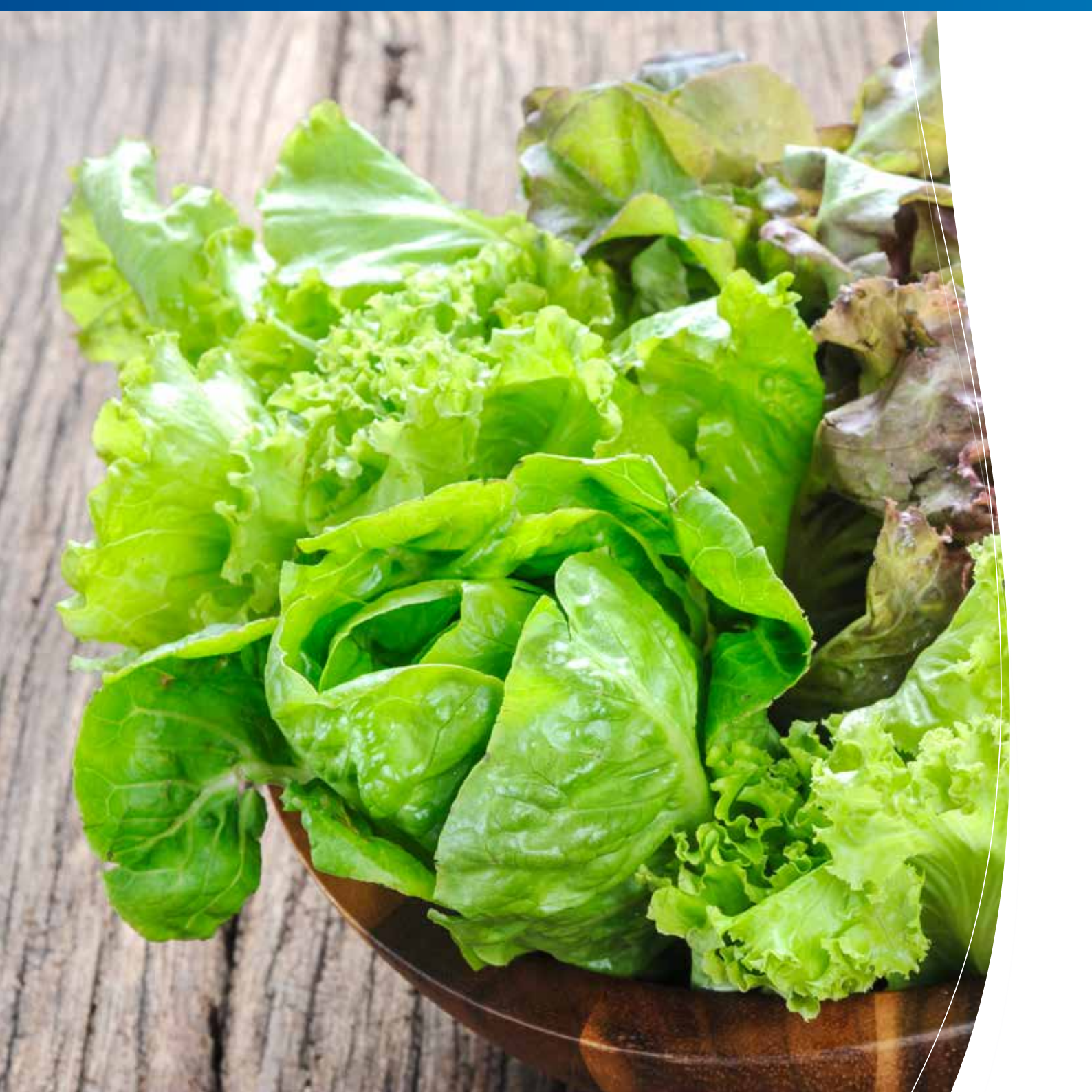




Deep water cultivation

fully automated



About



The demand for food safe products are worldwide increasing. In China 'Food Safety' is in the governments top priority list in the renowned 5-year plan. In the United States retailers implement stricter requirements regarding food safety. Europe has a great focus on traceability of fresh produce. Solutions that enhance food safety get a lot of attention worldwide.

The Viscon Hydroponics system focuses on the safe production of fresh produce. The Viscon system is a closed growing system on deep water.

Viscon Hydroponics focusses on short cycle crops that can be grown on deep water, like herbs, cabbage and lettuce. The system consist of three important phases:

1. Growing of the young plant
2. Production on deep water
3. Ergonomic harvesting



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Young plant production

Young plant production is one of the most vital parts of a solid hydroponic system. Visser Horti Systems, part of the Viscon Group, has been specializing in the automation of young plant production since 1967. Therefore this expertise is available to Viscon Hydroponics. Due to the lengthy experience in young plant production, a unique system has been designed to grow the ideal young plant, that can be finished in the production area. The key of the growing process of the young plant lies in the black growing cup: the 'grow' cup, which has been specifically designed for an optimal growing result. Several growing aspects have been factored in, like optimal soil content, optimal buffer area and optimal root growth stimulation. Another important factor in the design is the fact that the cup can be handled by all Viscon & Visser automation. This creates substantial cost savings in larger operations or labour scarcity situations.

The young plants are being grown in the special grow cup in the 18 or 28 cell grow tray. The grow trays are placed in the grow box. The grow box is an essential part of the growing system, because this special growing box creates the optimal growing circumstances for the young plants in the grow cups. The roots get the best treatment regarding air and humidity. The seeds will germinate in the stacked grow boxes. After germination the grow boxes will be placed on the floor in the young plant production area, equipped with an irrigation boom for uniform watering. The young plants are being grown up to the point they are big enough to be transplanted on to the floats.



Seeding



Germination





Young plant production is one of the most vital parts of a solid hydroponic system.

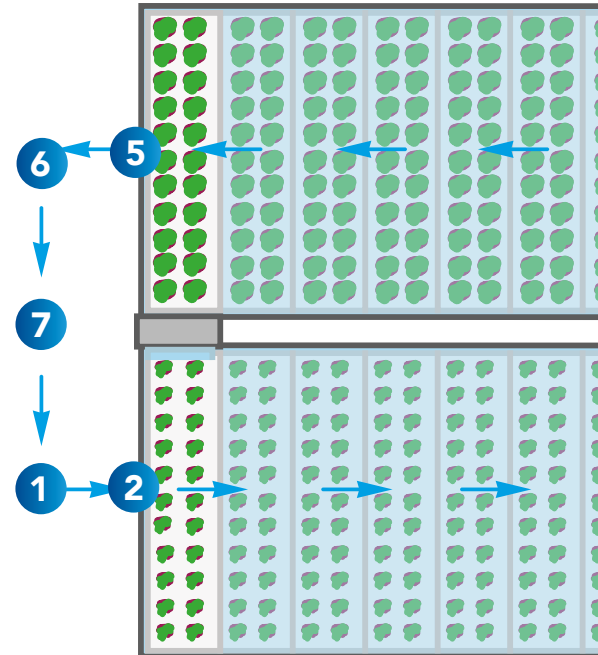
Production Phase

When the grow cups with young plants have been transplanted in the floats automatically, the floats will be placed in the basin by an automatic crane. The design of the tall floats makes for a system that needs little handling, with as little movements as necessary. The cups are being placed in a staggered pattern, which results in a 10% higher occupation per float. The float is being designed in plastic, which makes it easy for cleaning. This white plastic reflects well, which generates a higher light capacity for the plant.

The floats will float on the water, which makes it very easy to transport them with a minimal effort. Every time product is harvested, new product will be placed in the ponds. The ponds are continuously covered with floats, which protects the pond from the development of algae.

Harvest

When the product is ready to be harvested, it will be automatically transported to the central packing line in the harvest area. The product can be packed with the grow cup attached for better shelf life. Another option is to cut the product directly from the grow cup to be flow packed for a ready to use product.

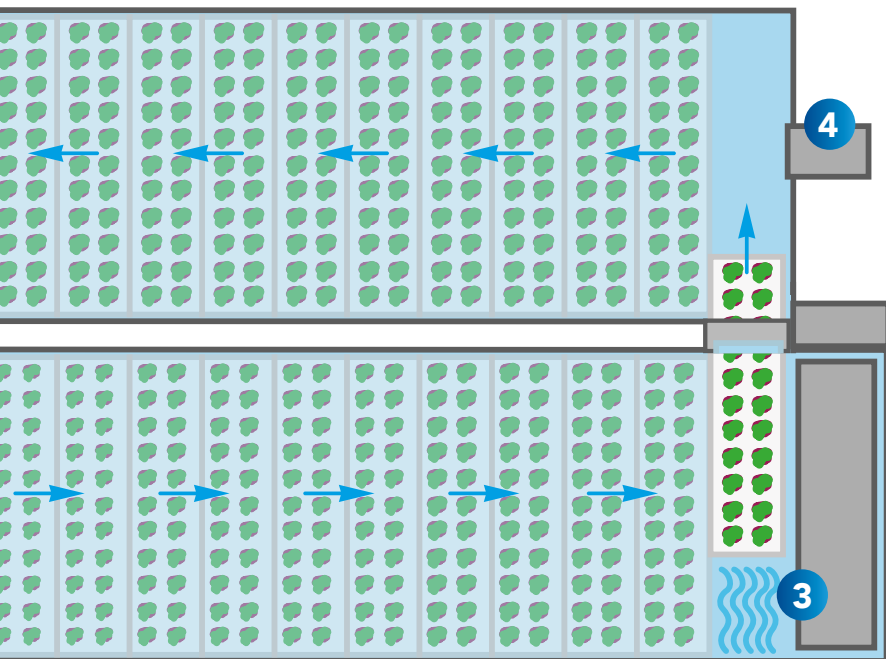




Automated push-up mechanism



Outfeed System



Harvesting



Float Washing

Retail packaging



The Advantages

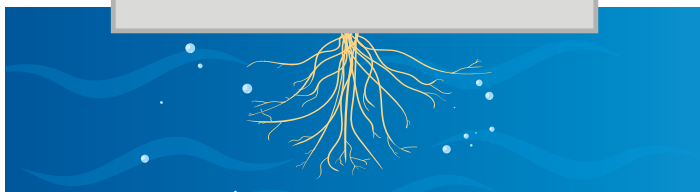
Why growing hydroponically?

The growing on deep water creates many food safety advantages.

- ✓ **Controlled Environment:** Viscon Hydroponics enables you to leave the open field and produce in a safe and controlled environment. Growing in the greenhouse gives you advantages regarding food safety, considering no faeces can be dropped on the product.
- ✓ **Food Safety:** In the hydroponics system the use of pesticides can be limited, because the environment can be controlled much better. Different disease hazards can be excluded from the closed system, which helps you to bring back your use of chemicals.

Why choose Viscon Hydroponics?

- ✓ Viscon fully organises & automates the growing of the young plants.
- ✓ Viscon supplies a vital young plant, which will give good results through the entire process.
- ✓ Viscon has designed the system with as little parts as possible, so cleaning will be an efficient operation.
- ✓ Viscon uses plastic floats, which can be cleaned easily.
- ✓ Viscon designed floats which keeps the product in the correct staggered pattern, no matter how you place the floats in your basin. This gives you a better use of your available surface.
- ✓ Viscon moves away from the traditional soil blocks.
- ✓ The soil block was once intended for planting in the field.
- ✓ New production methods require matching, well thought out and cleaner growing methods.



Advantages regarding sustainability:

- ✓ **Savings in fertilizer:** Fertilizer stays in the system and isn't being drained out in the field as occurs with the traditional growing method.
- ✓ **Water efficiency:** The system is very water efficient. The water doesn't flush out. The water will be consumed by the crop and needs to be added daily.
- ✓ **Uniformity:** each product has the same water intake, which creates a uniform result.
- ✓ **Sustainable:** the soil doesn't need to be processed after every cycle.
- ✓ **Efficiency:** during winter you can still grow product because the water can be heated and artificial lighting can be added. The floats have an isolating effect on the water, which enables you to grow in cold periods as well.
- ✓ **Automation:** this system is a transportation system in itself, because the product is floating: the product can be transported automatically.

Project approach

Directly after the order award the existing customer contact is being extended with a project team on both sides. To ensure both parties, that each party lives up to the expectations, Viscon insists on a clear, agreed upon communication structure and clear recorded requirements in the form of a detailed functional specification. This creates the opportunity to measure the progress in the project as well.

The initial contact with a client will take place with a sales engineer. This person will remain responsible for the project throughout the entire process and will be the point of contact for the client. This will ensure made agreements will remain clear. On a more detailed level, an experienced project manager will join the team. This project manager will take care of the timely engineering of all (parts of) processes and guard the vast high quality which is the standard at Viscon. We can provide you with many references where our reliable solutions are operating. Our sales engineers can arrange an appointment at your request.

Service

With our worldwide network of Viscon offices and distributors, we provide a fully comprehensive service in almost any country in the world, enabling us to respond quickly and efficiently where necessary. In many markets, sales and services are available through the local Viscon distributor for on-site maintenance and spare parts. A remote, online connection between the Viscon service department and your machine creates a highly efficient service. This provides peace of mind: our technician is always at your disposal.



SUPPORT & MAINTANANCE



SPARE-PARTS



LOCAL PRESENCE

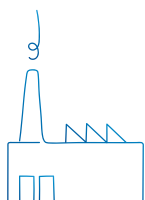
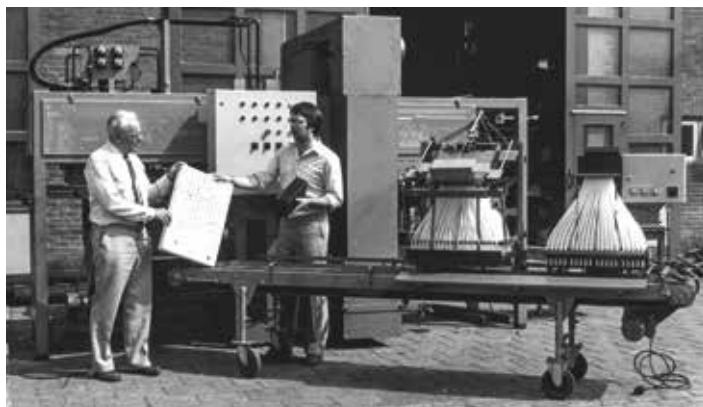
WHO WE ARE

Viscon Group

We are passionate about Agro and Food processes and the limitless possibilities technology has to offer. Our software, machinery, and solutions enable the world to produce, distribute and enjoy healthy fresh food, flowers and plants. Since its establishment in 1927, the family-owned company has grown into an international organization, active in various Agro & Food sectors.

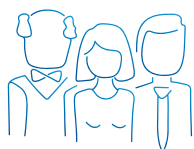
Our extensive experience in each market we operate in enables us to understand the operations, opportunities and challenges of our customers. This enables us to make the best production layouts for your company.

We design and build the entire process, combining Viscon automation with specific equipment sourced from carefully selected partners. This means you will always find the best solution. With Viscon you have access to a one-stop-shop. We design, we build and we fully integrate. We even add intelligent software to give you optimal control and management of your business.



2

Factories



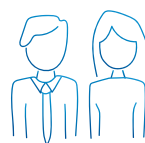
3

Generations of
experience



77+

Countries with
Viscon equipment



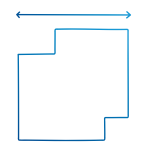
300

Colleagues



6,000

Cups of coffee
a week



23,000

Square meters
manufacturing facility

Viscon Group

Mijlweg 18
3295 KH 's-Gravendeel
The Netherlands

+ 31 (0) 78 673 9898

www.viscongroup.eu

