



ARTECHNO
Growsystems

AVF⁺ *Junior* VERTICAL FARMING

AVF⁺ Product Description

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Design



Engineering



Realisation



AVF+ Junior

INTRODUCTION

COMPANY PROFILE

Artechno is an engineering company engaged in the development and realization of modern cultivation systems based on hydroponic substrates. Among the products we manufacture are robotics, irrigation systems, sowing solutions, harvesting lines and turn key solutions for vertical farming.

It is our **Mission** to empower our customers in cultivation from start to finish, so they are able to integrate the entire cultivation process within their investment and be profitable.

By empowering our customer and enabling them to bring fresh healthy food to consumers, we hope to solve a part of the “feed the world” problem that the world will face in the future.

We do this by designing, engineering, realizing and supporting projects in horticulture and agriculture. We’ve channelled our 100+ years of combined experience in horticulture into our flagship product; Automated Vertical farming or as we like to call it: **AVF+**. In this product description you’ll find out more about AVF+’s little brother, the **AVF+ Junior Cell**.

AVF+ JUNIOR

Vertical farming is a truly disruptive technology. There has never been a point in time in which mankind has had as much control over the growing of crops as with vertical farming right now. Growing in a vertical farm has a lot of benefits compared to growing in a greenhouse or in the field. Among these benefits are:

- **Complete control of growing conditions (climate, light, nutrients, water etc.)** making it possible to create the perfect circumstances for any crops
- **Superior quality and taste of grown crops** - vertical farming crops are in a league of their own.
- **Higher yields with faster grow speeds** – Increasing yearly production and profit
- **Year round, consistent production** – Grow crops 365 days a year
- **No diseases or pests** – Eliminating the use of pesticides
- **Up to 95% less water usage** – Vertical farming doesn’t waste one of earth’s most precious resources making it more sustainable

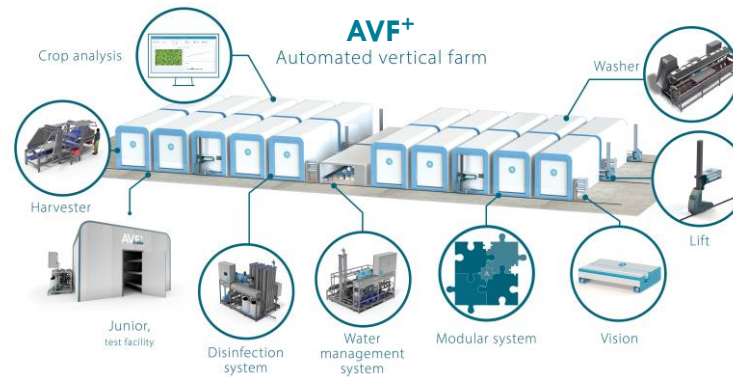
Although vertical farming has many benefits, complete control over all variables in growing with a vertical farm, has also brought new challenges. In the past when growing in a greenhouse or in the field, a grower would let nature do its thing for the most part and supplement with additional light or climate parameters. Many growing variables were determined by nature, decreasing the complexity for a growing recipe. With vertical farming the ideal conditions can be created for a crop, but to create those perfect conditions they need to be known first. Experimenting with growing conditions on a production scale would be a big risk to the bottom line of any grower, so he/she needs a different solution for developing growing recipes. This is why we developed the AVF+ Junior.

AVF+ Junior is the smaller version of the fully automated AVF+. The Junior cell has been specifically designed to simulate the same conditions as its larger brother, but in a more manageable package. The Junior cells main purpose is enabling research for new recipes and enhancing already existing recipes.

AVF⁺ Junior

INTRODUCTION

To make this possible, a Junior cell is equipped with 12 independent hydroponic growing positions in which climate, watering, lighting and nutrient supply can be adjusted. The advantage of this is that at any time 12 different recipes can be developed and tested at on time. Once a recipe has been developed it can be successfully implemented on a larger scale.



AVF⁺ is a fully automatic vertical farming solution for producing a variety of crops from seed to harvest. We've automatized all processes to ensure low labor costs and consistent crop production. AVF⁺ is a modular system which can be customized to the needs of the crop, available space or desired production volume.

AVF⁺ is divided into 10 modules with different levels of customization:

- **Seeding**
- **Germination**
- **Cultivation**
- **Harvesting**
- **Management Software**
- **Logistics (load/unload robot)**
- **Water & Nutrient Management**
- **Cleaning (trays & benches)**
- **Crop Happiness Analysis (*eye of the farmer*)**
- **Spacing (young plants)**

AVF⁺'s key assets are the **Germination Cell** and the **Cultivation Cell**. Inside these cells we've achieved a fully controllable, consistent climate (with a maximum delta of +/- 0.5 °C between the top and bottom layer). By growing in vertical layers, AVF⁺ achieves a minimum +225% ratio of floor space to growing space and at least a 250% increase in yield per m², compared to agriculture. Hydroponics technology and precise water and nutrient management enables users to grow with less water than traditional methods – up to 95%.

All these processes come together into one software solution to manage and analyze the entire production process.

For further information we would like to direct you to the AVF⁺ Automated Vertical Farming brochure

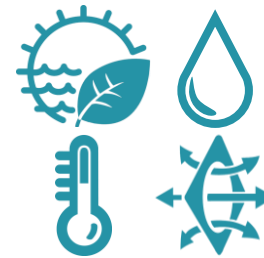
AVF⁺ Junior

VERTICAL FARMING



DEDICATED WATER MANAGEMENT

Crops need a healthy solution of water and the right nutrients. This is all taken care of by the **Water Management Unit**. The Water Management Unit makes sure that water and nutrition gets to where it is needed, at the right time.



COMPLETE, CONTROLLABLE CLIMATE

The Temperature, Relative humidity, Air flow, Light spectrum, Light intensity and Light hours are all controllable to create the **perfect climate conditions** for research and recipe development.



12 GROWING POSITIONS

The Junior Cell is divided into twelve growing positions in which multiple growing recipes can be tested at every moment.



30 M² GROWING SURFACE

The standard Junior Cell has a total amount of 30 m² of growing surface inside*.

**For larger growing spaces please contact Artechno.*

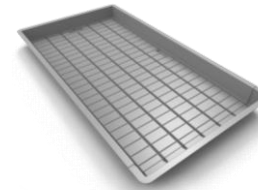
AVF+ Junior

VERTICAL FARMING



PHILIPS DYNAMIC LED LIGHTS

Different plants need different light circumstances. We've selected the Philips Dynamic LED range in which light spectrum and light intensity can be adapted to create precise light recipes.



EB-FLOOD HYDROPONICS CONTAINER

The Junior Cell comes equipped with twelve eb-flood containers. The eb-flood containers can be combined with different tray types and substrates for optimal research conditions.



JUNIOR CELL MANAGEMENT SOFTWARE

The growing process is centrally controlled by the **AVF+ Management software** with a single user interface.

CROP INSPIRATION - BABY LEAFS, LETTUCES & HERBS

There are many crops that will thrive in a vertical farm, for some inspiration on which crops are possible just take a look at the inspiration list. We've listed the below crops as good starting points, for more crops please contact Artechno Growsystems.

BABY LEAFS



ARUGULA



SPINACH



SWISS CHARD

LETTUCES



ICEBERG



ROMAIN



BUTTERHEAD

HERBS



BASIL



PARSLEY



DILL



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