From Heat to Electricity

with the Againity ORC turbine

Electricity production from
From heat to electricity

With Againty’s innovative ORC turbine your heat production can easily be combined with electricity production.

Againty offers ORC turbines turning low-grade heat into electricity. Biomass boilers, biogas boilers, household waste and industrial waste heat are typical heat sources that can now be utilized for electricity production, thanks to an innovative turbine solution which minimizes payback times.

The ORC technology

Againty’s system is based on the long-known ORC technology (Organic Rankine Cycle), illustrated in the image below. The technology includes a steam turbine set in motion by the pressure of a vaporized internal working medium. The rotating turbine then drives a generator that produces electricity. In good conditions the electrical efficiency is up to 20%.

Heating and cooling source

To heat up the internal working medium a heat source with a temperature over 90°C is connected to the evaporator. After the turbine the working medium is cooled down in the condenser connected to either a district heating network, air cooling system or other cooling water.

Flow chart of the Againty ORC system

Simple installation

1. Two pipes connected to boiler circuit.
2. Two pipes connected to district heating network circuit.
3. Connection of electricity.
4. You have a CHP plant!
Typical applications
Aginity is active in a wide range of industries since the ORC turbines can utilize heat from hot water or steam as long as it exceeds 90°C. Examples of heat sources from our main segments are presented below.

**Biomass boilers**
Incineration plants fueled by i.e. wood chips or biogas.

**Household waste**
Small-scale incineration and energy recovery from waste.

**Industrial waste heat**
Factories producing aluminum, chemicals, bricks, beverages, etc.

**Power plants**
Waste heat from i.e. gas turbines, diesel engines, or heat from solar collectors.

Quality first
Thanks to the unique design of our patented turbine and the low number of moving parts in the system, a high-quality product can be offered. This minimizes the need for service and maintenance and significantly shortens the payback time.

Benefits with Aginity’s ORC solution

**Comprehensive customer offering**
- The solution is tailored according to customer needs.
- The offer can include ancillary components such as boilers, cooling equipment, piping, etc.
- The turbine is suitable for various different application thanks to the large temperature and power range that can be handled.

**Convenient transportation and installation**
- Transport in standard containers or on frame.
- Easy installation with connecting the hot water, cooling water and electricity.
- Short installation time – from 1 week.

**Low investment and maintenance costs**
- Standardized and modular systems allows a low investment cost.
- Service agreements with low service cost thanks to high quality components and continuous monitoring.

**High availability**
- Robust system with few moving parts.
- > 97% availability.
- Service from 1 day/year.
Since 2013 Againty has developed and installed ORC turbines for heating plants. Get in touch with us today for a free analysis of the potential for electricity production at your heating plant.

From heat to electricity with the Againty ORC turbine

The Againty ORC systems are built from 50 kW electricity production and can be installed in parallel for higher electrical output. The ORC system is delivered pre-assembled and ready for connection to hot water and cooling water. Againty can also include additional equipment such as boilers, cooling fans and other equipment as needed.

<table>
<thead>
<tr>
<th></th>
<th>AT50</th>
<th>AT100</th>
<th>AT200</th>
<th>AT500</th>
<th>AT1000</th>
<th>AT2500</th>
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<tbody>
<tr>
<td></td>
<td>Installed capacity</td>
<td>50 kW</td>
<td>100 kW</td>
<td>200 kW</td>
<td>500 kW</td>
<td>1000 kW</td>
</tr>
<tr>
<td></td>
<td>Size 1</td>
<td>3.5 x 1.6 x 2.1 m</td>
<td>3.8 x 1.5 x 2.4 m</td>
<td>5.2 x 2.3 x 2.4 m</td>
<td>6.0 x 2.3 x 2.5 m</td>
<td>12.2 x 2.5 x 2.9 m</td>
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<tr>
<td></td>
<td>Size 2</td>
<td>3.5 x 1.6 x 2.1 m</td>
<td>3.8 x 1.5 x 2.4 m</td>
<td>5.2 x 2.3 x 2.4 m</td>
<td>6.0 x 2.3 x 2.5 m</td>
<td>12.2 x 2.5 x 2.9 m</td>
</tr>
</tbody>
</table>

1) The measurements are approximate and tailored according to technical conditions of each built ORC system.
2) Other voltages on request.

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