



GILKES

HYDROPOWER SYSTEMS



BY APPOINTMENT TO H.M. THE QUEEN
WATER TURBINE ENGINEERS,
GILBERT GILKES & GORDON LTD, KENDAL



THE QUEEN'S AWARDS
FOR ENTERPRISE:
INTERNATIONAL TRADE
2010

GILKES

ORDER NO. 200103

TURBINE NO. 56736 DATE 2016

ELECTRICAL OUTPUT 1333 kW

RATED NET HEAD 124.5 m

RATED FLOW 1369 l/sec

SPEED 1000 rpm

GILBERT GILKES & GORDON LTD.
KENDAL LA9 7BZ ENGLAND

DESIGNED & BUILT IN THE UK



“
**GILKES HAS
SUPPLIED OVER
6700 TURBINES
TO MORE THAN 80
COUNTRIES**”

A WORLD LEADER IN SMALL HYDROPOWER SYSTEMS

Established in 1853, Gilkes is an international company offering tailored solutions for “small” hydroelectric developments. Gilkes complete water to wire package includes design, manufacture, installation & commissioning.

Gilkes offers a range of hydroelectric turbines capable of generating up to 20MW from a single unit. The range consists of Pelton, Francis and Turgo turbines (invented by Gilkes in 1919) and includes compact solutions for the 50kW to 100kW market.

Gilkes installed their first hydroelectric scheme in 1856. Drawing on the vast experience gained from over 160 years of designing, manufacturing and commissioning hydro schemes, Gilkes excels when it comes to servicing and plant modernisation – from single part replacement to fully rehabilitating whole installations back to their optimum working efficiencies.

Gilkes exports to over 80 countries from the original headquarters in Kendal, Lake District, UK. With thousands of installations around the world, Gilkes continues to demonstrate the ability to be sensitive to regional differences and requirements, designing, manufacturing, and installing customized engineered solutions for their clients. This coupled with a corporate commitment to invest in research and development, software, hardware, and people, allows Gilkes to improve products to best serve their clients and the Hydropower market.

Gilkes also has dedicated service and refurbishment centres in Fort William & Invergordon, Scotland, UK.

With additional offices in Tacoma, USA and Tokyo, Japan Gilkes are able to service the North America and Far Eastern markets directly.



GILKES

“

**GILKES WORK IN
COLLABORATION
WITH THE CUSTOMER
BUILDING A LASTING
RELATIONSHIP THAT
CONTINUES LONG
AFTER THE TURBINE
STARTS GENERATING**

”



“ We are very pleased we have been able to award this contract to Gilkes and so continue our Zimbabwe relationship that started with the Pungwe A plant. It will be very exciting if we can get 3 of the 4 turbines up and running before Christmas 2014, and it will be testament to a lot of hard work done timeously and efficiently by your team in Kendal and also out in Zimbabwe.”

Sebastian Hobhouse

Chief Executive - PGI Group Ltd
- Upon placing an order for the Pungwe B (15MW) project, Honde valley, Zimbabwe

“ **Paul Carson**

“ It is my opinion that the Candelaria project really benefited from choosing Gilkes as the M&E equipment supplier. The quality and performance of the equipment, level of service and support, attention to detail, and installation and commissioning professionalism were all to a very high standard. The equipment has performed excellently since 2005. I'd be happy to discuss Candelaria with any interested parties.

John J. “Jack” Snyder

PE, P. Eng. McMillen-LLC
Senior Mechanical Engineer,
Candelaria Project, Guatemala

“ Just a short note to express our appreciation and to thank you and your engineers for the excellent work carried out during the recent annual maintenance outage at Kinlochleven.

The preparation and planning which went into, not only the annual routine maintenance of the machines, but also the replacement of the K2 runner was of the highest standard.

This and the skill and application of your engineers meant that all aspects of the work were completed ahead of schedule.

Andrew C .Cameron

Senior Power Engineer. Alcan,
Kinlochleven Plant, Scotland

THE GILKES RANGE - WATER TO WIRE PACKAGES FOR...

► Pelton Turbines

Head Range up to 1000m / Power Output up to 20MW
Horizontal single & twin jet units or vertical 4,5 or 6 jet units

► Francis Turbines –

Head Range up to 400m / Power Output up to 20MW
8 different specific speed designs

► Turgo Turbines

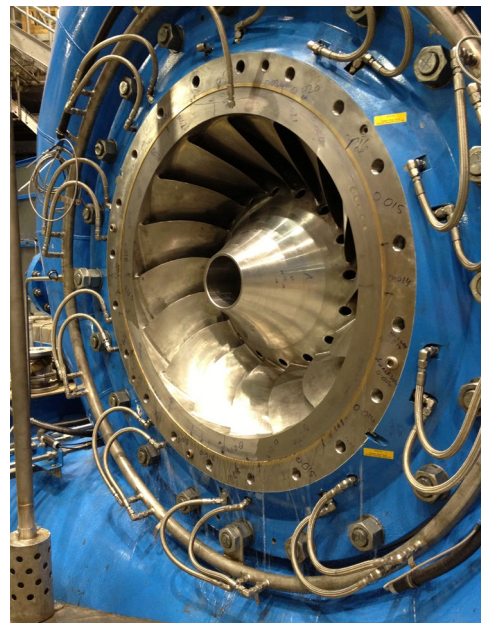
Head Range up to 300m / Power Output up to 10MW
Originally designed & patented by Gilkes in 1919

► Streamline Pelton Turbines

Designed for the sub 500kW market

► Compact Turbine Range

Turgo & Pelton turbines for the 50kW to 100kW market



APPLICATIONS:

- Run of River
- Traditional dam and reservoir storage
- Pumped storage
- Energy Recovery from existing Water process & distribution systems
- Mine Tailings



ACTIVITIES INCLUDE:

- Research & Development
- Design (UK based engineering team)
- Manufacture
- Installation (by time served and highly skilled installation teams)
- Commissioning
- Testing
- After Sales Service / Routine Service
- Full Plant Modernisation



GILKES PROCESS:

- Site visit & Investigation
- Outline Proposal & initial design
- Detailed Proposal
- Design
- Project Management
- Production
- Installation & Commissioning
- After Sales & Servicing
- Operational support





GILKES

**“
TAILORED SOLUTIONS
TO MEET THE
CUSTOMERS’
REQUIREMENTS,”**

GILKES

“
160 YEARS OF
DESIGNING,
MANUFACTURING
& COMMISSIONING
HYDRO SCHEMES,”



THE GILKES PACKAGE

Design, performance modelling, manufacture, installation and commissioning. Backed up by intelligent after sales service and support.

In addition to the turbine package and control systems, Gilkes established portfolio of in-house services have been developed to ensure that we are able to support our customers with every aspect of either private or industrial small scale (<20MW) hydro generation projects.

Gilkes focus on individual regions and in many cases individual countries to ensure that our solutions are tailored to meet with the local requirements of a particular project.

INITIAL CONSULTATION, OUTLINE PROPOSAL & INITIAL DESIGN

- ▶ Professional advice and consultation prior to, and during conceptual design
- ▶ Optimal machine selection, accounting for flow variations and individual budgets
- ▶ Realistic annual energy calculations, provided to assist with best-possible plant selection and payback
- ▶ Initial reference visits to directly applicable live schemes, helping you understand our products

QUALITY MACHINERY DESIGNED AND BUILT IN THE UK

From our three main families of turbine products, Gilkes will select and offer the most suitable machine(s). Gilkes sales engineers will consider total scheme expenditure, minimal requirements for maintenance and ensure maximum annual generation.

EQUIPMENT INERTIA AND SURGE ANALYSIS

Gilkes are able to carry out analysis of the inertia requirements for the turbines and generator. This is advisable for Francis units and includes a surge analysis on the penstock to keep the pressure rise on a trip from the grid network within the safe pressure rating of the penstock.

CONTROL EQUIPMENT

The majority of our turbine packages include Gilkes' own control systems. All ancillary equipment is specifically designed to be included into a fully integrated package, designed to intelligently maximise generation and also protect your investment. Control systems are fully function tested prior to shipment, simulating site conditions to minimise commissioning time and any potential for delays. We provide control systems that meet the requirements of the surrounding infrastructure and the capabilities of our customers' personnel. With increasing emphasis on unmanned plants, automation and remote access is essential. Gilkes offer complete packages ranging from basic manual systems to complex control philosophy for multi-turbine projects.

TURBINE ISOLATING VALVES

All turbines are provided with a turbine isolating valve which automatically isolates the turbine / generator unit in a controlled manner during normal and emergency shutdown procedures. Characteristics of individual schemes are accounted for to ensure minimal head losses and maximum protection.

SPEED GOVERNORS

Gilkes can offer a range of speed control devices depending on the specific project requirements:

These include; Mechanical speed governors, Digital electronic speed governors, PLC speed control and Electronic load governors (load ballast governors).

SYNCHRONOUS GENERATORS

Gilkes have successfully supplied customers with generators from a wide variety of manufacturers. Using our knowledge and experience we can recommend a particular manufacturer for a given application. The synchronous generators are brushless machines, fitted with rotating exciters and solid state AVR's. These features make a significant contribution to the reduction in routine maintenance required on generators. When appropriate, they can be offered with extended shafts. This enables the turbine runner to be directly mounted onto the generator shaft, dispensing with the turbine shaft and bearing, with the resulting reduction in maintenance. Gilkes can also supply induction generators. All generators are manufactured and factory tested fully in accordance with International Standards.

PACKAGING / PACKING AND DELIVERY

Gilkes packing methods are customised to suit the requirements dictated by the project location and access to the project site. Equipment can be packed for long periods of storage.

SITE WORK

Gilkes Engineers provide expert on-site installation and commissioning services. Our engineers are trained to provide the expertise to install, commission and start-up all of the components of the equipment package following Operation and Maintenance procedures. Full training on site or at the Gilkes factory can be provided.

AFTER SALES SERVICE

Gilkes' equipment packages are designed to minimise or eliminate unscheduled down time. All critical strategic spares are identified in consultation with our customers. All contract drawings and documentation are archived to provide spare and after sales service throughout the life of the project.

PELTON TURBINES

HEAD RANGE UP TO: 1000m
POWER OUTPUT UP TO: 20MW

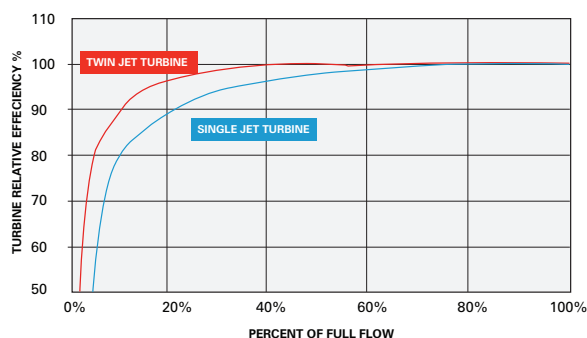
The Pelton Wheel maintains a high efficiency over a wide flow range. Whenever possible two or more jets are specified. This increases the high efficiency flow range. Every Gilkes turbine is designed to optimise your site conditions providing the best annual energy production figures.

Pelton turbines are medium to high head free jet impulse turbines. The jet(s) strike 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' Pelton turbines are supplied as horizontal single and twin jet units or vertical 3, 4 or 6 jet units.

EFFICIENCY

Twin or multi-jet units are specified to increase the flow range over which high turbine efficiencies can be obtained. The efficiency curves given here illustrate this point.



DESIGN FOR PURPOSE:

It is possible to use one size of Pelton bucket on a range of different mean diameters. By this means the turbine can be designed to operate at maximum possible efficiency for any given set of site conditions.

ADVANTAGES OF THE GILKES PELTON TURBINE:

- ▶ It can operate on silt-laden water with the minimum of wear. When wear does occur the spear tip, nozzle and deflector plate can be easily repaired and after longer periods, welding can repair the runner. All working parts are easily accessible through a detachable top cover.
- ▶ Speed-load control is usually carried out by the deflector, which ensures no pipeline surge even on full load rejection. When water economy is important, the deflector speed control can be augmented by follow-up closure of the spear.
- ▶ There is no danger of cavitation damage to the runner or casing.

PELTON CONSTRUCTION:

CASING

The turbine casing is manufactured in two parts and made of fabricated steel. The lower part is specifically designed to allow free discharge of water from the runner and include arrangements for secure grouting into concrete foundations. The upper part is easily removed for access to the runner and maintenance of the unit.

RUNNER

The Pelton runner is machined from solid to improve reliability and efficiency. Materials vary depending on operating conditions but are usually chrome nickel stainless steel. In certain circumstances depending on the head and water quality aluminum bronze runners can be supplied. The runner can be mounted on its own turbine shaft or overhung on the generator shaft.

SHAFT

The turbine shaft of carbon steel is either machined from bar or forged. On larger units the design incorporates a forged half coupling.

BEARINGS

On high power turbines, tilting pad, oil lubricated, thrust or journal type bearings are used, while grease lubricated ball or roller bearings are used for lower power turbines. Where required, lubricating oil and cooling water systems are included.

SPEAR VALVE (NEEDLE VALVE) / BRANCH PIPE

Is manufactured from fabricated steel in a variety of pressure ratings up to PN 100.

SPEAR TIP AND NOZZLE

Are manufactured from stainless steel, both items are easily renewable.

SPEAR ROD

Is manufactured from stainless steel and is supported by a bronze guide which also corrects the flow as it approaches the nozzle, ensuring a clean efficient jet. Operation can be electrical, manual or hydraulic.

JET DEFLECTOR

The deflector plate is of stainless steel and can be easily replaced if worn.



GILKES

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EVERY GILKES TURBINE
IS DESIGNED AND
OPTIMISED TO PROVIDE
THE BEST ANNUAL
ENERGY PRODUCTION
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”



GILKES

“
**FRANCIS TURBINES
ARE DEVELOPED FROM
LABORATORY-TESTED
MODELS AND RETURN
EFFICIENCIES OF UP TO
94% AT THE TURBINE
SHAFT**
”



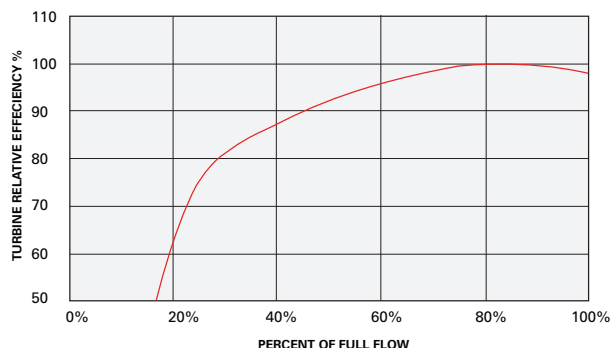
FRANCIS TURBINES

HEAD RANGE UP TO: 400m
POWER OUTPUT UP TO: 20MW

Gilkes Francis turbines are available as either horizontal or vertical units. The water enters the spiral, or scroll case, and is directed by a series of moveable guide vanes, or wicket gates, to the turbine runner. As the water passes through the runner it rotates and the water pressure drops. Water is then discharged through a draft tube into the tailrace. Flow control is affected by opening or closing the guide vanes, which is carried out by an actuator, which, is itself controlled by either a speed governor, for stand-alone duty, or, PLC control for parallel operation with the distribution grid.

EFFICIENCY

Gilkes' Francis turbines are developed from laboratory-tested models and return efficiencies of up to 94% at the turbine shaft. Gilkes use modern Computational Fluid Dynamics (CFD) analysis techniques to continually improve runner design.

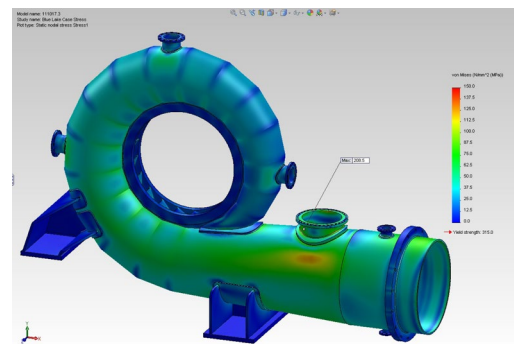


DESIGN FOR PURPOSE

Gilkes' Francis model range includes eight different specific speed designs. The Hydro team at Gilkes can advise on the best solution for your project.



1.



2.



3.

1. Client Inspection Wicket Gate Clearances During Factory
2. Blue Lake Case Stress
3. Shop Assembly Of The Head Covers

TURGO TURBINES

HEAD RANGE UP TO: 300m
POWER OUTPUT UP TO: 10MW

Gilkes Turgo Impulse turbine design was developed to provide a simple Impulse type machine with a higher specific speed than a Pelton. The design allows a larger jet of water to be directed at an angle onto the runner.

As a Gilkes patented design, the first ever Turgo turbine was installed in Scotland in 1919. Since then, turbines of Gilkes' originated design have been operating in over 80 countries worldwide and many of the original units are still in operation.

Gilkes are now replacing, completely or in part, copies of our Turgo Impulse turbines with the original Gilkes designed machine and providing the owners and operators with improved output.

The Turgo range of machines covers the boundary between Pelton and Francis machines and they have been proven to deal extremely well with "dirty" water without any detriment to performance.

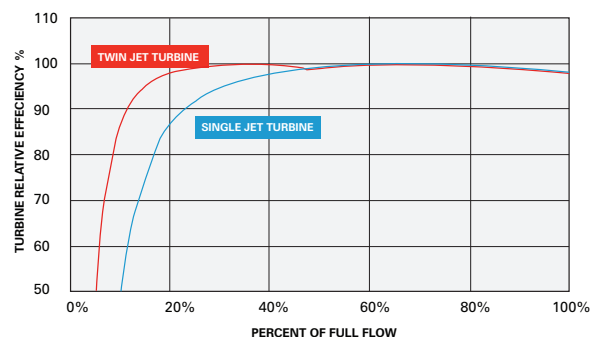
The Gilkes Turgo Impulse turbine has the following major advantages relative to other Impulse and Reaction turbines over a wide range of head conditions:

- ▶ Being of the Impulse pattern, no fine clearances are involved which means that the turbine can operate on silt laden water over long periods with the minimum of wear. When wear does occur, the speartip and nozzle can be easily repaired, and after longer periods welding can repair the runner. Turgo Impulse turbines are very popular at mining power plants. They are able to provide a long life when operating on mining tailings. The overall efficiency is unaffected by normal wear.
- ▶ All working parts, including the deflector are easily accessible through the detachable top cover or through the tailrace pit.
- ▶ The jet deflector usually carries out speed load control. This method of speed control ensures that there is no penstock surge even on full load rejection. Where water economy is of paramount importance, the deflector speed control can be augmented by follow up closure of the spear, the rate of closure being designed to be compatible with the penstock design rating. This gives the Turgo Impulse an advantage over medium to high head Francis turbine installations that require higher pressure rated penstocks, surge facilities or relief valves.
- ▶ There is no danger of cavitation damage to the runner or the casing.

- ▶ The performance curve is flat giving high efficiency over wide flow and load variations. Despite the lower peak efficiency, the Turgo Impulse when compared to a Francis turbine may result in a higher annual energy production. This is particularly important where the turbines are used on run of river sites subject to seasonal flow changes or in conjunction with water supply or irrigation schemes.
- ▶ The large jet diameter relative to runner mean effective diameter provides a compact machine capable of passing large quantities of water. This is particularly useful when the turbine is being used as a flow-regulating device in a water supply or irrigation scheme.
- ▶ The high specific speed characteristic generally means that a more compact and cheaper generator can be used when compared with multi jet Peltons.
- ▶ These features all indicate that the Gilkes Turgo Impulse turbine must be seriously considered when one is looking for a medium to high head machine of proven efficiency, reliability and simple maintenance.

EFFICIENCY

Single or multi-jet units are specified to increase the flow range over which high turbine efficiencies can be obtained. The efficiency curves given here illustrate this point.





GILKES

**“TURBINES OF GILKES’
ORIGINATED DESIGN
HAVE BEEN OPERATING
IN OVER 80 COUNTRIES
WORLDWIDE AND
MANY OF THE ORIGINAL
UNITS ARE STILL IN
OPERATION”**



PLANT MODERNISATION

Drawing on the experiences gained from over 160 years of designing, manufacturing, installing and commissioning hydro turbines and associated control systems we truly excel when it comes to plant modernisations.

Gilkes turbines have an unparalleled life span. However, at some point during the life of a hydro scheme, there will undoubtedly come a time where plant modernisation will be required and certain aspects will have to be replaced, refurbished or upgraded.

Gilkes have a great deal of experience of everything from single part replacement or upgrade to fully rehabilitating whole hydro installations back to their optimum working levels.

MODERNISATIONS SERVICES:

- ▶ Site surveys & condition assessment
- ▶ Control system upgrades & regoverning, including:
 - Conversion to digital load governing
 - Hydraulic & electric actuated upgrades
 - PLC control philosophy programming
 - SCADA systems for remote monitoring
- ▶ Replacement turbine components
- ▶ Complete turbine replacement
- ▶ Full plant refurbishment & optimisation
- ▶ Project Management
- ▶ Installation & Commissioning

BENEFITS:

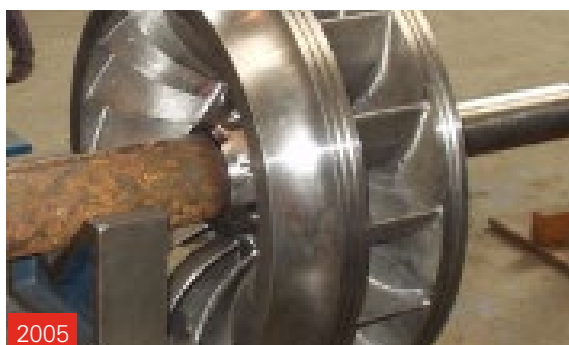
- ▶ World class engineering design
- ▶ Web interface support software
- ▶ Accurate speed control
- ▶ Easy interface with other control devices
- ▶ Load sharing

MODERNISATION PROJECTS:

1036kW Turgo, Alaoa, Samoa



35kW Francis, Balmoral, Scotland



GILKES SERVICE

GILKES SERVICE:

Gilkes has a renowned history that spans three centuries in the supply of high quality water turbines and there control systems. At Gilkes we don't want our involvement to end at the point of equipment supply; Gilkes will be there to assist our customers throughout the full life term of the equipment. Any down time is costly to the customer and Gilkes is in a position to assist when required with office based engineer support, supply of original spare or emergency response with an engineer to site.

- ▶ Tailored long-term preventative electro mechanical service contracts
- ▶ Site surveys and condition assessment
- ▶ Breakdown assistance and repair
- ▶ Factory based technical support
- ▶ Installation & Commissioning

SERVICE CONTRACTS

It is our recommendation that once your scheme is commissioned and in operation you ensure the plant is covered with a preventative maintenance contract. This helps optimisation of generation over the assets life and helps reduce the risk of unplanned costly downtime.

We have a range of different level service packages available for UK schemes that have been designed to suit the different requirements of our customers and there hydro installations, full details of the service levels and cover each level they provide are detailed below.

GILKES GOLD

- ▶ Annual 12 month inspection (mechanical & electrical) & written report. This is the main inspection of the year and will usually on a run of river scheme be completed during the drier months of the year. The turbine will be internally inspected and all important clearances and components will be inspected and condition recorded. This inspection will also cover a condition inspection of all mechanical and electrical equipment covered i.e.:
 - Turbine & Actuators
 - Generator
 - Main Inlet Valve
 - Hydraulic Control Module (if applicable)
 - Control Panel
- ▶ Interim 6 month inspection (mechanical & electrical) & written report
- ▶ Gilkes service engineer to visit site once a month and ensure the lubrication schedule is in order and up to date
- ▶ Perform a monthly review of the HMI data to ensure the machine in optimum condition
- ▶ Web monitoring (Subject to suitable HMI and broadband access)
- ▶ Out of hours telephone response support
- ▶ 7 days a week call outs
- ▶ Fixed labour costs for unplanned work
- ▶ Fixed markup on service consumables

GILKES SILVER

- ▶ Annual 12 month inspection (mechanical & electrical) & written report. This is the main inspection of the year and will usually on a run of river scheme be completed during the drier months of the year. The turbine will be internally inspected and all important clearances and components will be inspected and condition recorded. This inspection will also cover a condition inspection of all mechanical and electrical equipment covered i.e.
 - Turbine & Actuators
 - Generator
 - Main Inlet Valve
 - Hydraulic Control Module (if applicable)
 - Control Panel
- ▶ Interim 6 month inspection (mechanical & electrical) & written report
- ▶ Out of hours telephone response support
- ▶ 7 days a week call outs
- ▶ Fixed labour costs for unplanned work
- ▶ Fixed markup on service consumables

GILKES BRONZE

- ▶ Annual 12 month inspection (mechanical & electrical) & written report. This is the main inspection of the year and will usually on a run of river scheme be completed during the drier months of the year. The turbine will be internally inspected and all important clearances and components will be inspected and condition recorded. This inspection will also cover a condition inspection of all mechanical and electrical equipment covered i.e.
 - Turbine & Actuators
 - Generator
 - Main Inlet Valve
 - Hydraulic Control Module (if applicable)
 - Control Panel
- ▶ Fixed labour costs for unplanned work
- ▶ Fixed markup on service consumables

To make an appointment for an onsite assessment of your requirements please contact the service team at one of our three service centres.

Head Office & International Service Centre

Kendal, Cumbria
T: 44 (0)1539 720028
E: service@gilkes.com

Fort William Service Centre

T: +44(0)1397 600500
E: service@gilkes.com

Invergordon Service Centre

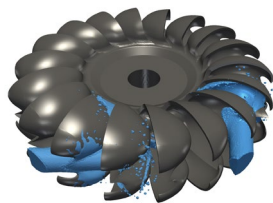
T: +44(0)1397 600500
E: service@gilkes.com



A LASTING PARTNERSHIP

RESEARCH & DEVELOPMENT

The hydropower sector demands optimisation in equipment efficiency and reliability. Gilkes embraces this demand with a dedicated team of engineers committed to Research & Development. The team employs industry experts and provides the best numerical simulation methods available to ensure Gilkes products are optimised. At Gilkes the aim is exceed your expectations and our investment in R&D allows Gilkes to provide customers with optimised turbine solutions which have been fully validated using model test facilities.



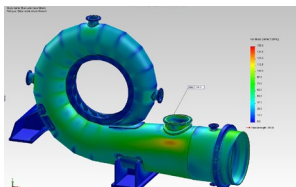
DESIGN & PROJECT MANAGEMENT

Gilkes do not just offer a manufacturing service but a complete specialised engineering service, established through many years' experience in the field of small hydro. This service ensures that projects proceed smoothly and on time with the minimum of project management.

Gilkes adopts a customer focused approach, working in close collaboration with the customer, consultant and contractors. A Gilkes project team is assigned to engineer the contract from start to finish with customer single line contact through an appointed project engineer.

Having been in business for over 160 years Gilkes are very fortunate to have had a great deal of experience passed down through the generations on to the engineers of today. Gilkes currently employs approximately 250 staff many of which have worked in the hydro industry for decades, with a multi-disciplined team of experienced & qualified graduate Engineers and designers using cutting edge techniques & software such as Solidworks, AutoCAD, FEA & CFD.

Gilkes In house developed turbine selection software uses model test data to select the most suitable turbine for hydraulic conditions for each scheme.

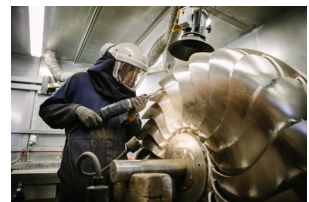


ON SITE EXPERTISE

Gilkes' Engineers provide expert on-site installation and commissioning services. The same in house fitters/assembly team, as well as the project engineer attend the project site to carry out the installation & commissioning, ensuring close co-ordination and familiarity with the equipment/project.

Gilkes provide solutions to meet the requirements of the surrounding infrastructure and the capabilities of the customers' personnel. With more emphasis on unmanned plants, automation and control is essential. Gilkes offer complete packages ranging from basic manual systems to complex fully automatic and remote controlled systems for multiple turbine projects. All equipment is fully factory tested, simulating conditions at site to minimise commissioning time.

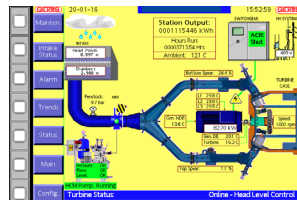
Our Engineers provide the expertise to install, commission and start-up all the components of the equipment package following operation and maintenance procedures. Full training on site or at the Gilkes factory can be provided.



AFTER SALES SUPPORT

Gilkes customer focused approach, working in partnership with the client builds a lasting relationship than continues long after the turbine starts generating.

Gilkes Continue to monitor the performance of machines long after commissioning is completed to ensure the customer is getting the optimum performance their hydropower scheme.



QUALITY

Gilkes Hydropower holds a Royal Warrant as Water Turbine Engineers after supplying a number of turbines to Her Majesty The Queen, the first one being installed for Queen Victoria at Balmoral in 1898.

Gilbert Gilkes & Gordon Ltd has a long history of maximising its export markets and won its first Queen's Award for Export in 1969, managing to repeat this feat more recently in 2010 under the International Trade category.

Gilkes' heritage is built on innovation and quality and its Quality Management System is accredited by Lloyds to both ISO 9001:2008 and ISO TS16949:2009.



A full-page photograph of two men walking towards the camera on a bright red, textured floor. They are both wearing dark blue zip-up vests over light-colored shirts. The vest on the left has the 'GILKES' logo and 'Jack & William' on it. The man on the right is also wearing a vest with the 'GILKES' logo and 'Jack & William'. They are both wearing dark blue trousers and brown shoes. In the background, there is a modern interior with a glass railing and a large, perforated metal light fixture hanging from the ceiling.

GILKES

**“GILKES HYDROPOWER
CONTINUE TO
LEVERAGE TECHNOLOGY
AND INNOVATION
TO INCREASE THE
EFFICIENCY OF OUR
TURBINES”**