



Hydropower screw with fish migration screw at Heckerwehr



REHART HYDROPOWER SCREWS

NATURAL POWER AT YOUR SIDE



SUSTAINABILITY



SUSTAINABLE

Nothing is destroyed. Cannot be exhausted.
The environment is not destroyed. All parts have
been designed for a long lifecycle and can be
100 % recycled.



Hydropower project team
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THIS ENERGY IS SAFE AND CLEAN

All over the world affordable electricity is provided by the small hydropower via the Archimedean screw.
As early as 200 B.C. this screw was used for irrigation purposes, and today the principle has been reversed: driven by water from low heads projectable, baseload electricity is generated via a screw. Renewable, local and at short distances.

CARBON-NEUTRAL

Power generated by hydropower is carbon-neutral.
Every kWh generated reduces the CO2 emission by 1 kg.

FISH-FRIENDLY

The Archimedean screw is a pressureless system that has nothing in common with traditional turbines. This way the screw and fish harmonize really well. The fish can swim downstream passing the screw. They return to spawn via a lateral fish pass or a fish migration screw.

EFFICIENCY



90 %

SCREW
EFFICIENCY



Powerhouse of a large plant

1. PROFITABLE INVESTMENT

The simple, robust technology and the low construction costs provide for a short project term. Combined with favorable planning and project costs, a positive operating profit can be achieved.

2. EFFICIENT EVEN WITH VARYING HEIGHT OF WATER

The hydropower screw is able to cope with varying water levels and low heads and at the same time is reliable in providing electricity.
Even in partial load up to 10 % of the dimensioned water volume, electricity is still generated. It is operated year-round and has no problems with frost.

3. SIMPLE ASSEMBLY

Whether it is a compact, semi-compact system or steel trough for casting, every system is delivered pre-assembled. Depending on the type, civil engineering works are required only to a minor extent.

4. RELIABLE

Made in Germany – all parts are manufactured reliably and with a high quality standard, for reliable power generation. For decades Rehart has been manufacturing screws for maximum loads.

5. LITTLE MAINTENANCE EFFORT

The well-thought out construction mostly gets by without maintenance staff. It is operated and monitored via computer, tablet or smartphone. Remote servicing and remote control assure the operation.





GET IN. ASCEND. SWIM.

Hydropower plant with fish migration screw System Rehart/Strasser at Url, Lower Austria

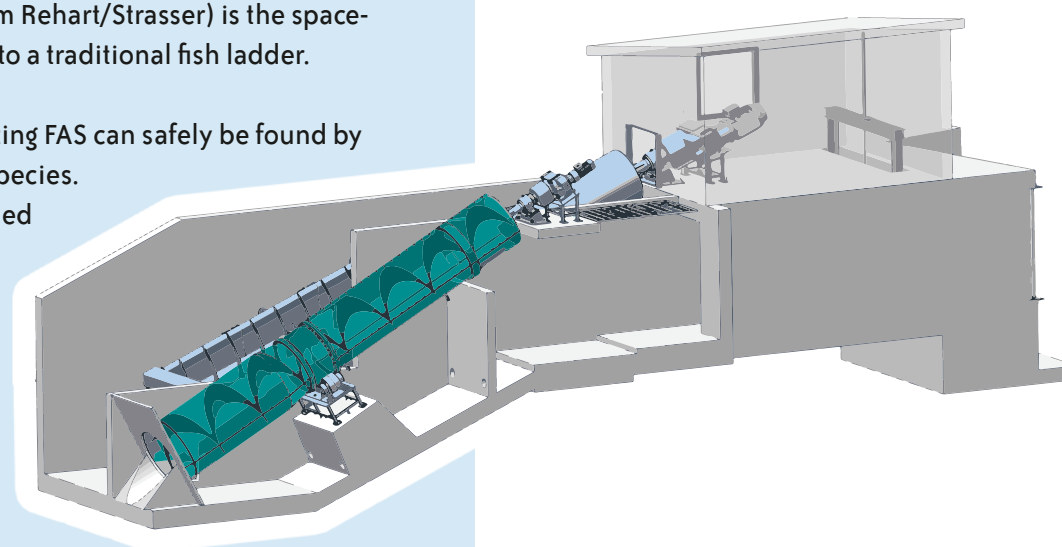
THE PERFECT SOLUTION FOR DESCENDING AND ASCENDING RIVER POPULATION



THE FAS (fish migration screw system Rehart/Strasser) is the space-saving and cost-effective alternative to a traditional fish ladder.

Due to the attraction flow the slowly rotating FAS can safely be found by fish and other bottom-oriented aquatic species. The size of the tube and screw are designed individually to the existing fish species. Even weak swimmers and other river species like crabs or insect larvae can ascend easily. This is proven by excellent monitoring results.

As with all systems by **REHARTPOWER**, a safe descent through the hydropower screw is possible.








FAS next to a turbine unit



FAS next to a hydropower screw

FACTS

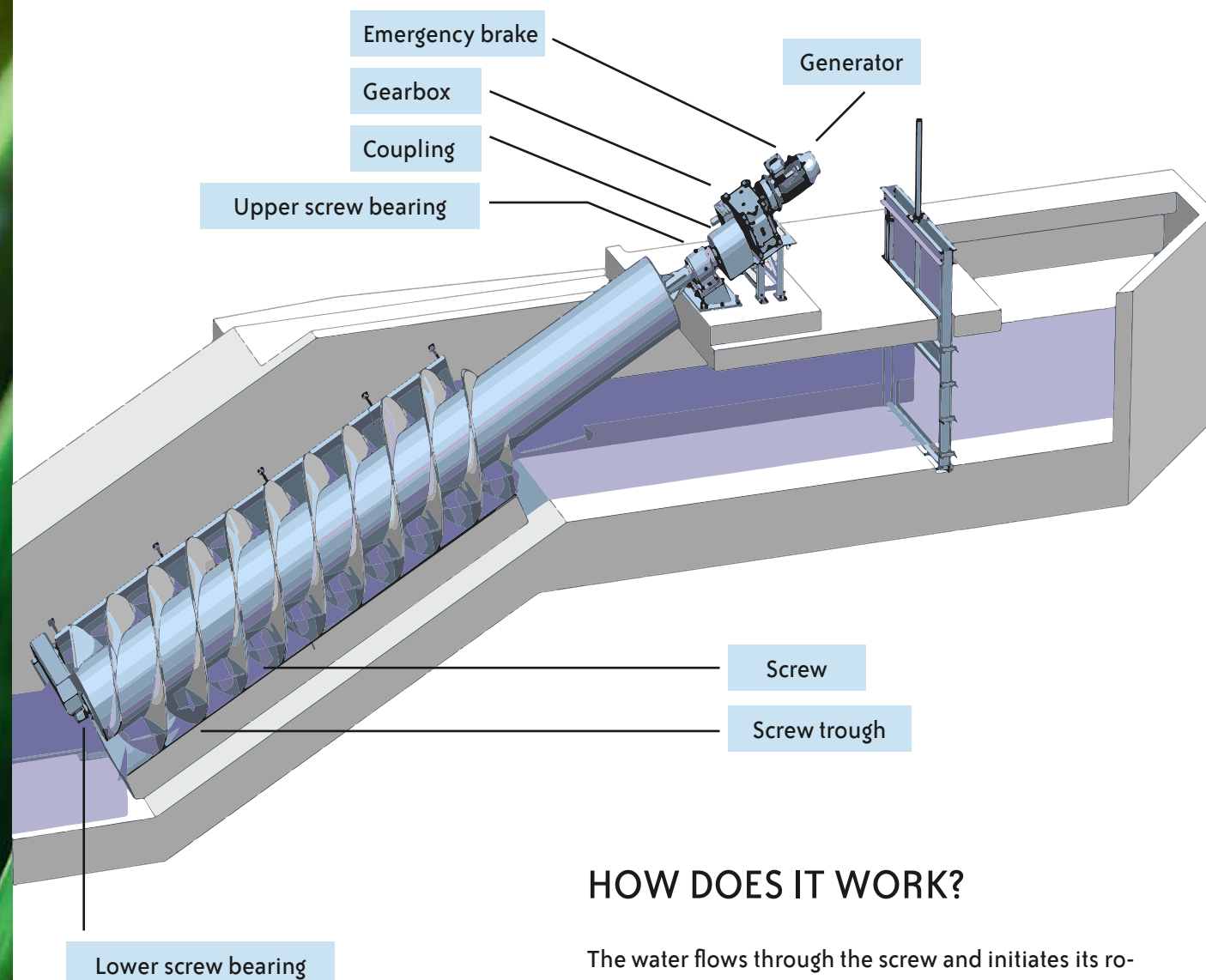
-  FAS increases profitability of your hydropower system.
-  FAS is almost maintenance-free, even with floods.
-  Full operability of FAS has been officially confirmed by excellent monitoring results.
-  FAS is optimally adjusted to the predominant fish. Largest fish to ascend so far: a 78 cm-long huchen. The gapless design ensures migration without injuries.
-  FAS can be added to any kind of dam structures and alongside all kinds of hydropower systems and thus provides for ecological passability required by any regulatory authority.

For further information about FAS go to our homepage:
www.rehart-power.de/FAS





OPERATION



HOW DOES IT WORK?

The water flows through the screw and initiates its rotation. The rotation is transmitted by the gearbox and forwarded to the generator where it is then converted into electrical power.

The system's inlet is equipped with a coarse screen. Thus larger foreign bodies (flotsam) are kept away from the plant. Smaller sediments can pass the screen and screw so that the natural sediment structure is kept.

Application per hydropower screw
(several possible in parallel):

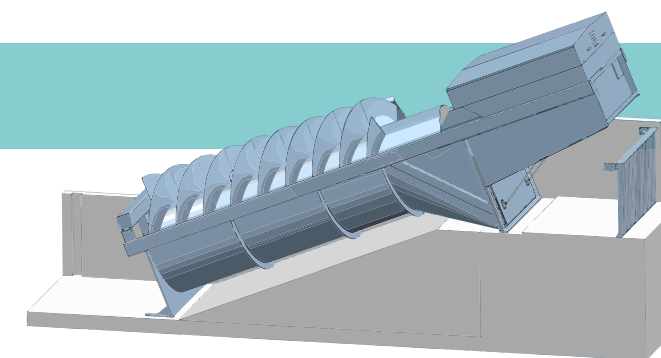
Water volume: 0,3 m³/s to 10 m³/s
Head: 1 m to 10 m
Power: 3 kW to 500 kW

SERIES



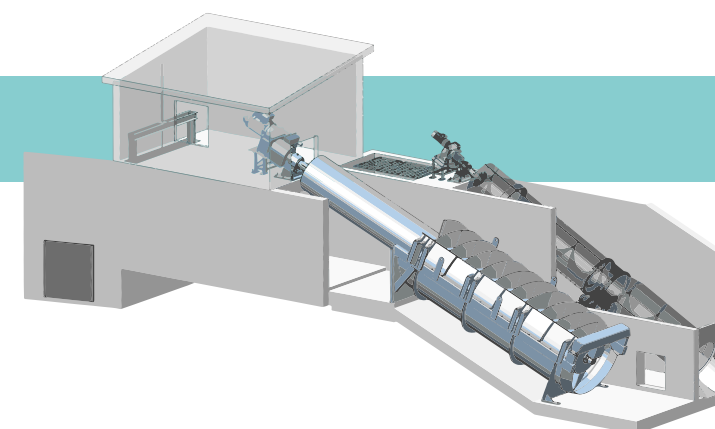
CS Compact system

System pre-assembled in the factory. All components are integrated. Only a strip foundation at the outlet and a channel for inlet is required on site.



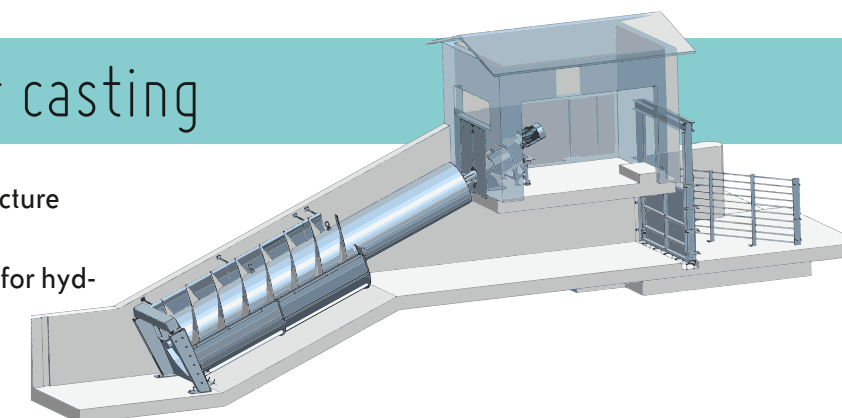
BS Hybrid system

The trough is self-supporting and need not to be cast. The drive unit is located on a foundation in a building.



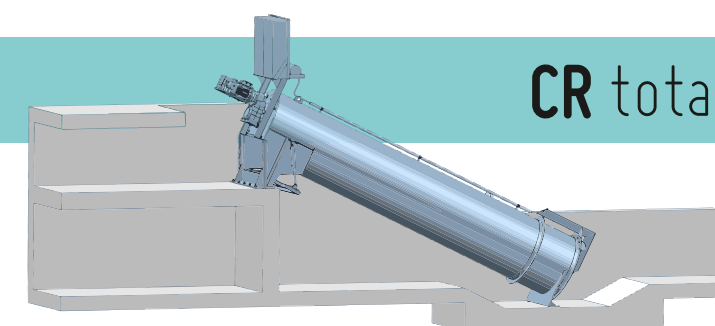
SH Steel trough for casting

The trough is fastened in the precast structure and then cast with concrete. Favorable engineering, high expenditure for hydraulic engineering.



CR totally enclosed compact unit

System pre-assembled in the plant. All components are integrated. The trough takes the form of a tube. Drive train can be covered with weather protection hood.



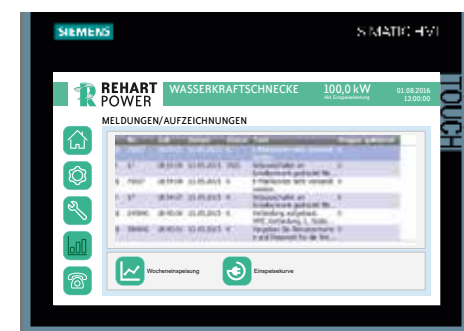
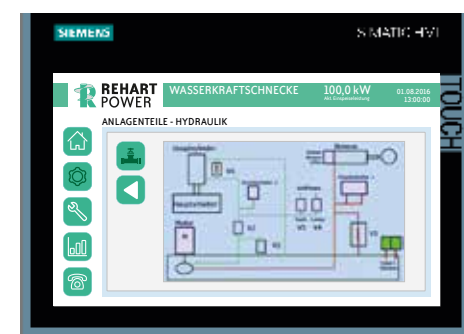
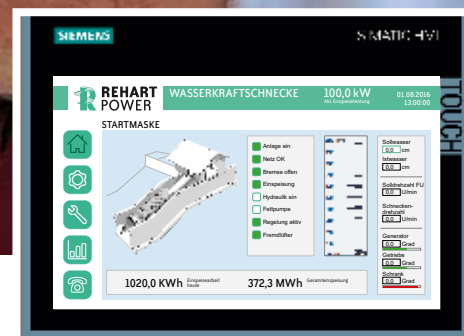
OPERATING CONCEPT



The control of **REHARTPOWER** hydropower systems has been exclusively developed in cooperation with a partner. It complies with all requirements of an advanced operating concept, including remote servicing and remote control with mobile device.

The clearly arranged user interface ensures that the user can find his way around quickly. He gets an overview of important data and only a few clicks are required to access all control functions of the system.

Safe operation is ensured by a sophisticated monitoring and fault management. You will be informed on the touch panel and on request directly via e-mail or text message about the condition of the system and maintenance work based on the upcoming intervals set.



When it comes to control cabinet construction **REHARTPOWER** relies on high-quality components by well-known internationally available manufacturers and an experienced partner. Moreover all our systems comply with all requirements of CE conformity.



500 kW system, steel trough for casting (type SH), Hausen im Wiesental

Single, in series, next to buildings or alone at the edge of the forest: one solution for many requirements. The equipment is also flexible. From the compact type to complex system solutions that can also control entire weir systems. The patented height adjustment (0 to 28 degrees) can be used to even out varying water levels. With reference systems, a rise in profits of 18 % compared to the inflexible version can be proven. Low-maintenance operation is ensured by best components. Gearboxes, couplings and generators are made by German manufacturers and comply with highest German industry standards.



Totally enclosed compact unit (type CR), Bischofsmaier



Compact system (type CS), Lohr am Main



Hybrid system (type BS), Baiersdorf

EXAMPLES





CONSULTING

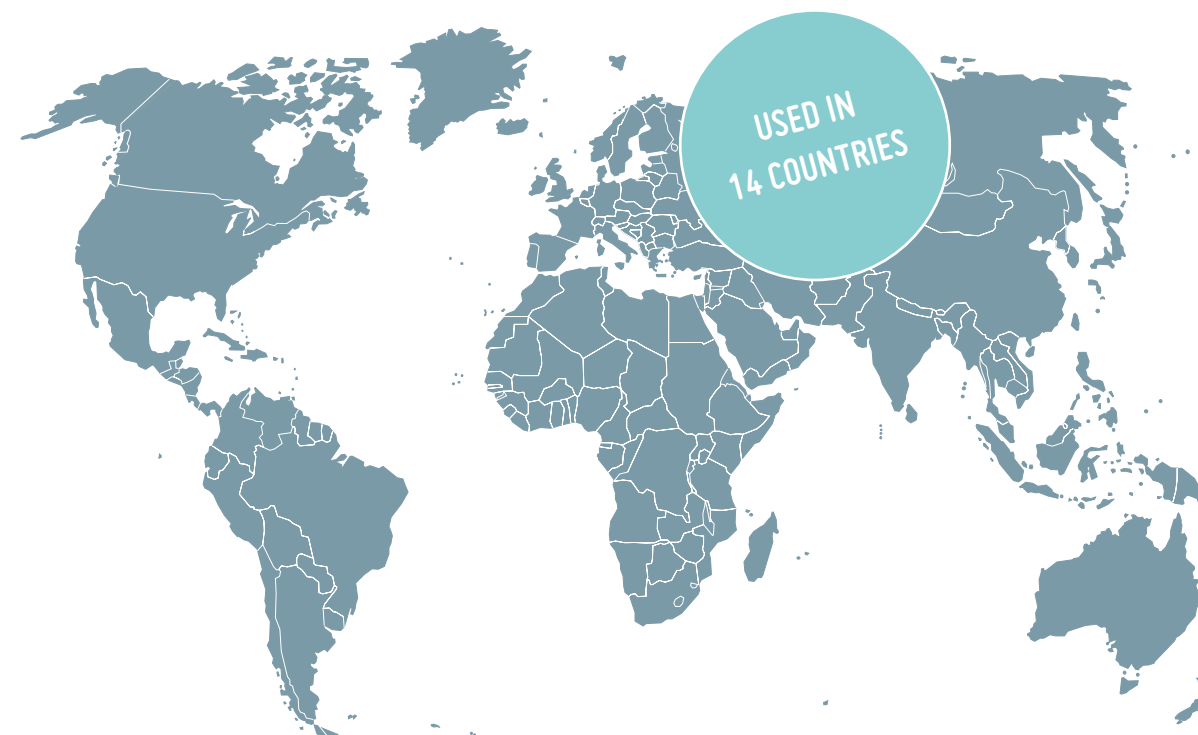
Our consulting service determines the feasibility and profitability of your project.

We check the land and waters on the basis of facts and data measured and calculate payoff time, yields and the necessary investment. With these documents you know the conditions under which your investment will be successful.



Christian Habermann, Dipl.-Ing. (FH)
General Manager and Area Manager
Hydrower at **REHARTPOWER**

WORLDWIDE



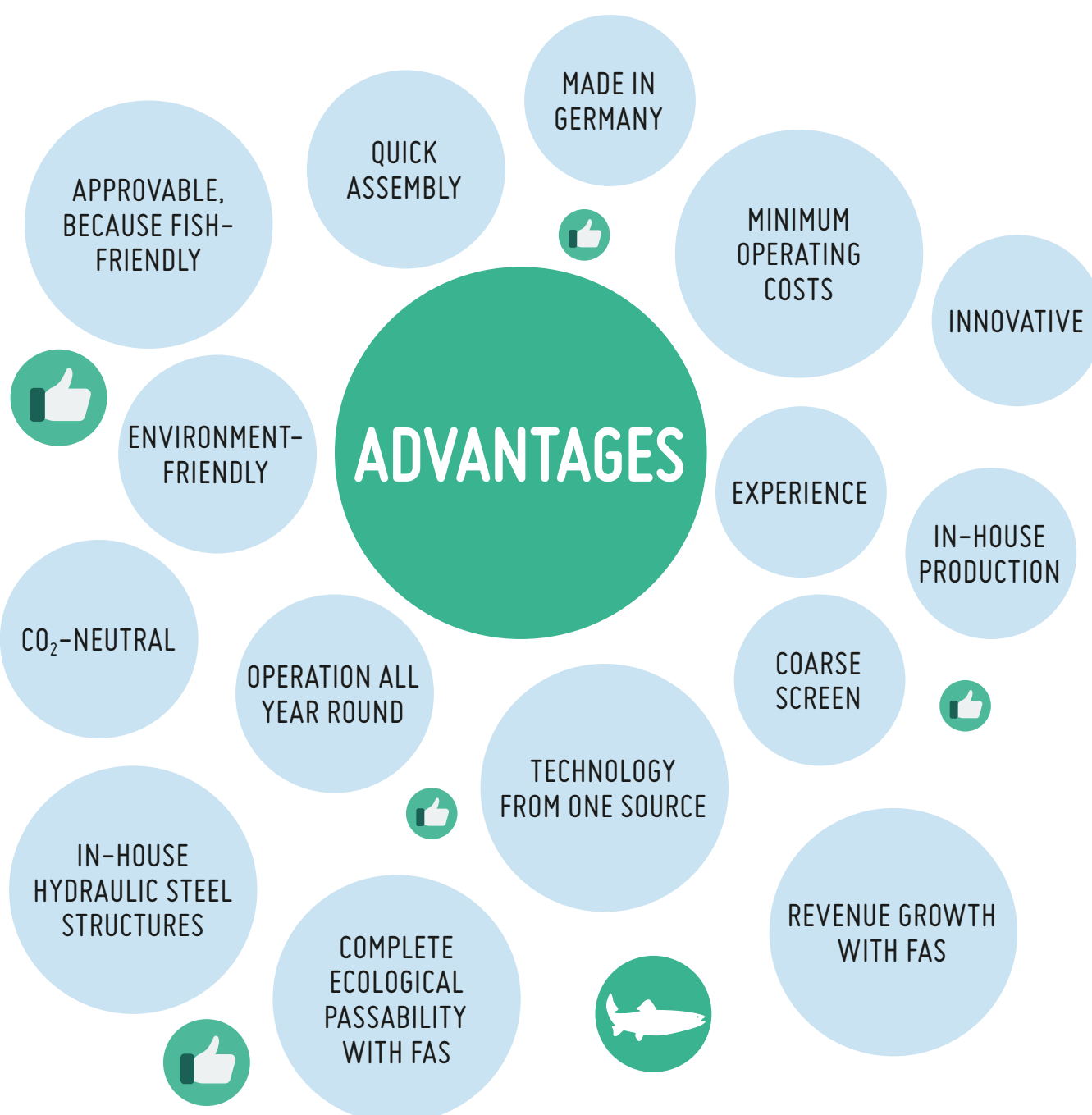
Our systems are currently in operation in:

Belgium, Germany, France, Great Britain, India, Ireland, Italy, Japan, Luxembourg, Austria, Switzerland, Slovenia, Turkey, USA

A hydropower screw by **REHARTPOWER** can generate energy around the clock and in all countries of the world. Even at rivers and streams with low heads the systems can generate power reliably and efficiently. Whether on the plain or high up in the mountains. Not only for the industrialized world is this technology suitable, even developing nations and emerging markets can profit from this decentralized, low-maintenance generation of 100 % green electricity.

Right from the start of the project **REHARTPOWER** offers its experience gained in the worldwide construction of systems. The consulting package includes the economically most viable solution with facts for the approval procedures to the entire project planning. The high degree of pre-assembly and manageable building work ensures quick construction and commissioning by an experienced team after the authorization has been granted. Software-supported maintenance service supports you in the day-to-day operation. Reliable, rapid and worldwide.

ADVANTAGES



Compact system (type CS), Yvoir, Belgium



Totally enclosed compact unit (type CR), Haddo, Scotland



Hybrid system (type BS), Ottensheim, Austria



WELL INTEGRATED SYSTEM



COARSE SCREEN AND VALVE IN INLET



CONTROL VIA TOUCHSCREEN



SYSTEM WITH FISH MIGRATION SCREW FAS



HEIGHT-ADJUSTABLE SYSTEM FROM ABOVE



VIEW INTO THE CONTROL CABINET



INLET SCREEN



COMPLETELY ENCLOSED SYSTEM



TOTALLY ENCLOSED COMPACT SYSTEM



TURBINE BUILDING



OPTIMALLY INTEGRATED INTO WEIR SYSTEM



ALL-IN-ONE WITH COVER GRILLE



HYDROPOWER SCREW AND WEIR GATES



HYDRAULIC VALVE



SYSTEM AT THE OUTLET OF A WATER TREATMENT PLANT



INSTALLATION OF A SYSTEM IN THE DOLOMITES



HYDRAULIC STEEL STRUCTURES



Installation of the guiding frame of a retention gate



Sluice boards with wooden paneling



Shut-off valve in front of a hydropower screw



Hydraulic valve



Archimedean screw pump for flood protection in Oberndorf, Austria



With hydraulic steel structures by **REHARTPOWER** you are provided with solutions optimally adapted to your requirements.

We manufacture in all steel types and stainless steel in accordance with the hydraulic steel structure standard DIN 19704 1-3. The drive is either mechanic, electric or hydraulic – according to customer requirements.

If requested, we will provide correct electrical wiring and program the system control.

Equipment for flood protection

Control valves
Spatial coarse and fine screens
Retention gates

Equipment for weir and hydropower plants

Inlet valve
Shut-off valves
Flushing gates, flushing valves
Sluice valves with or without retention gate
All kinds of retention gates
Grate cleaning systems, telescope and excavator type
Cross screen cleaning systems
Grate with coarse and fine screen separation – horizontal and vertical type

FLOOD PROTECTION

As result of climate change the amount of floods increase. Screw pumps play an important role in modern flood protection concepts. By using the high capacity of Archimedean screw pumps, inhabited areas can be protected from being flooded. And thus help to prevent follow-up costs.

Performance data of the system shown above:

Diameter: 2.60 m
Bladed length: 18.90 m
Flow: 2.20 m³/s
Head: 8.00 m

REHARTGROUP

Klaus Schüle in laid the foundation stone of today's **REHARTGROUP** when he founded **REHART** GmbH in 1983. The name **REHART** is derived from regeneration and hard plating („Hartplattieren“ in German). In the beginning, the company concentrated on high-quality wear protection of machines and spare parts to considerably prolong their service lives and provide a stable operation as far as possible.

Times are changing, but quality remains. In the meantime several companies with diverse focu-

ses belong to the group. **REHARTPOWER** solely deals with hydropower screws and Archimedean screw pumps and benefits from decade-long experience in the construction of screws and wear protection.

WHY CHOOSE THE REHARTGROUP?

Sound, owner-managed group of companies

Network of successful companies

Professional staff

Teams experienced in restructuring and assembly



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