



SINCE 1910

Greenhouse Climate Systems

Enerdes

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Enerdes is the [global market leader](#) for greenhouse climate systems. For more than 70 years we have been specialized in air treatment and conditioning of air in semi-closed and conventional greenhouses. We offer you the [most advanced, precise and complete](#) solution for your greenhouse climate system that is currently available on the market.



+ All-In-One solution

We take care of it for you, from design to installation.

+ Tailor-made system

We can cater to all your specific needs.

+ 70+ years of experience

Enerdes is experienced with all sorts of greenhouses and climate systems.

+ Technical know-how

Our team of experts is highly educated. We use CFD (Computational Fluid Dynamics) modelling, in-house developed thermodynamic models and proprietary climate study software to accurately design your greenhouse.

+ Efficiency

Our products require very low power consumption and achieve the highest ratings for efficiency.

+ Precision

Precise climate control for your crop and most even air distribution in your greenhouse.

+ Patented air hose design

Enerdes has invented the double air distribution hose with far better air pressure and air velocity conditions than conventional convection tubes.

+ Exclusive supplier of EC fans

EC technology are ecologically and economically superior, moving up to 2 times more volume than comparable AC fans at the same power consumption at part load conditions.

+ Independent advice

Enerdes can serve you honestly with any need since we are not a greenhouse supplier or operator.



Greenhouse climate system

An Enerdes greenhouse climate system can consist of the following components:

1. Climate study
2. Air handling units
3. (Double) Air distribution hoses
4. Fogging system
5. Cooling system
6. Heating system
7. Piping and P&ID design
8. CO₂ distribution

Climate study

Enerdes has developed a [proprietary climate study software](#). By entering the location of the greenhouse and the greenhouse data, we can provide an exact understanding of the ambient climate conditions the greenhouse needs to cope with. The software bases its calculations on the specific [local climate at the greenhouse location](#), based on hourly data.

The climate study software provides a better understanding of the energy demands for the greenhouse and the amount of thermal capacity required for each of the 8.760 hours per year.



Enerdes climate study for your greenhouse

Every Enerdes project includes a detailed climate study of your specific greenhouse location. The climate study forms the basis for all our calculations and recommendations, and it is one of the reasons why we can guarantee the most precise climate control.







Air Handling Units (AHU)

The Enerdes greenhouse engineers have developed AHU systems that have excellent performance and at the same time are extremely energy efficient and cost effective.

We guarantee **the most precise control of your greenhouse climate** by calculating the ideal combination of the EC-Fan, cooling and/or heating coils and air distribution hoses for your specific situation.



Enerdes guides you to the ideal air circulation in 4 steps:

-  **1. Modeling:** Designing your greenhouse to accurately model air and water flows, validated with CFD analyses.
-  **2. Type:** Selecting the right type of AHU and fans
-  **3. Quantity:** Determining the ideal number of fans
-  **4. Placement:** Selecting the optimal location and orientation of the fans

EC fans

Enerdes is the **exclusive dealer of both EBM Papst en Reinders EC fans**. EC fans move up to **2 times more volume** than comparable AC fans at the same power consumption at part load conditions. In addition, they have a very long lifespan and are energy efficient.

Our fans can be **controlled per fan** or by means of a 0-10V signal or **MODbus/PWM control**. This will allow you to set your fans at a variable speed and control each fan or a group of fans individually. It is important to adjust the fan speed based on information from temperature differences, relative humidity levels and air pressure measured by sensors placed at different locations in your greenhouse.



(Double) Air distribution hoses

For an optimal homogenous climate in your greenhouse, good air distribution hoses are a must. Enerdes is the world leader in the air distribution hose technology.

We have invented the double air distribution hose which brings the air distribution performance to perfection. The perfect insulation of the double-layer air distribution hoses ensures that there are no horizontal temperature differences in the greenhouse. Both the horizontal and the vertical temperature gradient are much smaller compared to conventional air hoses.

Enerdes: world market leader in air distribution hose technology

- Global market leader
- 110+ years of experience
- In-house production
- Endless customizability
- Worldwide delivery with ISPM 15 standard seaworthy or air freight packaging.

Long life expectancy

No flapping and minimum fatigue

Less disease pressure

Because of perfect air movement

Controlled outflow

No turbulence or unevenness

Short delivery times

Large stock



Lower fan speed

Saves energy

Custom logo

Printed on the hose

Perfect insulation

No horizontal differences

Maximum UV stabilization

Up to 5 years exposure

Any customisation is possible

Layer

Single or double air distribution hose.

Length

Any length can be produced.

Hose diameter

We offer all sizes between 50 to 1,020 mm diameter.

Thickness

All of these diameters are available in thicknesses from 90 to 180 µm.

Hole diameter

We offer any hole diameter from 4 to 50 mm.

Hole pattern

We can produce any hole pattern, linear or variable.

Color

Transparent or full white.

Custom logo

We can print your logo on one side of the air distribution hose on the desired location and with the desired repeating distance. This service is free of charge and FDA approved.

Fogging system

One of Enerdes' sister companies under the Reinders Corporation umbrella is Prima Air. Prima Air has been specialized in [high-pressure humidification](#) for more than 100 years.

Together with the experts from Prima Air we will [customize a fogging system](#) for your greenhouse that will deliver a high humidification efficiency.

Advantages of Prima Air fogging systems:

- Extremely fine atomization, droplet smaller than 5 microns
- Anti-drip adapter prevents dripping
- Ability to blow in any direction
- Insensitive to the quality of the supply water
- Energy-efficient
- Very quiet



Cooling system

At Enerdes, we can identify the ideal cooling system for your specific greenhouse using the calculations from our proprietary climate study software. We will compare different scenarios between various cooling methods, such as active cooling with chillers or evaporative cooling with cooling pads. That way we can identify the **most beneficial cooling system for your greenhouse**, lowering operational costs and giving extra cooling capacity when needed.



Piping

We can supply both the hot and cold water piping. The hot water piping is made from mild steel. The cold water piping is made from HDPE.

Heating system

A balanced heating system in a greenhouse ensures the best possible conditions for the growth of the crop. Enerdes engineers and supplies the **most efficient heating system** for your needs, from boilers, cogen implementation, Low Temperature heating to piperail, snowpipe heating and the use of renewable energy systems. We also consider the **heating pipe-to-plant distance**. Plants should not be near the heat sources, especially if your crops have temperature sensitive parts.

Enerdes can work with various heating systems, such as a boiler room, cogeneration, a heat storage tank or a tubular heater.

CO₂ distribution

In order to promote the growth of the plants, additional Carbon Dioxide can be added to **increase the level of CO₂** inside the greenhouse. The CO₂ can either be supplied by the boiler or a liquid version can be used. For both options, Enerdes can provide a balanced solution providing an even distribution over the entire greenhouse.





Enerdes

Reinders Corporation

Enerdes is a proud member of Reinders Corporation. A private company in the 4th generation, operating in more than 100 countries across six continents. Since 1910, the name Reinders has come to be associated with a reputation for excellence in air and climate solutions worldwide.

Interested or questions?

Get in touch with us. The experts of Enerdes are at your service!

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