



# Hydrastore

Hydraulic Systems & Components

Component Supply • System Design • Product Support

Hydrastore offers a comprehensive range of hydraulic components and complete hydraulic and control solutions. Whether you are looking to purchase a single component or complete system, we can help.





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



## Why choose us?

### Stock

Extensive stock with a sales value in excess of £3million available for next day deliveries.

### Support

Strategically located depots and nationally based external sales network.

### Quality

Operates a management system accredited with ISO 9001:2015

### Knowledge

Qualified staff supporting product selection and providing innovative, dependable and cost effective hydraulic and electronic solutions.

### Brands

Premium brand partnerships, tier 1 supply.



# We design & manufacture complete systems for all applications and sectors

Hydrastore combines technical know how with premium brand components and we provide our customers with the most suited technical and commercial solutions available.



Automotive



Process Machinery



Plastics Machinery



Printing



Scientific/Research/Testing



Machine Tools



Food Machinery/Production



Metal Processing/Supply



Transport & Logistics

Confidence to take on such varied applications comes with experience and Hydrastore has been designing, developing, supplying, installing and commissioning hydraulics and electrical controls systems for nearly 30 years. As a company we strive for continual improvement and our service reflects our high expectations.



Aviation



Transport



Energy and utilities



Marine



Offshore oil and gas



Agriculture and environment



Industrial

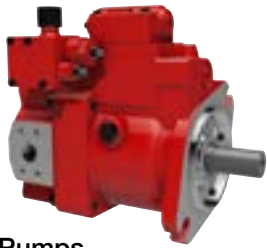


Waste and recycling



Mechanical handling

We stock a huge range of branded components available for next day delivery



**Pumps**



**Manifold systems**



**Brakes**



**Industrial valves**



**Mobile valves**



**Cartridge valves**



**Radio controls**



**Flow dividers**



**Hydraulic motors**



**Welded construction cylinder**



**Industrial tie rod cylinders**



**Rotary actuators**



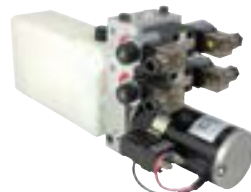
**Hydraulic power units**



**Heat exchangers and hydraulic coolers**



**Electronics**



**Mini AC & DC Power Units**



**Line mounted valves**

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



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.



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.



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.



Kawasaki manufactures a wide range of cost effective and reliable solutions for piston pumps and motors, for both open and closed circuit applications.



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.



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.



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.



Exclusive UK partner, engineering and delivering a solution within competitive time frames. Wide range of double-acting and spring return/fail safe actuators. Pressure rating up to 350 bar torque up to 350,000Nm.



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



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.

## 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.



Cable tensioning HPU



Industrial application HPU





2.2 kW & 3.0 kW agricultural applications HPU



Stainless steel operating consoles for offshore applications



Offshore power unit



Marine, zone rated power unit suitable for containerisation

## Hydrastore components

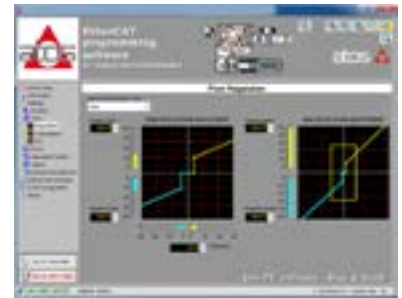
Our mainline portfolio consists of premium brand components which we trade exclusively within the UK.

### 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

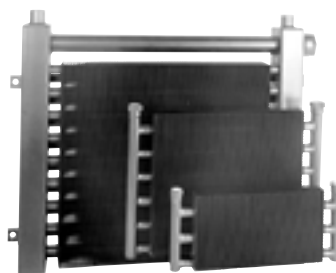
An **API Heat Transfer** Company

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



# miniBOOSTER<sup>®</sup>

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.



# ANFIELD SENSORS INC.

A4 Anfield Sensors Inc. is a leading manufacturer of hydraulic and pneumatic sensors, specializing in pressure, vacuum, differential and temperature

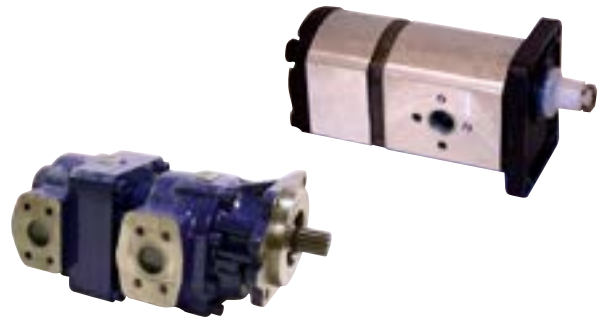
switches/transducers. The full product range allows us to serve various markets including: industrial, mobile, food service, medical and military industries.



# RONZIO OLEODINAMICA

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.



# H.T. HANSA · TMP srl

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.



# Kawasaki Powering your potential

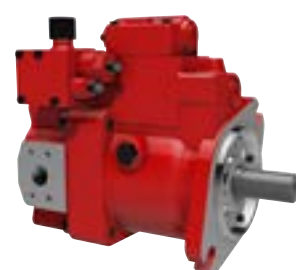
Hydrastore is Kawasaki UK's official system partner and benefit from tier 1 pricing and direct access to the Plymouth factory. Kawasaki manufactures a wide range of piston pumps and motors, for both open and closed circuit applications. Around the world, in virtually every area of construction, marine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

### 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

### Pump

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



## 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.



White Drive Products were purchased by Danfoss in 2016 and is now incorporated within the Danfoss hydraulic motor range.



## 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** LINE MOUNTED VALVES

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.



# Hydrastore HAND PUMPS

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.



## HEYPAC

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.



## darcy spillcare manufacture

Darcy are at the forefront of environmental protection and specialise in the manufacture and provision of solutions helping sites to achieve environmental and ISO compliance and care for the environment in increasingly demanding circumstances. We offer a complete range of spill care including absorbents and spill kits, as well as products to help you meet the environmental regulations such as bunded storage solutions and emergency liquid spill products.



## 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

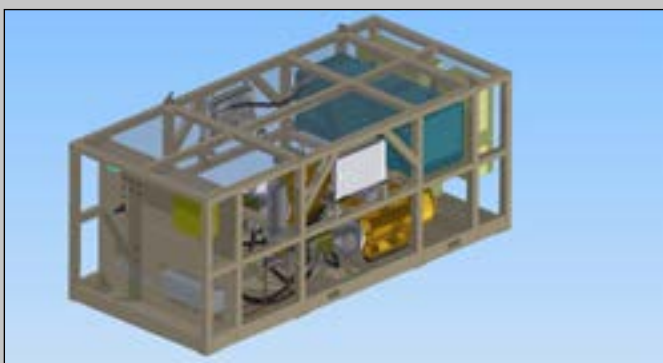
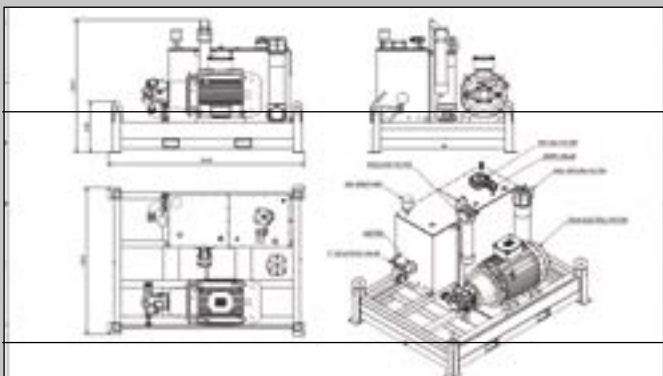
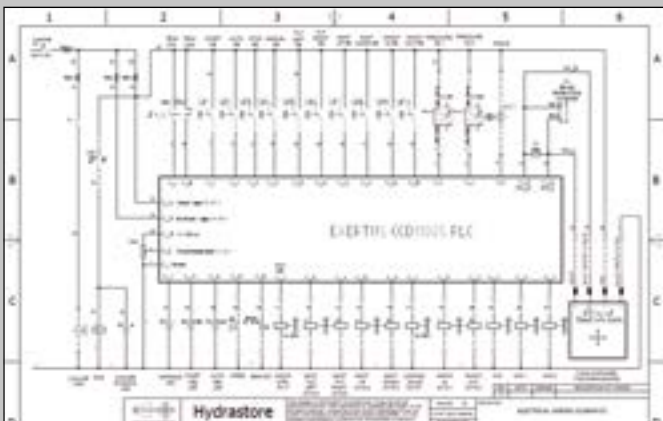
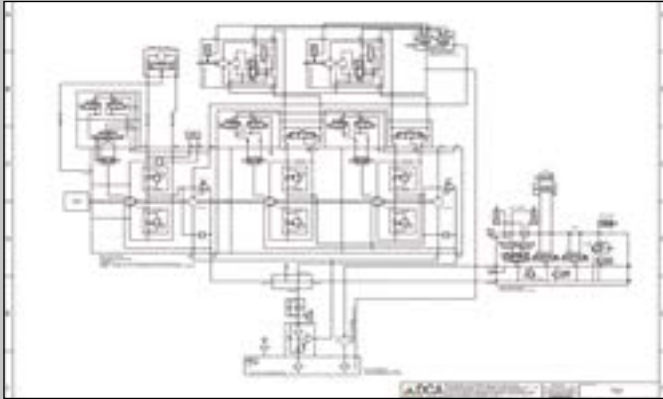
Hetric produce a range of radio control systems that comply with international safety standards and as an exclusive partner Hydrastore supports the UK with a vast range of radio control applications.

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.



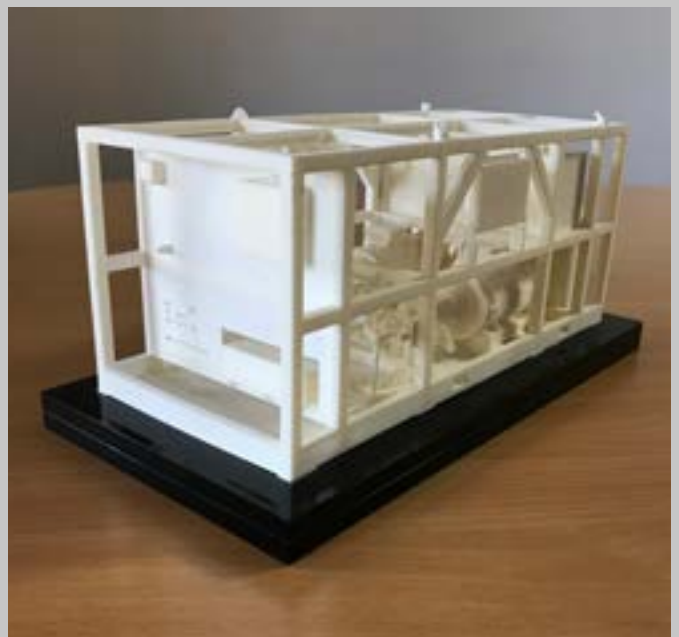
## System design

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.



# Hydrastore History / Timeline

Hydraulic Systems & Components



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.

# 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 (cm<sup>2</sup>)  $A = \frac{\pi d^2}{400}$

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

## 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 than 4,000 and can be calculated using:

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

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.

## Electronics Formulae

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

