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## **Water Hydraulics A Brief History**

Modern day water hydraulics began in the mid 1970's at the request of the MoD. Seeing major benefits in using sea water as the hydraulic fluid in divers hydraulic equipment, the project led to a team of engineers at the National Engineering Laboratories (NEL) working on the original concept based on the Carron Ball motor design. Many technical issues were raised but at the time the materials technology did not have solutions to the range of problems. The product developed had a limited pressure of 35 bar and a very short life expectancy of 40 hours.

Shell and Esso oil companies both saw the same advantages that the MoD had identified years earlier and in the mid 80's decided to further fund research at the NEL into hydraulic divers tools, again operating on sea water. The advancements in polymer technology and the switch to an axial piston design offered solutions to many of the unanswered technical questions in the earlier development. A range of basic tools such as grinder, slitting saw and drill were produced and demonstrated on the Tomorrows World television programme.

In 1987 a UK company JH Fenner purchased the technology from Shell and Esso with a view to developing a product range for what was believed to be a much larger market; tap water hydraulics. With the aid of the largest DTI grant awarded at the time of £6.2 million and a consortium including Hull University, Trident Electronics and Anderson Longwall the development of the range commenced. The performance of the product was advanced from 70 bar 100 hours operation at the time of purchase to 160bar, 5000 test hours and still operational.

The range of 4 sizes of pumps and motors was launched in 1992 supplying products to a whole host of industries where fire risk and contamination to the person using the system, the product the system is producing or the environment in which it is working were the major criteria for drive solutions. Mining, offshore, food production and nuclear power were industries that embraced the technology. However the solutions that could be offered were very basic due to the lack of control techniques. JH Fenner attached the technology to their Fluid Power division in Romford Essex in 1995.

In 1999, JH Fenner sold their Fluid Power division to a USA company the SPX Corporation along with the water hydraulics technology.

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2001 The Water Hydraulics Company (TWHC) was formed and with the aid of a Smart Innovation Award began the development of a patented design that would solve the control aspect of the water systems. At the same time TWHC was acting as the UK distributor for the pumps and motors now produced by SPX. In 2003 the Janus valve range was launched offering directional, flow and pressure control for the water systems.

In 2003 TWHC purchased the pump and motor technology from SPX. Continuous development of the range is the focus of the company with the range now expanded to 7 sizes of unit, ranging from 0.12kW to 115kW. All products are now produced in the UK, in Hull, by an ISO 9001-2000 company who offer not only individual components but also turn key system and applications solution without fire risk or potential pollution.

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