



GILKES

COMPACT HYDRO TURBINE RANGE

Gilbert Gilkes & Gordon Ltd (Gilkes) is an internationally established manufacturing company, based in Kendal, UK on the edge of the English Lake District.

In 1856, Gilkes installed their first hydroelectric scheme. Over 150 years later, we are still a world leader in small hydropower systems supplying over 6500 turbines to over 80 countries during its history. With thousands of installations around the world, Gilkes continue to demonstrate the ability to be sensitive to regional differences and requirements and continually design, manufacture and install bespoke engineered solutions for their customers.

The company's head office is in Kendal, however other operations include a dedicated hydro service unit in Fort William & Inverness, Scotland and offices in Vancouver and Tokyo for the North American and Far East markets.

COMPACT TURBINE RANGE

Made up of both Pelton and Turgo turbines the Gilkes compact range has been specifically designed and engineered for the sub 100kW market. Our simple case design coupled with precision engineered runners and spear valves have produced a range of cost effective, highly reliable turbines suitable for a wide hydraulic duty.

As a keystone component in any hydro scheme, it is essential that the turbine is well maintained and protected from damage. All of our compact turbines are fitted with a failsafe to close deflector that will engage the jet in the event of load rejection preventing the turbine going into a condition known as overspeed.

Gilkes Pelton Turbine

Pelton turbines are medium to high head free jet impulse turbines. As an impulse turbine, the Pelton Turbine maintains high efficiency over a wide flow range. The jet strikes the splitter edge of the double bucket and is turned through an angle of nearly 180° before falling under gravity into the discharge channel or tailrace.

Gilkes Turgo Impulse Turbine

Originally designed and invented by Gilkes in 1919 the Turgo provides a simple and robust impulse turbine to operate on medium heads. The design allows a large jet of water to be directed towards the Turgo Runner at a high velocity.

The Turgo Runner extracts the energy from the water flow and imparts this energy to the turbine shaft. This mechanical power is then transferred into electric energy using a generator. This electric energy is then suitable to export to the national grid or to consume locally.

With its ability to maintain a high efficiency over a wide flow range make the Turgo turbine an ideal solution for a run-of-river scheme.



Gilkes Compact Turbine Control System

Utilising our in house developed turbine controller, the Gilkes Compact Turbine control system provides a fully automatic control system. Capable of controlling both grid connected and islanded installations with either induction or synchronous generators.

As standard, the compact control system includes:

- Head level control
- 6" Touch screen HMI
- Bearing temperature monitoring (Turbine and Generator)
- G59/G83 protection relay
- Power factor correction

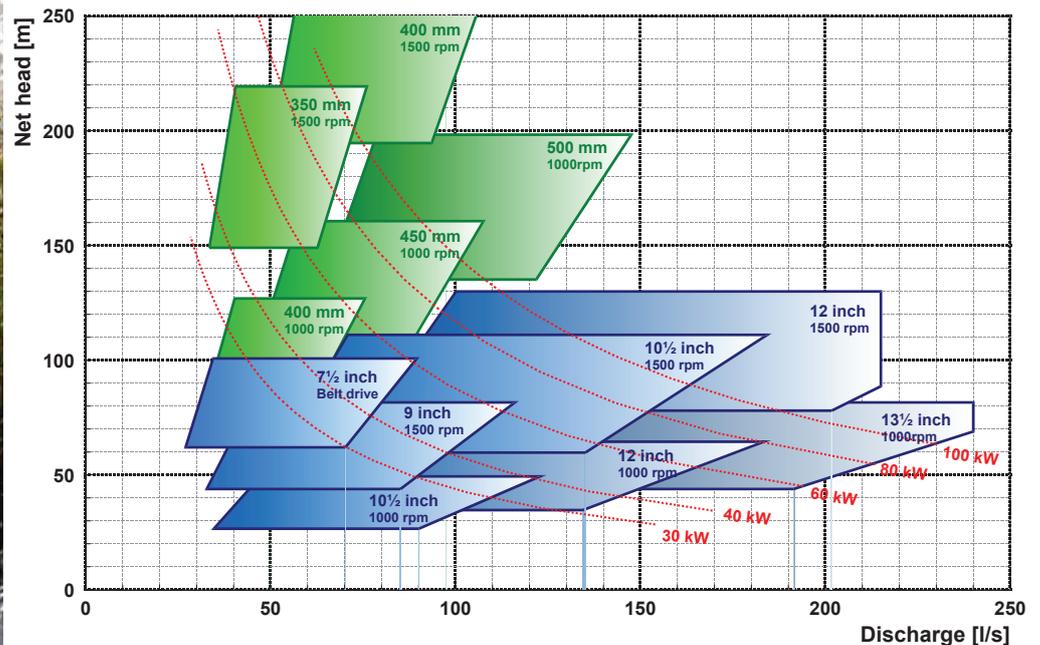
Additional options available are:

- 10" Touch screen HMI
- Remote monitoring
- Text message alerts



The water turbine is the key to any hydro project and requires correct interfacing with the electrical, mechanical, hydraulic and civil aspects of the project.

Gilkes has built on its experience over literally thousands of projects, this allows us to offer a truly integrated package of equipment. The optimum turbine selection for a given hydraulic duty and site application is dependent on many parameters, however the chart below provides a quick guide to the operating range of the main turbine types.



A close-up photograph of a hydro turbine blade, showing its curved, metallic surface and sharp edges. The blade is part of a larger assembly, with other blades visible in the background. The lighting is dramatic, highlighting the texture and contours of the metal.

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