

PUTTING WATER TO WORK

The
Water
Hydraulics
Co. Ltd.

ABOUT US

The Water Hydraulics Company Limited today, is the result of a business launched in 2001 in Kingston upon Hull. The company is privately owned business employing 28 people, with an annual turnover of £2.5 million.

Specialising in the onsite design and manufacture of a full range of innovative components and systems that operate on tap water without any other fluid additives. Operating in similar pressure ranges to conventional hydraulics, water systems can offer greater efficiencies reducing operation costs and minimising component size. High linear and rotary power is achieved from compact designs without risk of fire or contamination to the environment, the product or the person using the equipment. The products are designed to existing oil hydraulic interfaces ensuring minimal engineering for interchange ability.

The Water Hydraulics Company Limited has wide experience supplying global industries such as Nuclear, Naval, Oil & Gas, Mining, Water Treatment, Desalination, Fire Protection and Food. The company is accredited to ISO9001:2008. With it's engineering experience, highly trained and skilled workforce, together with it's recent investments in R&D and modernisation, is well placed to grow in all it's core markets with quality products and service.

WHY WATER?



NON - POLLUTING

All hydraulic systems leak at some time within their life span. Potential contamination to firstly and most importantly the person using or maintaining the system must be assessed.

Secondly the risk to the product or service in which the system is adopted and thirdly the environment in which it is used must be taken into account. Make a risk assessment for your product containing oil against the same system driven by water and view the impact to people, product and environment.

The improvement will ensure your product is viewed as a market leader with better industrial health compliance also reducing environmental liability and risk.

Your customer may benefit from lower insurance costs by demonstrating proof of good management before pollution incidents occur.

WHY WATER?



FIRE RISK

Systems operating in high fire risk areas can not adopt standard oil systems.

The non flammable hydraulic alternatives are usually highly toxic. Water offers neither a fire risk or a toxic threat, insurance premiums may be reduced by adopting such a system.

WHY WATER?



EFFICIENCY

Individual components offer the same and in some cases improved performance to that of a comparable oil unit.

The transmission of fluid however offers greater efficiency improvements thereby reducing the size of components and absorbed power for a given output. The virtual incompressibility of water also offers excellent controllability with rapid response.

WHY WATER?



COST

The cost of the fluid is not the only major saving to be gained from adopting a water system.

Assessment of meeting new stringent regulations regarding storage, cleaning of spillages, special protective clothing for users, material handling of bulk fluids, meeting manufacturers specific fluid demands and adhering to disposal legislation must be undertaken. Logistics and management time for all of the points is removed when the hydraulic fluid is taken from the tap and disposed of down any domestic drain.

WHY WATER?



IMAGE

Companies in the past have given lip service to environmental issues. The new ISO 14000 international standard was to prevent violations, fines, and negative publicity for non-complying companies.

On the positive side it also assists companies who produce environmentally friendly products and assists them to profit in the market for "green" products.

**THERE IS NO GREENER DRIVE OPTION THAN
WATER.**

DESALINATION

The power centre combines the operation of an axial piston high pressure desalination pump with an axial piston motor utilising the pressure in the waste brine to assist the electric motor in driving the pump and so reducing the power requirement to typically less than 3 kW/m³ of permeate. The power centre has been purpose designed and built for the RO market.

The power centre is driven via a splined shaft from an electric motor. This turns the pump rotating group which also drives the energy recovery rotating group via a simple splined mechanical coupling. There is no need for a second separate booster pump as in many other energy recovery devices nor an additional electric drive motor.

Due to the integrated nature of the power centre design the footprint is much reduced nor is there the need for all the additional fluid couplings which makes for a very compact system ideal for ships and offshore platforms.

FIRE PUMPS

The Janus Axial Piston Pumps are totally oil free, clean and completely safe to use in all locations including ATEX environments. Advanced material technology ensures high velocity and heavily loaded surfaces can operate effectively with water as their only coolant/lubricant;. The elimination of lubricating oil within the mechanics of the pumps removes the requirement for piston sealing which in turn reduces the requirement for servicing of seals in the high cyclic loaded components.

Potential contamination of the lubricating fluid and hence pump failure is removed but even more important for the fire industry the potential of the lubricating oil to contaminate and enter the pumped fluid is totally removed.

The 9 piston design combined with direct 4 pole motor operation produces a very smooth output flow and removes the requirement for output accumulation or pulsation damping. Pressure ripple-free performance against a fixed orifice make the product ideal for fire fighting applications. System component fatigue is rare due to the smooth low noise performance of the advanced technology. Light weight and compact design reduces powerpack size and the all 316L Stainless steel construction ensures exceptional corrosion resistance and unsurpassed life expectancy even in harsh environments

PUMPS & MOTORS

The Janus range of pumps are based on the axial piston principle which is both light and compact relative to their volumetric displacement, which may be altered in our variable displacement models. Up to 9 pistons per pump ensure very small pressure ripples removing the need for accumulators. The need for oil lubrication is eliminated as all moving parts are water lubricated. The pumps are manufactured in 316 or duplex materials making them highly resistant to corrosion and ideal for reverse osmosis applications.

Janus motors are based on the axial piston principle for high speed applications or with our range of gearboxes for low speed high torque systems. The motors are available in both fixed and variable displacement configurations.

POWERPACKS

A hydraulic power pack unit is shown, consisting of a black motor mounted on a stainless steel base. The motor has a fan grille on the front and a label with technical specifications. Above the motor, a stainless steel manifold is connected to various hydraulic components, including a pressure relief valve and several ports with fittings. The entire unit is mounted on a stainless steel base plate.

The power pack is a compact and flexible power supply unit. It is available in a standard modular form which may easily be customer specified or specially built to meet all kinds of individual requirements, including specialist accessories such as filters, coolers and fittings (following consultation with our design team.)

CYLINDERS



Janus cylinders are manufactured in an all stainless 316 design. The cylinders come in a standard of “end types” threaded rod , spherical rod end, piston end flange, piston spherical rod end etc...The cylinders are of the tie rod as generally accepted in the industrial market. Janus cylinders may also be customer specified. From $\varnothing 32$ to 150mm bores as standard.

VALVES

A unique patented range of control valves are designed to control the pressure, the flow, and the direction of the water hydraulic media and thus the direction, speed and torque / force from the motors and cylinders. The valves are available with manual, hydraulic pilot as well as electrical activation. The valves are manufactured as in line versions or integrated into custom designed blocks to reduce the number of expensive fittings required and enabling easier maintenance.

- Electronic proportional flow and pressure control valve
- Directional control 4/3, 4/2 & 3/2
- Pressure control - relief, reducing and unload
- Flow control - priority check, and load holding
- Sizes DN3 to DN16
- Pressure range 0.1 to 160 bar

APPLICATIONS

Nuclear

- Rolls Royce
- Babcock
- BNFL
- AEA Technology
- French, German and Indian Nuclear Authorities

Offshore

- British Gas
- Stolt Comex
- PSL
- Hydro-lek
- Seavation

Desalination

- KSB
- PCI Membranes

Fire Fighting Fog Systems

- Crown Fire
- Ultimate Fire
- London Underground

Mining

- UK Coal
- DBT Mining
- Chamber of Mines South Africa
- Huddy Diamond

Military

- Stella Meta
- US Navy
- Scour Systems

Miscellaneous

- Corus Steel
- Kilbride
- Steris Finn Aqua-Pure Steam Generators
- GE-Hydro Power