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Sustainable Thermal Desalination

powered by genset waste heat or solar heat.

Produce more potable water with
less energy or with **less brine.**

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more information:

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Membrane distillation by **Aquastill.**

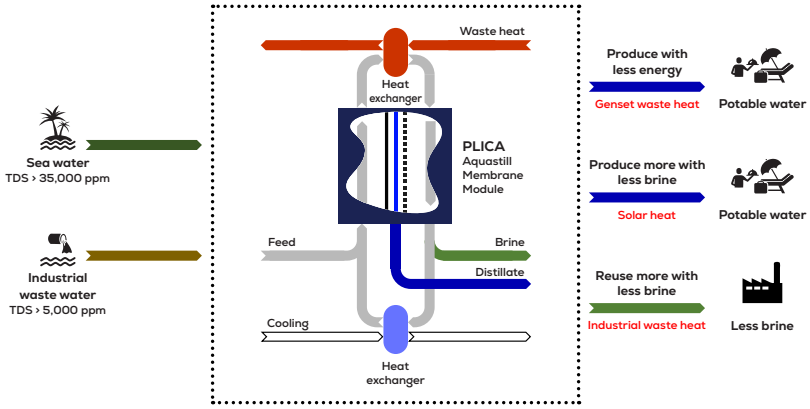
Aquastill is the global leader in the field of membrane distillation (MD). Our innovative technology can **desalinate water at competitive** costs and with **minimal environmental impact** by using waste heat or solar heat to power the process sustainably.

We have industrialized a **natural process.**

At Aquastill we have industrialized a natural process and made membrane distillation applicable. On a medium scale (1000 m^3/day), but on a smaller scale (10 m^3/day) as well. In contrast to other thermal technologies, membrane distillation can be **highly efficient** on a smaller to medium scale, making it a very interesting solution when large scale implementation is not desirable nor possible.

Aquastill has made membrane distillation applicable and scalable, but also complementary. Both as a **hybrid system with other membrane water treatment systems**, e.g. reverse osmosis (RO), nanofiltration (NF) etc. and with **renewable energy technologies** such as solar, photovoltaic, geothermal systems etc.

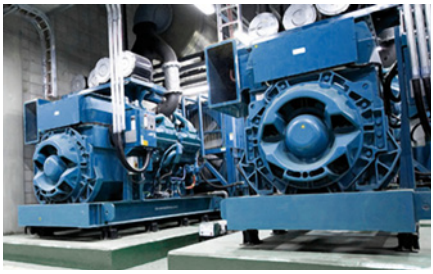
Aquastill's membrane distillation modules can operate at a **very wide range of salinity**, making them suitable to treat feeds that vary from low salinity industrial water up to high salinity water like seawater, while achieving the main needs of our customers.



Either your goal is to efficiently increase your potable water production, to reuse/reduce your waste water and/or to make good use of you renewable/waste heat, Aquastill is ready to help you with these challenges.

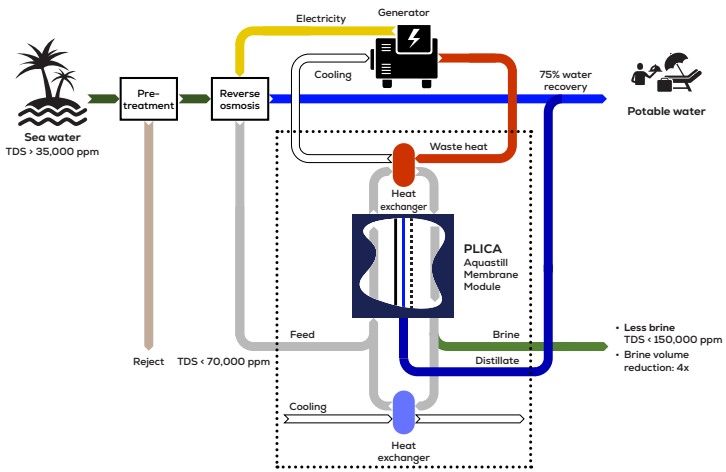
Desalination of sea water powered by **genset waste heat.**

Produce more potable water with less energy.



The average water consumption per tourist in remote touristic locations such as Barbados, Cyprus and Malta can reach 2,000 L per day. Hence, desalination technologies are needed for resorts, hotels and/or local population in these remote islands far away from a large fresh water source. Most of these applications are using the conventional technology reverse osmosis (RO) to provide this need, powered with electricity from diesel generator sets. RO however, is consuming large quantities of electricity, increasing the size of the genset and consequently fuel consumption. Providing fuel in these locations can be a very costly venture.

In order to increase the product yield of potable water without increasing the already high energy consumption from the desalination process, membrane distillation (MD) can be coupled with an existing RO plant by taking advantage of the waste product of the genset - waste heat - that is usually disposed. MD being a thermally driven process that uses a very small portion of electrical energy (water circulation at low pressure), can both consume this **waste heat as input thermal energy to increase the overall water recovery of the desalination process** (up to 75%), as well as **providing cooling for the genset, making it more efficient.**



Desalination of sea water powered by **solar heat.**

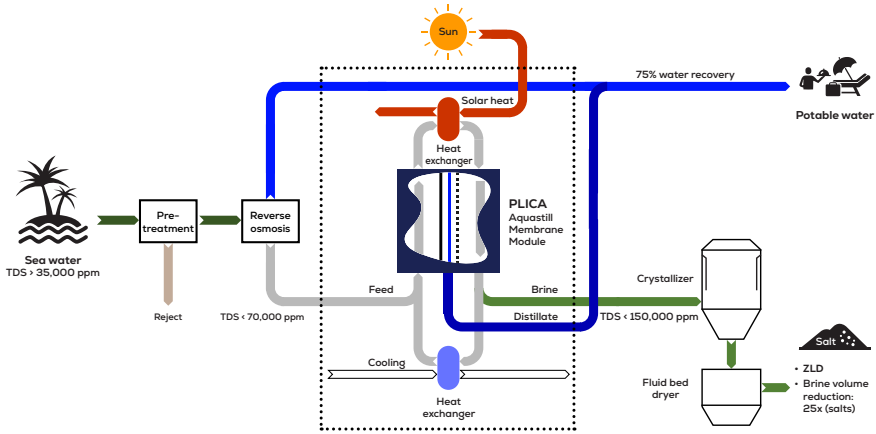
Produce more potable water with less brine.

In small rural/residential communities in remote sunny locations not connected to the water and/or electricity grid, sources of clean water are becoming scarce as these communities are in dire need of safe potable water suitable for drinking and irrigation.
Many other desalination technologies, such as pressure driven and thermal technologies, are already in these areas attempting to fill an increasing need for clean water.
However, many of these technologies are not suitable, too costly or simply not able to provide for these small remote locations.
With increasing environmental regulations protecting nature and wildlife, high water recovery has become a pressing issue.

Because these communities are mainly in remote sunny locations but often not connected to the grid, it is becoming more common to use the solar energy.

Feeding a RO system (powered with PV) can be combined with MD using solar heat.

This solution will **use the same amount of feed water more efficiently**, leading to more potable water production and less brine for disposal, reducing the environmental impact by 50%.



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Systems **and services.**

Aquastill can provide different systems, based on capacity and process conditions. We can advise you on how our technology can best meet your requirements.

PURA 1
Production capacity up to 2 m³/day
Lab scale unit, for academic environments.

PURA 10
Production capacity up to 10 m³/day
For medium scale projects, 12 modules.

PURA 100
Production capacity up to 100 m³/day
With low electricity consumption (< 1 kWh/m³) and low thermal energy usage (<250 MJ/m³) .

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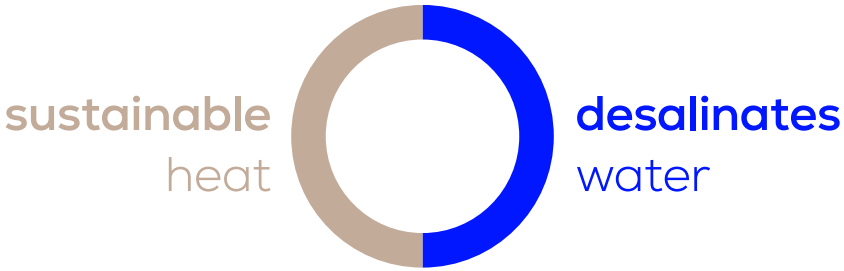
Still moving, **after decades.**

Back in the sixty's, scientists turned their heads towards membrane distillation. Back then, membrane distillation mimicked nature on a laboratory scale. A natural process to turn polluted water into clean water. A clear solution for many global issues. But the world does not operate on a laboratory scale. Hence, science needed a partner to scale up. A partner that could operate in the delta of science, technology and business. And science found that partner in The Netherlands. In Aquastill.

Still going **strong.**

Combining renewable energy with a unique patented technology achieves results that only Aquastill can offer. Results based on the largest amount of test projects in this new field. Over forty successful installations show capacities for clean water generation that are out of this world.



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