

# ***From Heat to Electricity***

***with the Againity ORC turbine***



**Electricity production from**

**Biomass/biogas boilers – Waste incinerators –  
Industrial waste heat – Gas engines/turbines**



# From heat to electricity

## 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, bio-gas 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 pay-back times.

## The ORC technology

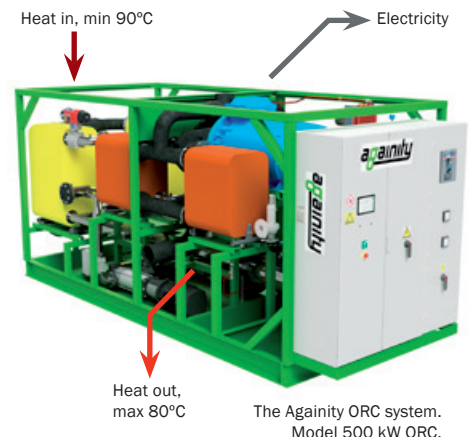
Againty's system is based on the long-known ORC technology (Organic Rankine Cycle),

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

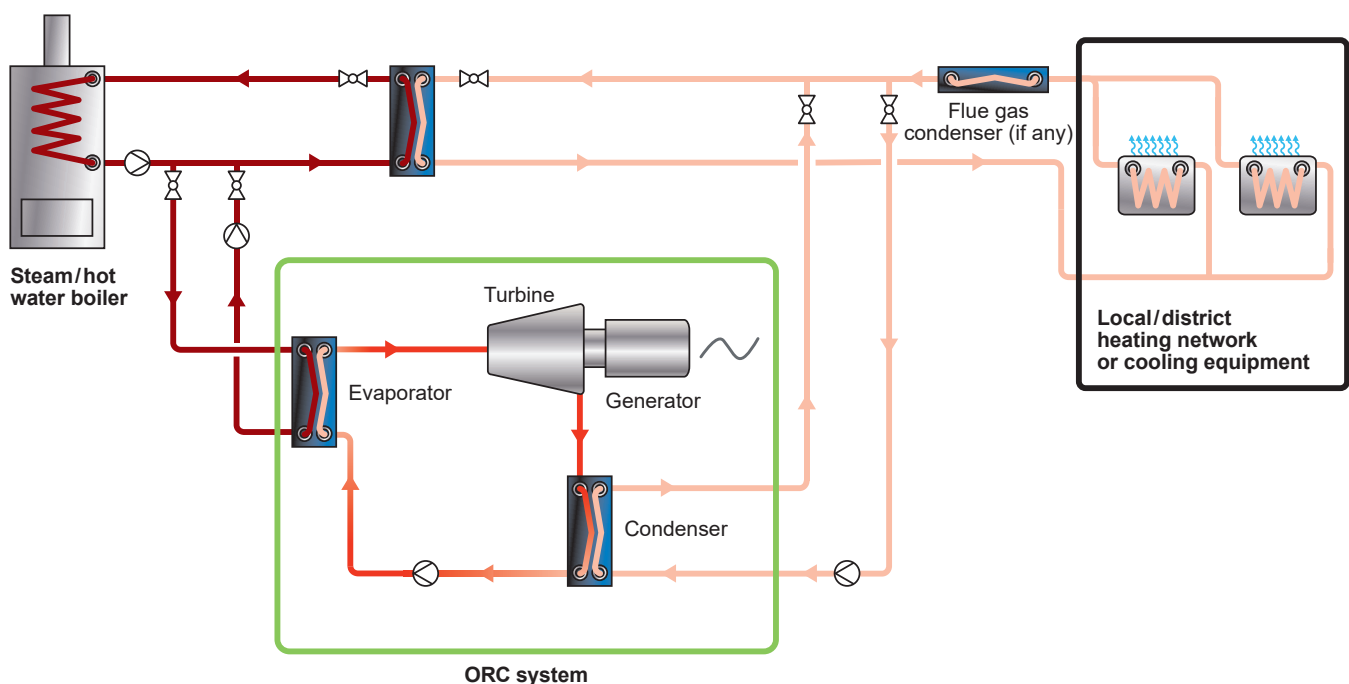
To heat up the internal working medium a heat source with a temperature over 90°C is connected to the evaporator. After the turbine the working medium is cooled down in the condenser connected to either a district heating network, air cooling system or other cooling water.



## 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!

## Flow chart of the Againty ORC system





**Locally produced – Cost effective – Fossil free – Weather independent**

### Typical applications

Againity 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 Againity'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 applications 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 allow 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.
- Service from 1 day/year.

# From heat to electricity with the Againity ORC turbine

Since 2013 Againity 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.



Againity offers ORC systems from 50 to 2500 kWe. Installed capacity is designed specifically for each customer case and the models in the table below show examples of different power outputs and corresponding dimensions.

|                                    |  |  |  |  |  |  |
|------------------------------------|---|---|---|---|--|---|
| <b>Installed capacity</b>          | 50 kWe  | 100 kWe   | 200 kWe   | 500 kWe   | 1000 kWe   | 2500 kWe  |
| <b>Size<sup>1</sup></b><br>(LxWxH) | 4.1 x 1.7 x 2.5 m   | 4.1 x 1.7 x 2.5 m   | 5.5 x 2.2 x 2.5 m   | 6.0 x 2.2 x 2.5 m   | 12.2 x 2.5 x 2.9 m<br>Size of 40 ft container  | 22.0 x 2.5 x 2.9 m<br>Size of 40 + 20 ft containers                                   |
| <b>Frecuence</b>                   | 50–60 Hz  | 50–60 Hz  | 50–60 Hz  | 50–60 Hz  | 50–60 Hz   | 50–60 Hz  |
| <b>Weight</b>                      | 4.0 ton   | 5.0 ton   | 9.0 ton   | 12.0 ton  | —  | —   |
| <b>Voltage<sup>2</sup></b>         | 380–415 V   | 380–415 V   | 380–415 V   | 380–415 V   | 3000–6000 V  | 3000–6000 V   |

<sup>1)</sup> The measurements are approximate and tailored according to technical conditions of each built ORC system.

<sup>2)</sup> Other voltages on request.

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