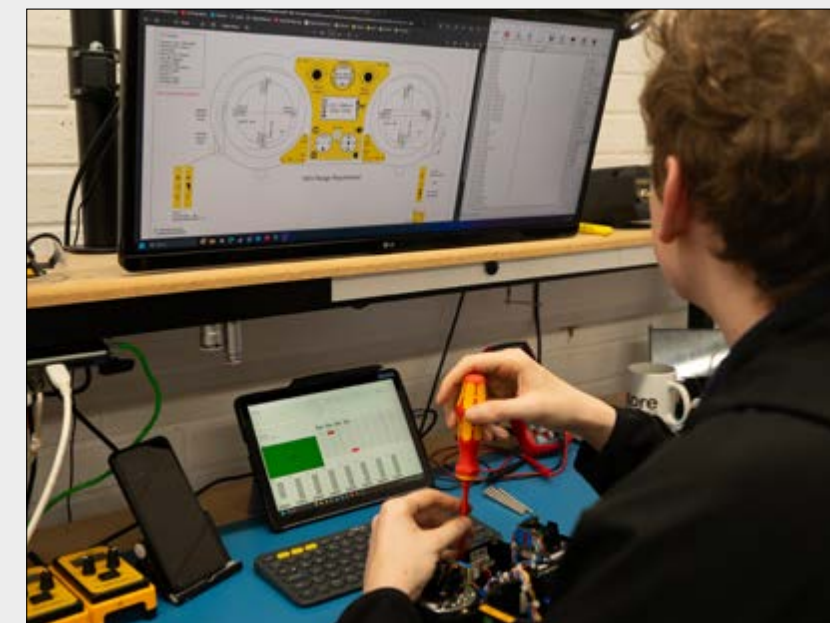
- Hydraulic component and system applications
- Electronic control with in-house software development
- Radio control, standard and customised solutions
- Electrification and its application



Radio control solutions

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.

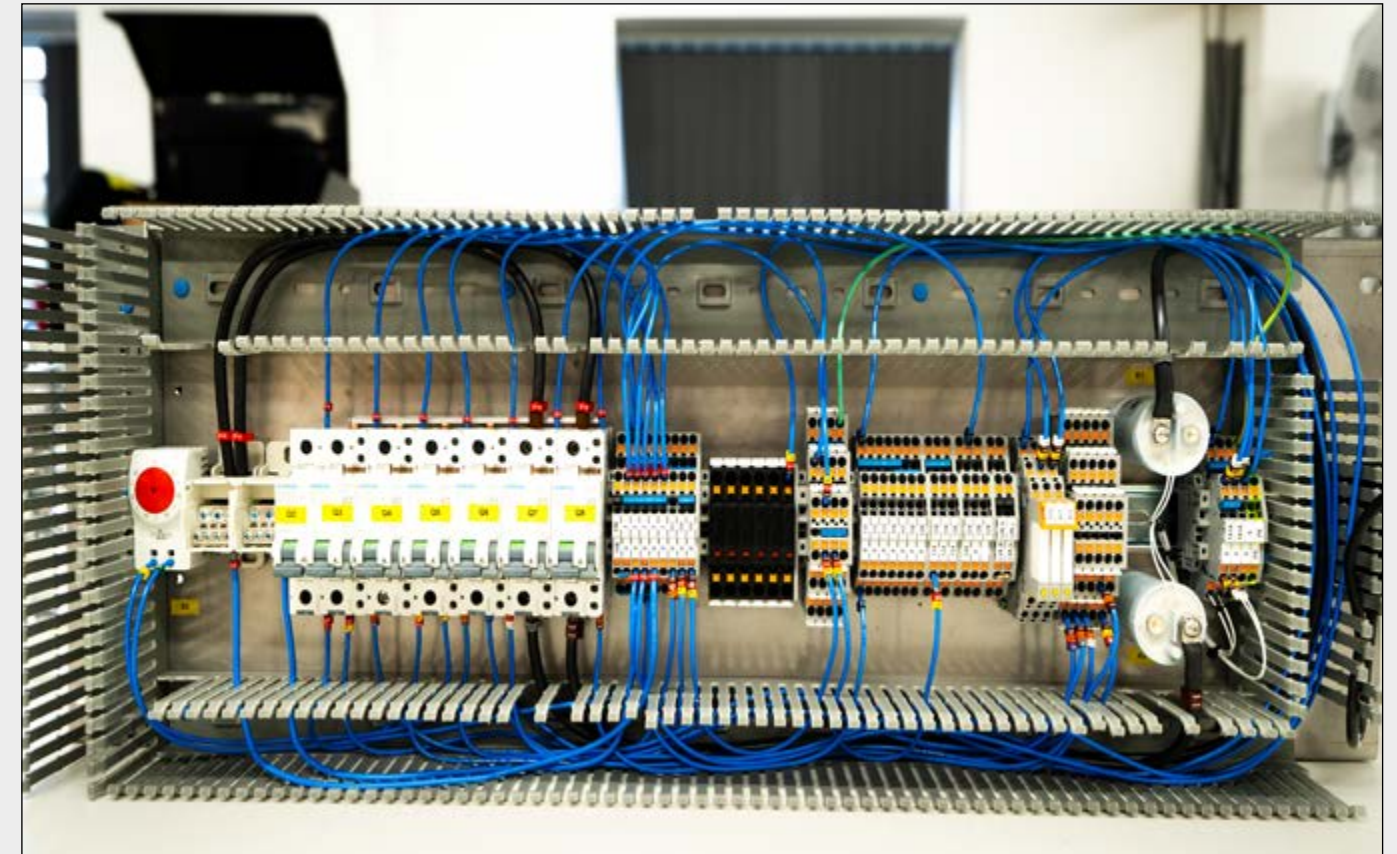
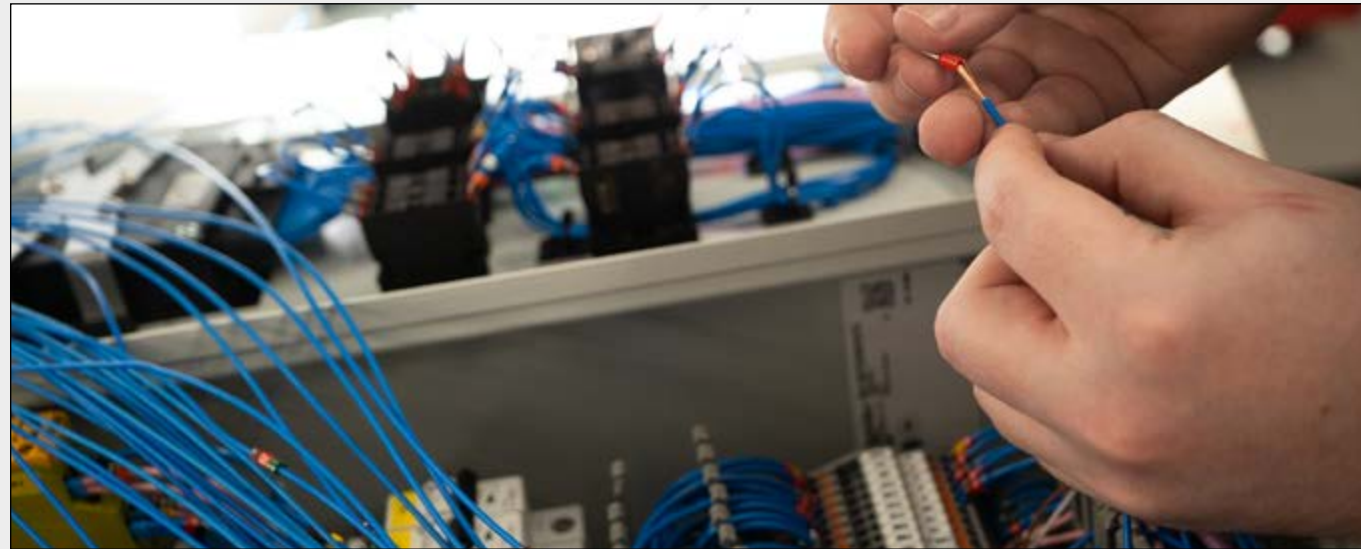
Whether it is a mobile flail mower, an overhead gantry crane, an excavator system, an application requiring Ex certification for use in hazardous areas, or a retrofit to convert a manually operating machine into remote control, Hydrastore can provide a solution.



Electronic control, electrics & panel building

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.

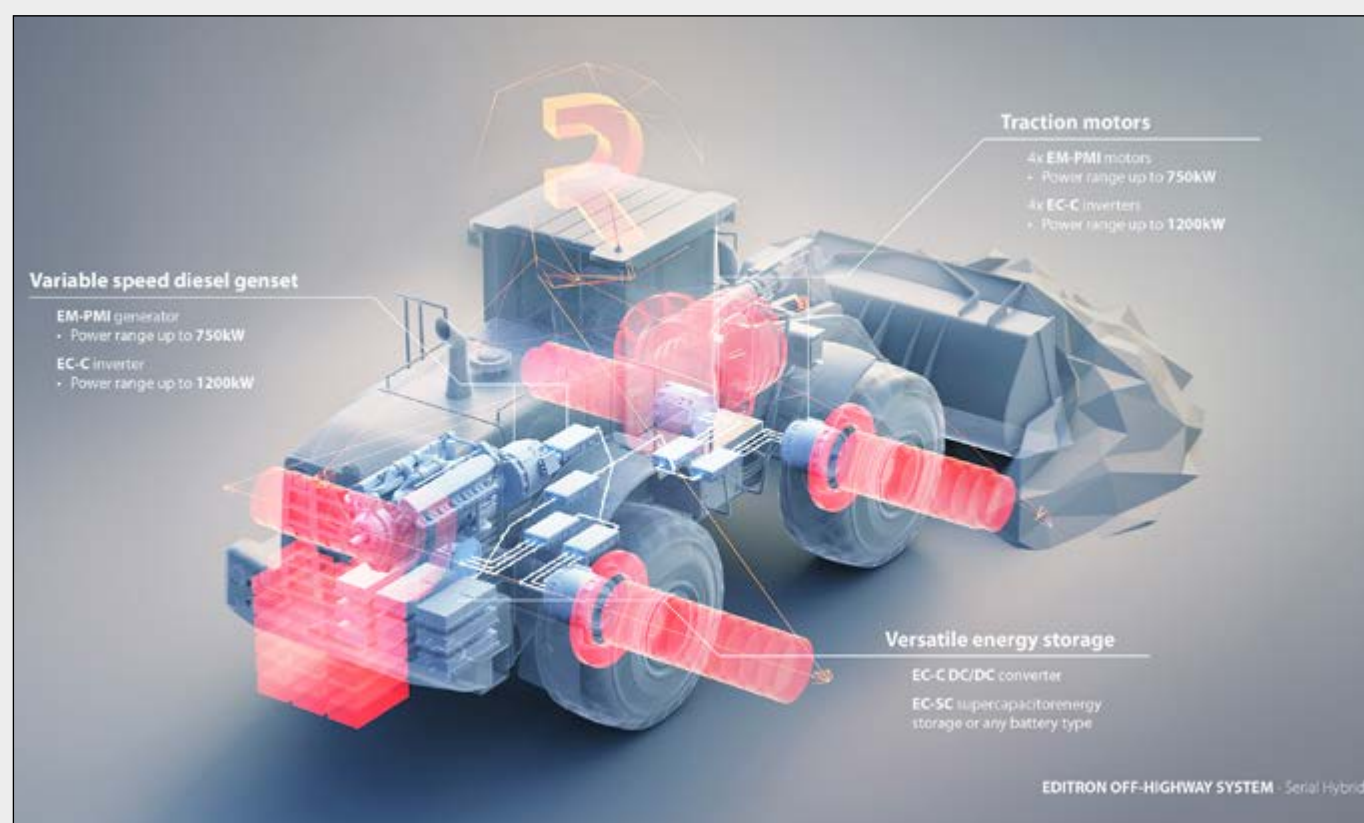
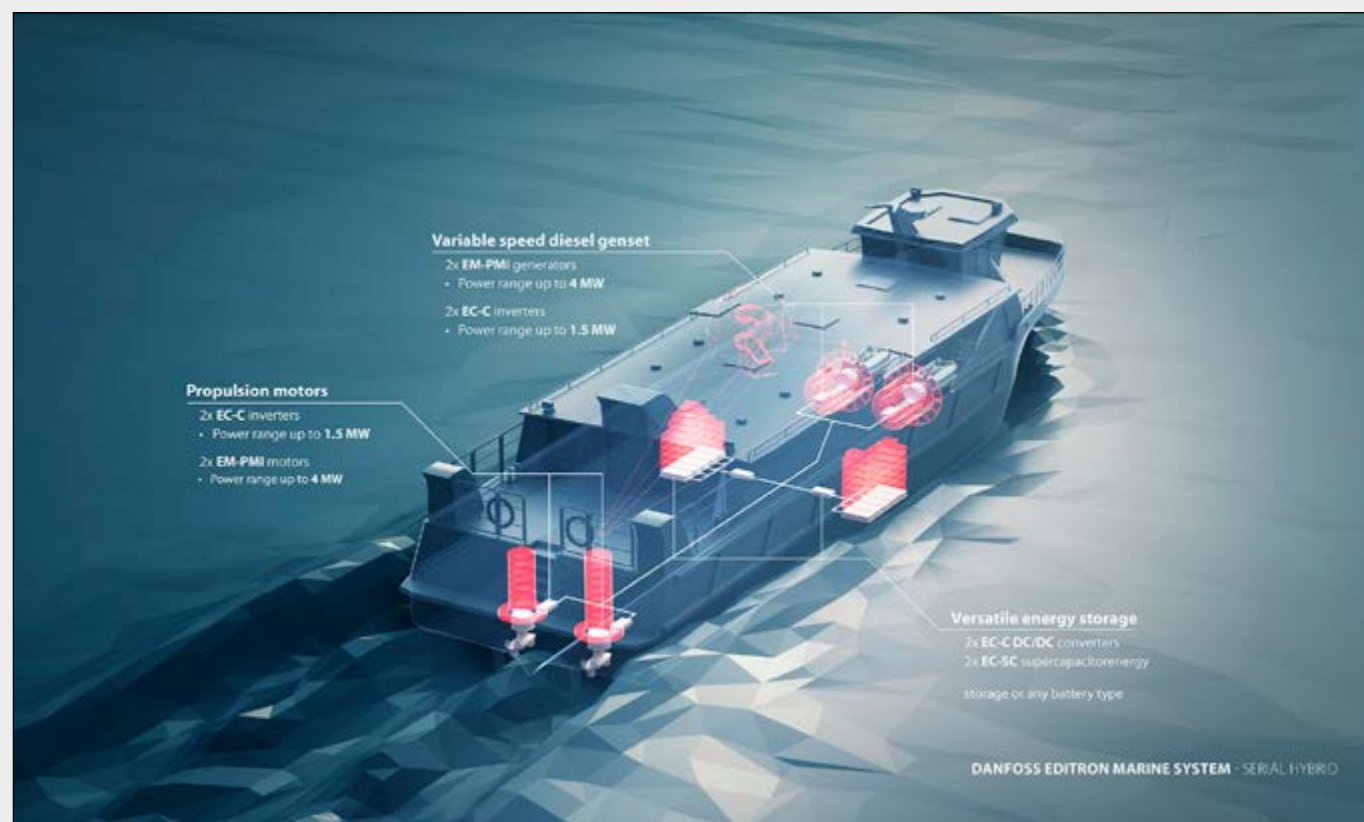


- System specification
- Software development
- Prototyping & production
- Commissioning
- Diagnostics & troubleshooting
- Support
- Hazardous areas
 - EX
 - Complex

Electrification

Given Hydrastore's extensive experience with transmission and drive systems and the electronics and software that control them, transitioning into electrification has been seamless. By incorporating advanced electrification technologies into our offering, we assist clients in reducing their environmental footprint while enhancing operational efficiency.

Our electrification expertise spans a wide range of applications, enabling us to meet the diverse and evolving needs of clients in a sustainable and cost-effective way. We provide products that cater to most requirements, with power ranges from 5 to 1000kW.



Turnkey solutions

Mobile Welder

Closed circuit pumps that are electro proportionally controlled, power the tracks. Operated via an Exertus ruggedised controller with a colour screen and Hetronic radio control for remote operation.



Another strength lies in our capability to deliver turnkey solutions by integrating hydraulic, electronic, and radio control equipment customised to clients' specifications. Our cohesive systems ensure reliability and precision. Focusing on safety and efficiency, Hydrastore's solutions not only enhance productivity but also foster safer working environments. Our access to tier 1 premium products, many of which we stock, ensures our solutions are both reliable and cost-effective. Additionally, our in-house software development team leverages their extensive experience to provide optimised solutions.



Mobile Crusher

Closed circuit electro proportionally controlled pumps drive the tracks. Additional pumps power the hydraulic auxiliary functions and crusher operation. All controlled through an Exertus ruggedised PLC with a colour screen and Hetronic radio control for remote functionality.



Tier 1 partners



Anfield Sensors Inc is a leading manufacturer of hydraulic and pneumatic sensors, specialising in pressure, vacuum, differential, and temperature switches/transducers. With a comprehensive product range Anfield can serve various markets including industrial, mobile, food service, medical and military industries.



Experts in electro hydraulics, Atos' advanced technology combines oil hydraulics with electronics to improve the performance of modern machinery. Products include

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



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.



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

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



Established in 1963, Balflex is a European international group of companies dedicated to the design and production of many fluid transfer products. Hydrastore manufactures hose assemblies, and stocks a large selection of Balflex hoses and fittings suitable, for a wide variety of low to very high pressure applications. Assembly machinery, including crimping machines and cutting machines, are also available.



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
- PVG spool valves
- Mobile electronics
- Orbital motors
- Steering components
- Electrification



Impro Fluidtek develop, manufacture, and distribute advanced components and systems for hydraulic motion and control applications. They are renowned for their market leadership in Orbital Motors, and have commanded an authoritative presence in the market for over forty. Hydrastore stocks a range of motors to meet the varying needs of our customers.



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.



The significance of electronics in optimising hydraulic solutions plays an ever increasing role. The exclusive UK partnership Hydrastore formed with Finnish 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.



Gates is renowned worldwide for its high quality hoses and fittings, serving various industries with innovative fluid power and power transmission solutions. Ideal for many industrial and mobile equipment applications, Gates hydraulic hose ranges are suitable for systems from low pressure through to very high pressure. Hydrastore can provide customers with Gates hose assemblies using state of the art machinery as well as component supply from our vast stockholding of Gates products.



CEI has specialised in designing and manufacturing high quality blocks for hydraulic systems since 1976.

Products include:

- Subplates
- Blanking Plates
- Multi-station manifolds
- Tapping Modules



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. Holding varied stock options, Hydrastore is 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. Hydrastore can help specify the right pump or motor from their comprehensive ranges to ensure it meets the application's requirements.



With 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 comprehensive range of radio remote control systems suitable for many types of application whether they require standard or customised solutions.



Hydrastore's exclusive UK partnership with TTP, part of the world's largest manufacturers of heat exchangers, provides our customers with 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



Hydrastore is the UK partner for MP Filtri's Power Transmission products - the structural components for the coupling between electric motor and pump. Designed using the very latest CAD and FEM technology, their products are then created to the highest international standards at a purpose-built in-house foundry and engineering works. MP Filtri couplings, used for power transmission from a motor to a hydraulic pump, are available in aluminium, cast iron and steel.



**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.





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



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.



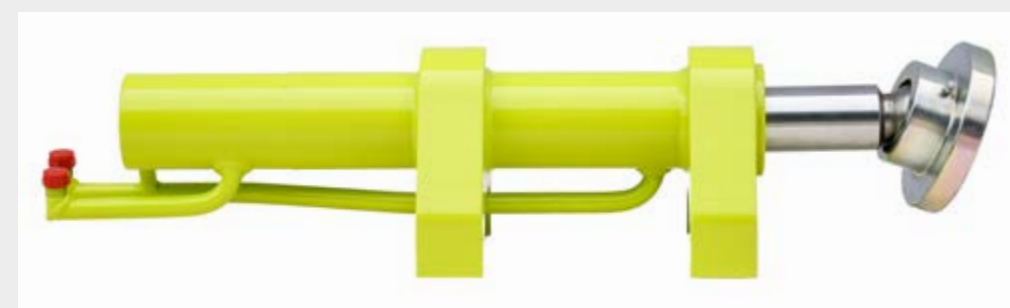
Multi-stage single acting telescopic cylinder - (often used on large tilt trailers)



Bespoke foot mounted single acting retraction cylinder



Small bore double acting locking cylinder



Side mounted swivel foot cylinder ideal for vehicle stabilisation



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



September 1989 DCA form Hydrastore.



November 1990 Hydrocontrol partnership starts.



March 1995 Atos partnership starts.



June 1998 Hydrastore purchase Allison Hydraulics.



April 2000 HKS partnership starts.



August 2003 White Hydraulics partnership starts.



October 2004 Ronzio partnership starts.



November 2008 Thermal Transfer Products (TTP) partnership starts.



February 2011 Kawasaki systems partnership starts.



February 2012 Allison Hydraulics purchase AG Hydraulics.



November 2012 Exertus partnership starts.



January 2016 Hansa partnership starts.



February 2017 Allison's merge into Hydrastore.



May 2017 Danfoss partnership starts.



July 2017 Lodematic's name changed to Valley Hydraulics.



January 2020 Minibooster partnership starts.



March 2020 Hetronic partnership starts.



May 2021 Gates partnership starts.



January 2024 Balflex partnership starts.



January 2024 Impro Fluidtek partnership starts.



April 2025 MP Filtri Power transmission partnership starts.



December 2025 CEI Hydraulic Manifolds partnership starts.

Formulas

Fast Track hydraulic formulae

Pumps and Motors

Flow Rate (l/min) $Q = \frac{D \times n}{1000}$

Shaft Torque (Nm) $T = \frac{D \times \Delta p}{20\pi}$

Shaft Power (kW) $P = \frac{T \times n}{9550}$

Hydraulic Power (kW) $P = \frac{Q \times p}{600}$

Cylinders

Force (N) $F = p \times A \times 10$

Velocity (m/s) $v = \frac{Q \times 0.167}{A}$

Area (cm2) $A = \frac{\pi d^2}{400}$

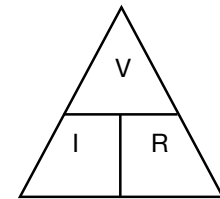
Note: component efficiencies need to be considered for a more precise analysis.

Where:

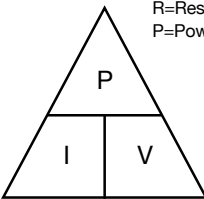
Q = Flow Rate [L/min]
n = Shaft Speed [rev/min]
p = Pressure [bar]
P = Power [kW]
D = Displacement [cm³/rev]
F = Force [N]

v = Velocity [m/s]
T = Torque [Nm]
A = Area [cm²]
d = Pipe Diameter [mm]
Δp = Pressure Drop (bar)

Electronics Formulae



$V = I \times R$ $I = V / R$ $R = V / I$



$P = I \times V$ $V = P / I$

V=Voltage (volts)
I=Current (amps)
R=Resistance (ohms)
P=Power (watts)

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:

Reynolds Number $\frac{Re = 21,200 \times Q}{v \times d}$

Where:
Q = Flow Rate (l/min)
v = Viscosity (cSt)
d = Pipe Diameter (mm)
Re = Reynolds Number

Or, to achieve $Re \geq 4,000$ $Q > 0.189 \times v \times d$

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

Hydraulic pipes and hoses formulae

Velocity of fluid in pipe (m/s) $v = \frac{Q \times 21.22}{d^2}$

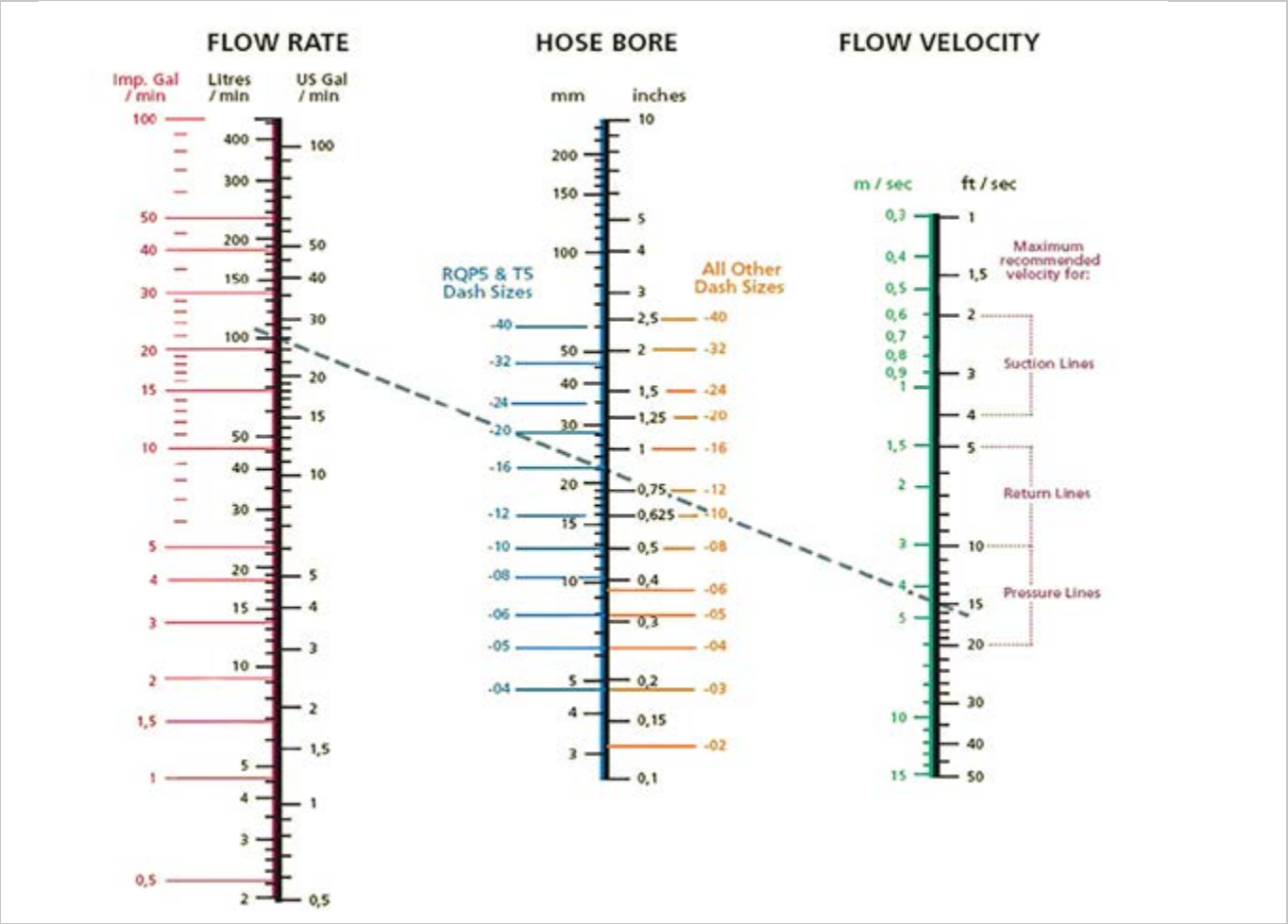
Where: d = Pipe Diameter (mm)

Recommended fluid velocity ranges:

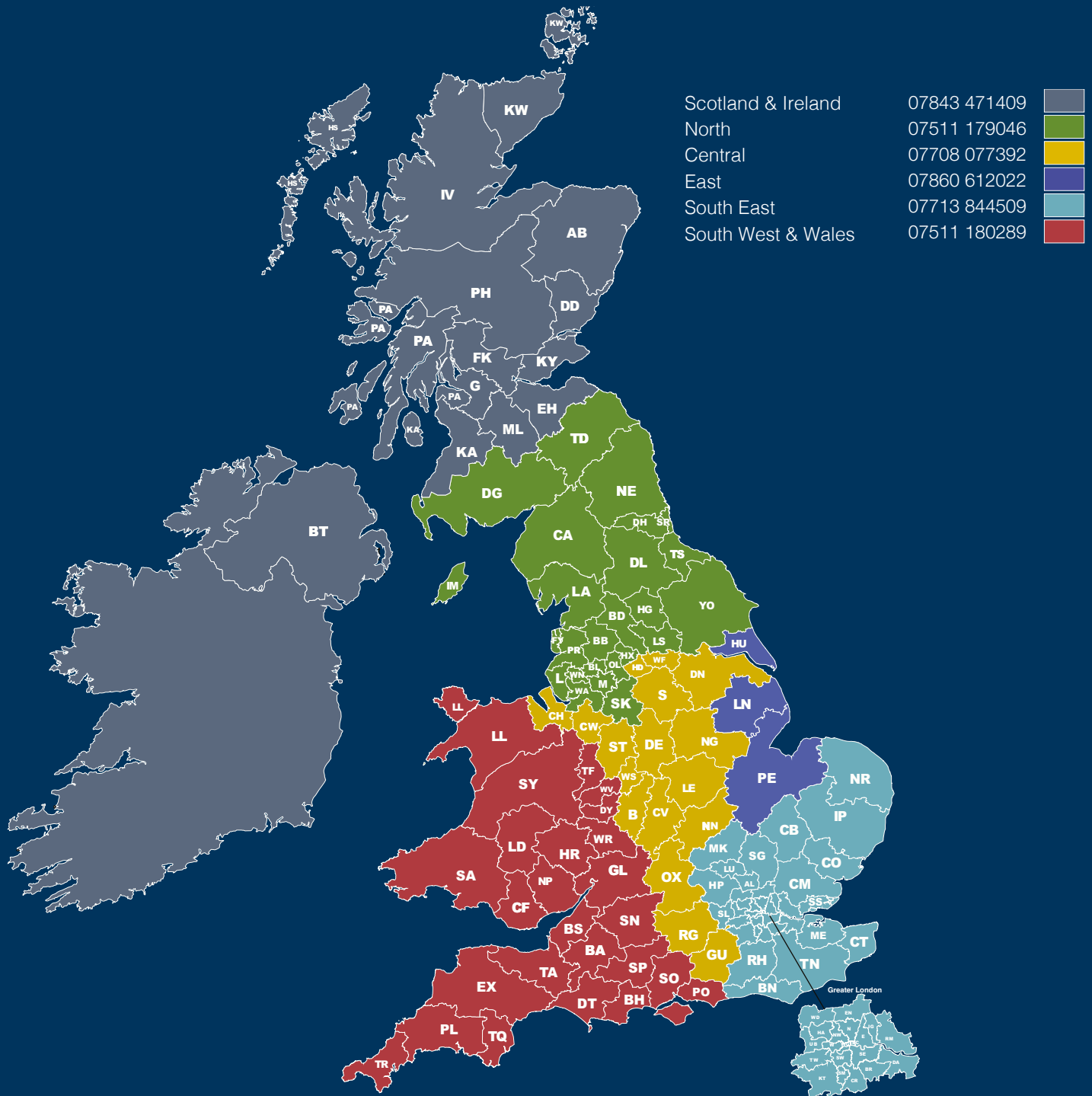
Suction lines: 0.625m/s – 1.25m/s Pressure lines: 2.1m/s – 4.75m/s

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 managers provide national coverage



Hydrastore systems and components division



Hydrastore fluid transfer division



Related Fluid Power

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