

## Invest in the best

In order to achieve sustainability and performance-enhancing results, Geoquip Water Solutions says the best move is to dig deep and invest in top quality well drilling equipment.



### Groundwater & Geothermal > Wells-boreholes

Drilling a new well is effectively a work of art married with technical excellence. To deliver against expected yield, it must be correctly designed, drilled with skill and utilise the best possible equipment and materials.

#### Comments

Look for experts with a strong track record and reputation, who have the knowledge and techniques to address any issues that arise. Choose products based on quality not price and ensure all the right certifications and warranties are in place.

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#### Staff Writer

By building within these parameters you will have a well that, with ongoing maintenance, should deliver your water for many years to come. However, cut corners and you will potentially be setting yourself up for a damp and soggy failure.

## Flexibility and strength

One of the critical decisions will always be the system chosen for water abstraction. In our view, the Wellmaster flexible rising main system from Angus Flexible Pipelines has clear advantages over traditional steel risers.



offers 20 per cent savings in energy efficiency due to its controlled high well and lower coefficient of friction than steel pipe and is the only system of its kind to boast NSF US approval and DWI Regulation 31 approval in the UK for the abstraction of potable water.

Known as 'steel on a reel', the Wellmaster's strength comes from the manufacturing process which uses continuous circular weaving with

synthetic yarns to produce a lightweight, exceptionally strong and seamless product.

With high abrasion resistance and high burst pressure, it has total resistance to microbiological attack, scaling or corrosion - giving it a longer service life and, because it is supplied in one continuous length on a reel, it avoids potential areas of weakness that can occur at the joints on traditional steel risers.

In addition, because it is up to 75 per cent lighter, it is more portable and flexible and so easier and cheaper to transport.

Attaching neatly onto a downhole pump via a series of clamps, it is simple to install without the need for heavy lifting equipment, meaning it can easily be installed or retrieved in just one day, also cutting labour requirements and working hours.

## Pump action

When it comes to pumps, the energy-saving High Efficiency Submersible Borehole System (HES), from Franklin Electric E-tech, should be top of anyone's list.

Described as "the next generation" of motors, it delivers energy-saving efficiencies of up to 20 per cent above standard borehole motors.

It comes with the strength of the Franklin name and is the only submersible system of its kind on the market.

Using pre-written application software and a synchronous submersible NEMA permanent magnet motor, it has an associated variable frequency drive and output filter to deliver greater efficiency with higher power density.

	4" MOTORS	6" MOTORS	8" MOTORS
STANDARD ASYNCHRONOUS MOTORS	 <p><b>11 Models</b> Power from 0.55kW to 9.3kW</p>	 <p><b>11 Models</b> Power from 4kW to 45kW</p>	 <p><b>9 Models</b> Power from 30kW to 150kW</p>
PERMANENT MAGNET SYNCHRONOUS MOTORS	 <p><b>5 Models</b> Power from 0.55kW to 7.5kW</p>	 <p><b>5 Models</b> Power from 4kW to 37kW</p>	 <p><b>3 Models</b> Power from 45kW to 150kW</p>

*A demonstration of how inventory can be reduced when using pumps with permanent magnet motors*

This sets it apart from current asynchronous technology because the rotor spins at the same speed of the internal rotating magnetic field, rather than relying on the electric current to turn the motor which induces 'slip' and therefore greater losses. Using less energy when starting and running, it delivers both a smoother and faster solution.

Together, this improves motor efficiency with significantly lower motor heat rise and promises a return on investment within two years.

The HES is currently available in sizes up to 150kW and in familiar motor sizes of 6in and 8in. Recently, this range has been extended to the 4in motor size. Permanent magnet motors have a wider motor size range, so to reach the 150kW range, fewer models are required compared with the traditional asynchronous construction.

## Maintenance matters

"The biggest issue with boreholes is that people think they provide free water - there is no such thing," says Mike Deed, managing director of Geoquip.

"Sinking a borehole is never fit and forget, it is like a car - you have to remember to service it regularly or it will cause you problems in the long run.

"Boreholes require regular maintenance checks, both to avoid the build-up of contamination which can slow efficiency and cause the yield to drop, and also to check for other issues, such as problems with a well casing or deterioration of pumping equipment."



*If left unchecked iron bacteria can build up on water pumping equipment*

Installing bespoke remote monitoring or telemetry systems provides full remote access and enables 24/7 checks to take place. Use of downhole cameras when removing the pumping equipment to check on the condition of the well is always recommended where possible. If a problem is identified, the right expertise can be brought in to tackle the issue before it becomes a major problem.

Typically, pumps, pipes and motors can all become contaminated with iron bacteria, iron oxide, manganese oxide and calcium carbonate deposits - monitoring will enable the team to see when the yield is dropping and recommend the remedial action.



### Geoquip offers private borehole monitoring options...

WELLS &  
BOREHOLES

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One of the best solutions is treatment with Geoquip's range of BoreSaver products, recently approved by the NSF for the first time in the UK market.

The NSF/ANSI/CAN 60 standard was developed by a team of scientists, industry experts and key industry stakeholders who set health effects criteria for many treatment chemicals including well drilling aids, including well rehabilitation aids. As these products are a cleaning chemical it is important to prove that they are clear of the water well before going back online and into production.

A marker within the biodegradable BoreSaver formulation gives an instant all clear to demonstrate that any remaining chemical residue has been removed.

The products can be used within the well, alleviating the need to remove equipment before treatment, and therefore delivering reduced equipment downtime and the ability to regain maximum output in the shortest possible time.

In addition to solving immediate contamination problems, Deed says regular maintenance and checks will also extend the life of the pumping equipment and keep water flowing longer in future.

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## Wellmaster product information

There are three variations to choose from, all of which come in 200m single lengths:

Wellmaster 150 - has a 150m working head

Wellmaster 250 - boasts a 250m working head and tensile strengths to 20t

Wellmaster 400 - has a 400m total working head and additional end tensile strength, making it especially ideal for deep well construction, as it has the

ability to withstand higher end loads for longer rising mains - an increase of 75 per cent over a Standard Wellmaster

The Wellmaster range has a five-year warranty as standard, this is doubled to 10 years if the implementation is managed by an accredited installer, such as Geoquip's strategic partner Treewaters Control Systems.

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