

Press Release

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StreamDiver powers Swedish hydro plant: technology reducing civil construction investment, maintenance cost and environmental impact

HEIDENHEIM/SKELLEFTEÅ. After around a year of rehabilitation works Swedish utility Skellefteå Kraft AB and Voith recently solemnly inaugurated Bruksfors hydropower plant near the city of Robertsfors in the country's Northeast, around 700 kilometers from Stockholm. At the beginning of 2014, Skellefteå Kraft had awarded Voith's Small Hydro competence center Kössler to supply a 250 kw-StreamDiver unit, which was commissioned in early 2015.

The project is an example of how to integrate ecology and economical aspects. The operator of Bruksfors, Skellefteå Kraft had stringent environmental requirements; no oil, grease, or other toxic substances were allowed to enter the water both during construction and operation. Above this, Bruksfors project required the StreamDiver to be inserted into existing infrastructure – this time in a previously-unused turbine bay – in order to avoid impact from additional civil construction. Skellefteå Kraft expects benefits with having few moving parts in the machine compared to conventional solutions, this will reduce the amount of maintenance and lower the maintenance costs. Also, scientists from Luleå University of Technology developed a unique fish migration system, which provides a bypass for downstream migration of the fish.

StreamDiver – harnessing low head potential

Core of the StreamDiver technology is the power unit consisting of a permanent-magnet generator embedded in an oil free bulb unit, available in the sizes from 50 kW up to 800 kW. The strength of this technology is the flexible use: the power unit can either be completely submerged: thus it allows for standalone operation independently of civil structures. Also it can

be integrated into existing power plants allowing for economic rehabilitation, reducing investment to a minimum. For example, existing weirs and dams can be used to generate electricity. The StreamDiver technology can thus make a sustainable contribution to the continuing expansion of climate-friendly energy production.

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With the StreamDiver, Voith developed a turbine generator unit in the field of small hydropower, constructed to be compact, simple and therefore low-maintenance. In addition to the technical and ecological benefits, this innovative product provides the opportunity to develop new and previously unusable hydropower locations. The StreamDiver's construction means it can be used in sites where it has previously been impossible economically or for environmental reasons.

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Europe's potential

Voith estimates the StreamDiver technology for a potential of 5 GW worldwide. Regions holding the most potential are North America as well as Europe, especially its North and its East. For nearly three years now, a StreamDiver pilot project is successfully operating for Austria's largest utility, Verbund, at its 5 MW Nussdorf plant located near Vienna on a side canal of the Danube River. Nussdorf project was initially slated to last two years, but its success has extended its life for a third. With a maximum output of 450 kW, the StreamDiver now has over 24,000 operating hours, and has exported more **than** 7 GWh of electricity.

More information about StreamDiver technology:

<http://www.voith.com/en/products-services/hydropower/streamdiver-55362.html>

About the Company

Voith sets standards in the markets energy, oil & gas, paper, raw materials and transport & automotive. Founded in 1867, Voith employs more than 39,000 people, generates € 5.3 billion in sales, operates in about 50 countries around the world and is today one of the largest family-owned companies in Europe.

The Importance of Hydropower

Hydropower is the largest, oldest and also most reliable form of renewable energy generation. Worldwide it makes an indispensable contribution to stable power supplies and hence to economic and social development – both in industrial countries and in emerging markets. At the same time,

hydropower significantly contributes to climate-protecting energy generation. Voith has been a leading supplier of this technology since the early beginning, and continuously develops it further.

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(Source: Voith)

In addition to the upstream fish pass the Bruksfors power plant has a special system for downstream fish migration that allows for the fish to pass above the turbine.



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(Source: Voith) One of the StreamDiver's main advantages is that it can be used in sites where it has previously been impossible economically or for environmental protection reasons. Existing weirs and dams can be used to generate electricity and the environmental impact of such an installation can be reduced to a minimum.

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