

# HyService

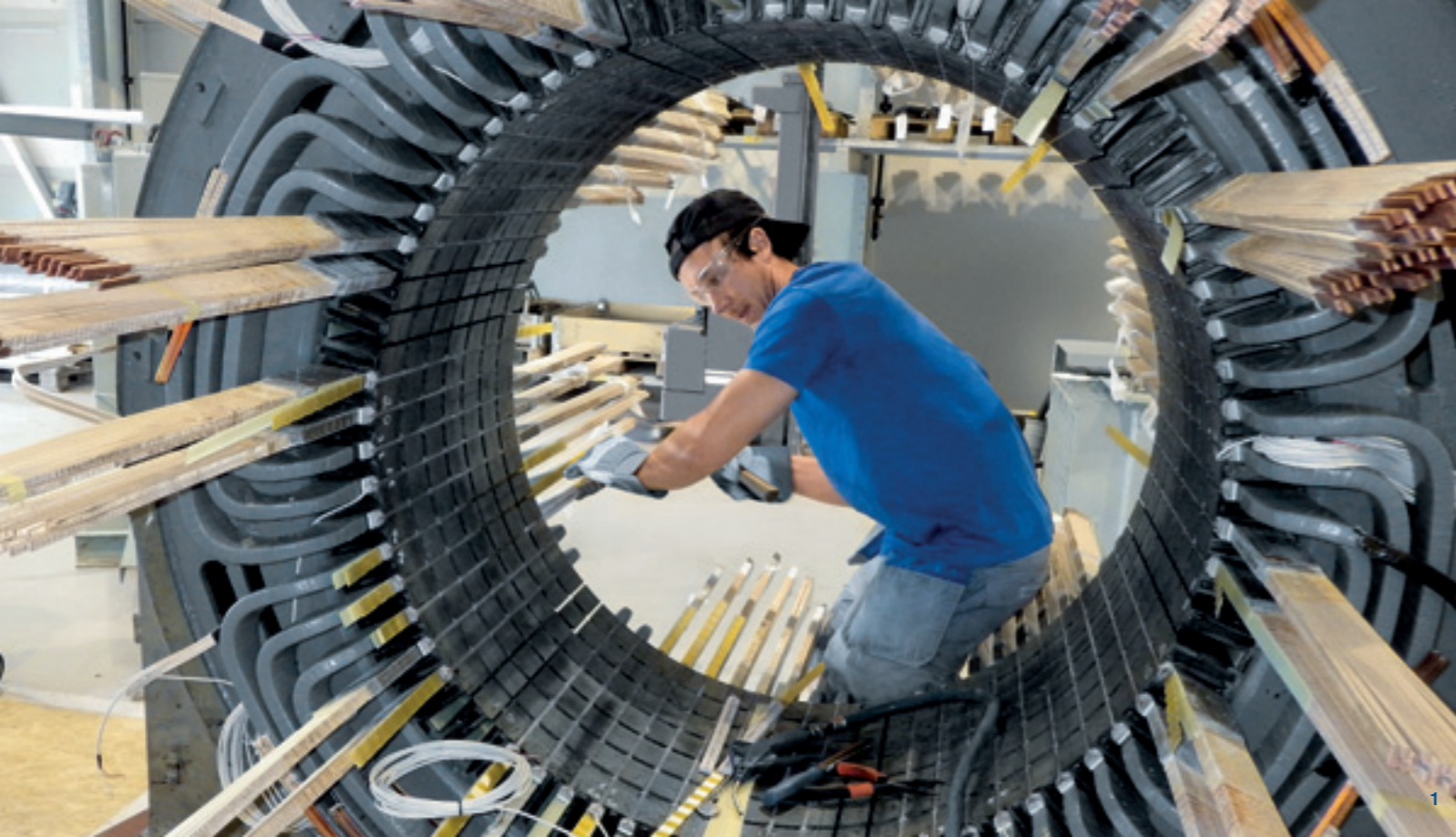
Keep your energy flowing



Voith Hydro Holding GmbH & Co. KG  
Alexanderstrasse 11  
89522 Heidenheim, Germany  
Tel. +49 7321 37-0  
Fax +49 7321 37-7890

A Voith and Siemens Company

[www.voith.com/hyservice](http://www.voith.com/hyservice)



1 Manual rewinding of a 70-year-old stator.

2 Disassembly of a two stage pump.

## Voith has installed a quarter of the world's 40 000 hydro power units

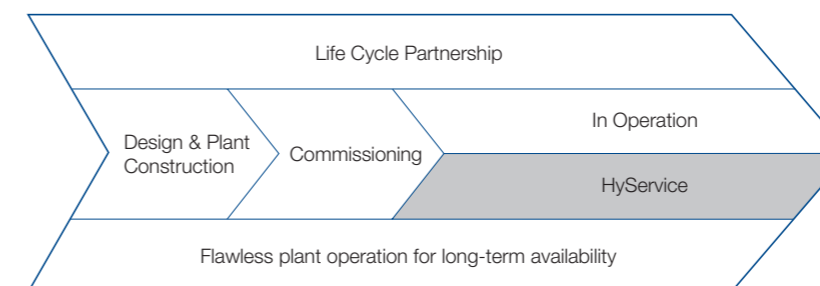
Hydropower is the largest source of renewable energy generation and has been in use for over 140 years. As one of the world's leading suppliers in the hydropower industry, Voith Hydro is at the forefront of sustainable development. With such impressive numbers of installed units worldwide, hydropower's contribution to eco-friendly, reliable and safe energy generation is indispensable. Our experts are always working to improve energy efficiency and environmental compatibility. This continually enhances the portfolio of solutions, products and services we deliver to our customers.

We are aware of the challenges our hydro customers face on a day-to-day basis. Downtime is expensive, so it is our goal to maintain peak operation of your plant assets.

- As a full-line supplier, Voith Hydro offers a complete range of hydropower service solutions.
- Our customers can rely on our experience, accumulated over decades, to ensure that their plant runs efficiently throughout its service life.
- We have the know-how, technologies and equipment to take on every maintenance challenge – from design and construction, preventive maintenance, turn-key replace-in-kind and optimized repairs to a plant's complete rehabilitation.
- Our customers can count on the shortest possible downtime and longer running machinery for any type of equipment.

At Voith Hydro, we call this HyService.

### Integrated technical and economic approach



Voith Hydro's HyService is an important part of our Life Cycle Partnership Concept to ensure flawless plant operation for long-term availability.

### With HyService, you obtain:

- + Efficient, customized solutions
- + Experienced welders and machinists
- + Reduced outage time and longer-running machines
- + Optimized bottom-line results

### With HyService, you will:

- + Significantly reduce outage time
- + Prolong the life of turbine, generator, and automation components
- + Restore components to meet OEM standards
- + Ensure environment-friendly repairs



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- 1 Disassembly of a pump storage unit.
- 2 Francis runner in one of our manufacturing facilities located around the globe.

## 140 years of industry experience

With our broad experience we are best prepared to be your provider of choice for today's hydropower plants. Voith's HyService aims to deliver flawless operation for the longevity of your power plant. Our goals are to extend the life of your plant, increase availability, reduce the likelihood of technical failures, and better integrate new processes.

We are also focused on helping you recognize cost improvements, including reduced spare parts inventory and streamlined fixed-cost planning. Our engineers perform to your specifications, with quick response and turnaround times.

How can one supplier achieve all of this? First, Voith Hydro has the advantage of 140 years of industry experience as an original equipment manufacturer (OEM) and has one of the largest installed bases of any supplier. Second, we combine this expertise with market-leading technology and form a close working relationship with our customers. This sets the foundation for Voith Hydro to deliver comprehensive HyService solutions.

From simple repairs to general overhauls to restoring systems to their original state, our service capabilities cover all generator types, turbines and hydraulic machines, valves, as well as automation and auxiliary equipment.



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## HyService – simple and clear

Maintenance

Emergency Support

Assessments

Diagnosis & Data Evaluation

Spare Parts Service

Refurbishments

Repairs

General Overhauls

On-site Machining

Redesign

Remote Services

Preventive Maintenance

Protective Coatings & Cavitation Repairs

Environmental & Sustainable Services

Service technician explaining the typical repair process of a bearing damage.

## HyService, 24 hours a day

To deliver on our promise, Voith understands the importance of having a strong local presence in all the markets we serve. We operate out of more than 15 service locations in Asia, Europe, North and South America, and from there we can dispatch engineers and technicians.

Our teams perform routine maintenance and repairs at our customers' sites, as well as respond to emergency needs around the clock. We also have the know-how to address major rebuilds and refurbishments to maximize the service life of a plant. Our HyService portfolio is comprehensive, and services can be bundled and tailored to meet the specific requirements of each customer.

### Examples of HyService around the world, around the clock.

#### 9:30 local time in Heidenheim, Germany

A few months ago, Voith Hydro finished a modification of a run-of-the-river plant to utilize water driven servo motors. Due to this positive past experience, the HyService team receives a phone call from the same customer asking for help. The operator reported a trigger signal indicating an unusual temperature rise in the thrust bearing, which was not modified in the previous project. After a brief discussion on the phone, Voith dispatches a HyService expert immediately to site.

#### 11:00 in Winnipeg, Canada

The local HyService team arrives at the site for a routine inspection as part of a five-year service agreement with the utility. Working along the standard checklist for the plant, they quickly identify a problem with the connection of the slip ring and generator rotor poles. To prevent major damage and an unplanned outage in the near future, the team proposes a repair procedure.

#### 14:15 in Sao Paulo, Brazil

After a few hours of investigation and discussions with the Voith engineering team in Sao Paulo, the HyService team on site identifies a broken seal as the root cause for an oil leak in the Kaplan runner hub. The team starts immediately with the repair to protect the environment from the oil leakage. To minimize the impact, the work will continue throughout the night.

#### 17:00 in Wuhan, China

Finally, the replacement Francis runner is delivered and installed. The recommissioning of the unit progresses smoothly and is finished ahead of schedule. At the official reopening ceremony in the plant, the customer thanks Voith Hydro's HyService team for their good cooperation and efficient execution of the project.





- 1 Planning of site work during a project team meeting.
- 2 Well trained and experienced staff ensures quality work.
- 3 Performing an on-site assessment.

## More than 10 000 Voith turbines and generators installed

With our impressive installed base of turbine, generator, and automation equipment, Voith Hydro has experience with every possible problem that may arise at your facility or with your equipment. Our regional locations draw on this collective and global expertise, enabling them to deliver service that is unparalleled in the industry.

Each of our global service centers is a one-stop shop with a complete range of replacement parts and service capabilities. To ensure access to the same high-quality services around the globe, we share knowledge and identify best practices, as well as maintain guidelines and standards that are essential for quality control.

As the global demand for hydroelectric power increases, so does the number of customers that count on Voith to keep their energy flowing. For this reason, we continue to strive for excellence globally, while maintaining a local presence to ensure fast, responsive, and customized service.

Our commitment to excellence enables us to promise quality results delivered on site, on time and on budget, for a full spectrum of brands.

### List of brands / OEM

- AEG (Hydro Generators)
- Allis Chalmers
- Ansaldo
- APET (Austrian Power & Environment Technology GmbH)
- Ebara (Hydro Equipment)
- ESAC (Energy S.A.)
- Fuji Electric (Hydro Equipment)
- Hydro-Art
- Kössler
- Peak Hydro Services (former Weld-Mart)
- Riva
- Riva Hydroart
- S. Morgan Smith
- Shanghai Hydro-Power Equipment Company
- Siemens (Hydro Generators)
- TDPS (Toyo Denki)
- Tosi
- Vally Iron Works
- VG Power
- Vortex Hydrosystems
- Westinghouse (Hydro Generators)