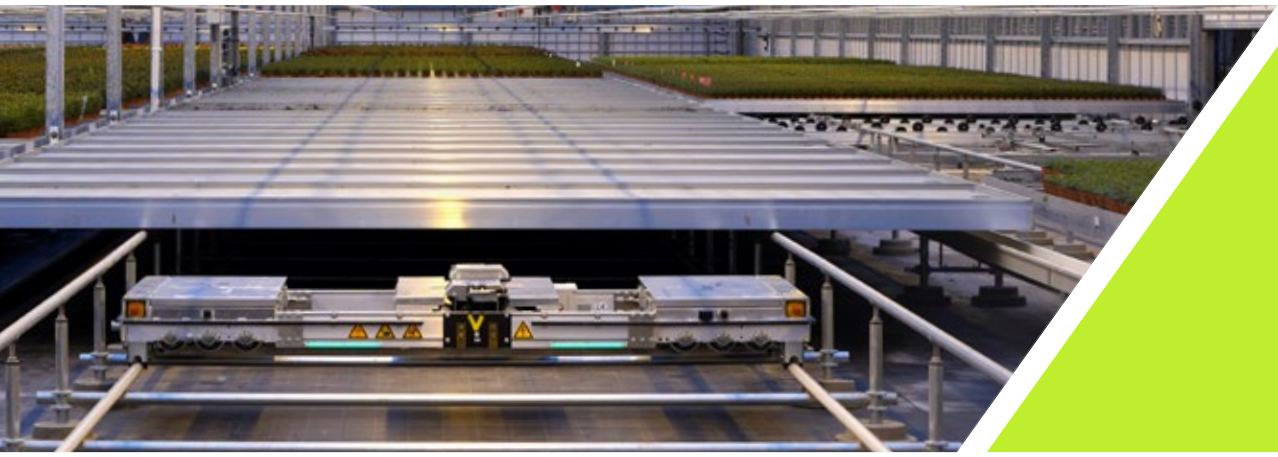
Logiqs

2D-Shuttle

Automated Rolling Bench System



www.logiqs.nl

FLEXIBLE | SCALABLE | MODULAR

The 2D-Shuttle is a unique greenhouse automation solution, which is designed and built by Logiqs. This system is unmatched in its modular design, that allows for a flexible and scalable system.

At the core of the system stand two components: the 2D-Shuttle and the A-Track Transport Line.

The 2D-Shuttle is a semi-autonomous vehicle that rides underneath the rolling benches, using the heating pipes as rails. Using it's grabbing mechanisms and sensors the 2D-Shuttle can move the individual rolling benches conforming to the transport tasks assigned by the grower.

The 2D-Shuttle can also switch rows independent of other machines.

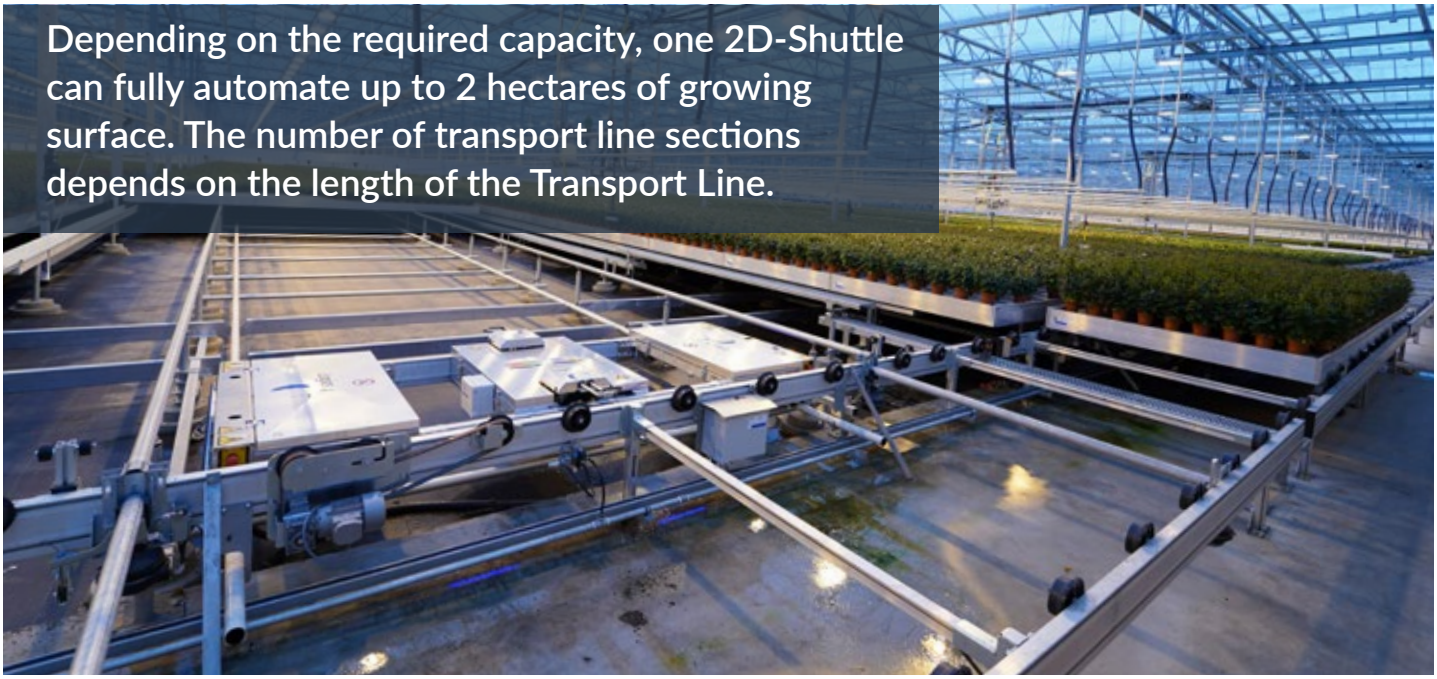
The A-Track transport lines ensure bench movements between rows and connects the growing area to the work area. Each individual A-Track Transport Line section is powered by just one drive unit, using two speeds: a fast one for normal bench movements and a slow one for precise positioning of the bench on the lifting frame.

The A-Track Transport Line has been used by growers worldwide for the last 20 years. Its design has evolved and matured, becoming the industry standard, due to its durability and high capacity.

In order to be able to move between rows, the 2D-Shuttle makes use of a X-Rail which usually spans the whole length of the growing area.

The X-Rail is designed using standardized parts, helping keep the initial deployment costs for the 2D-Shuttle system low.

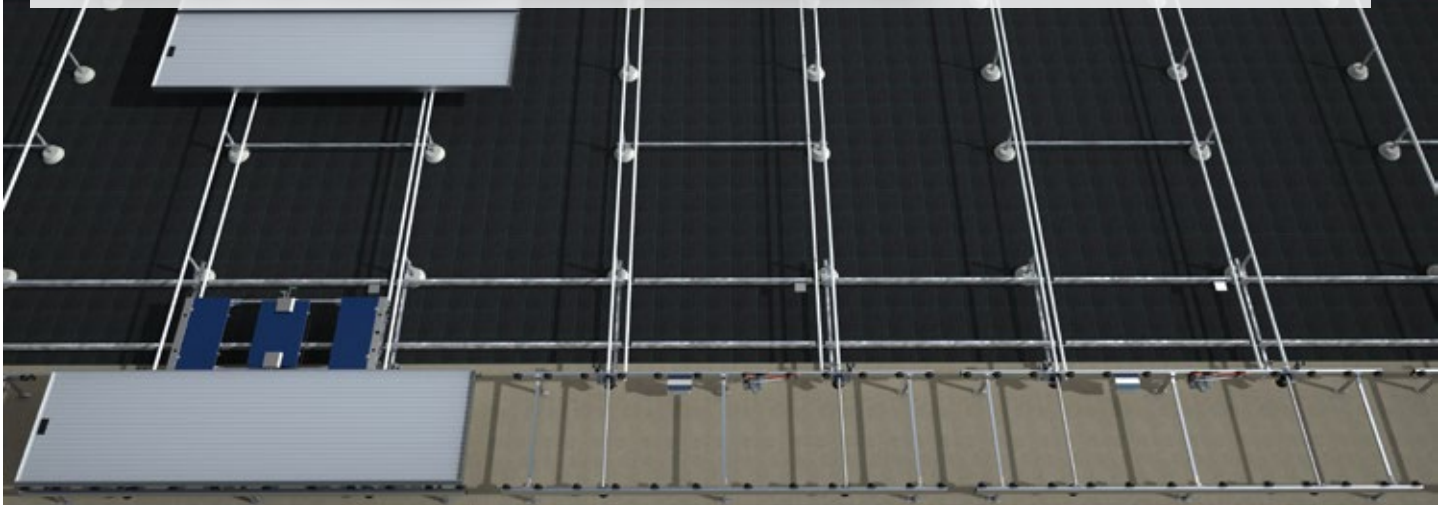
Depending on the required capacity, one 2D-Shuttle can fully automate up to 2 hectares of growing surface. The number of transport line sections depends on the length of the Transport Line.



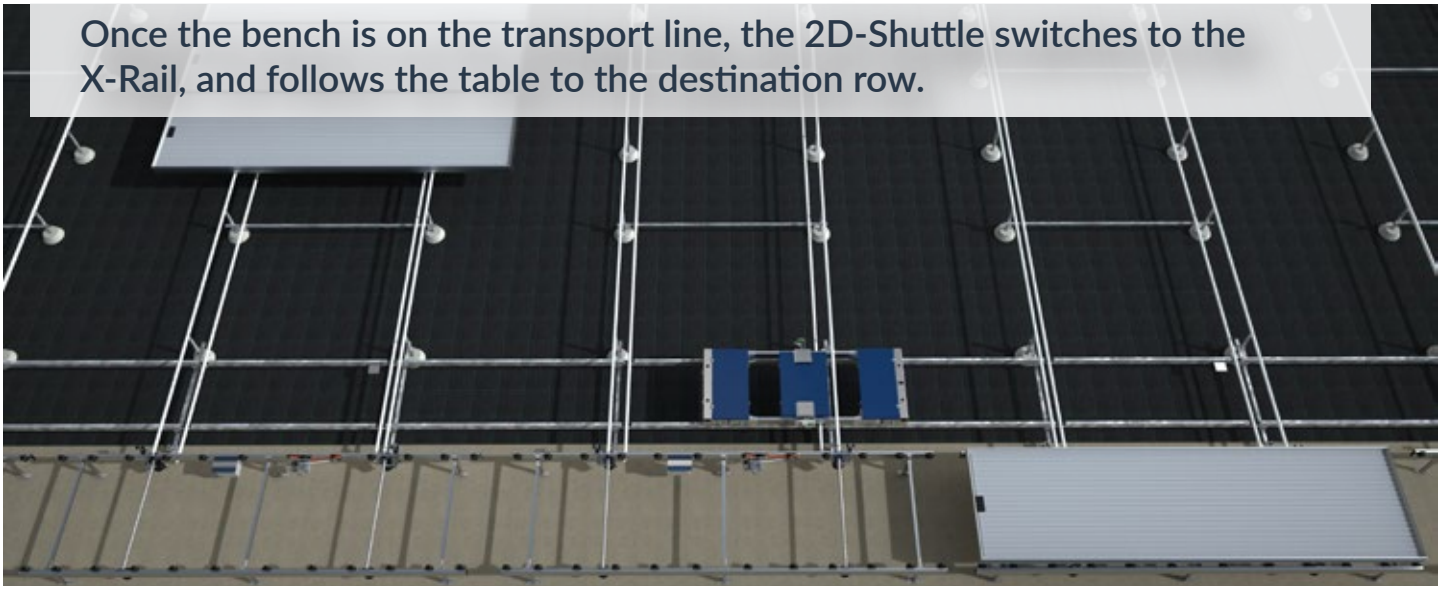
FLEXIBLE

Unmatched flexibility

When the system uses one 2D-Shuttle, the 2D-Shuttle first pulls the bench from the row and passes it on to the Transport line.

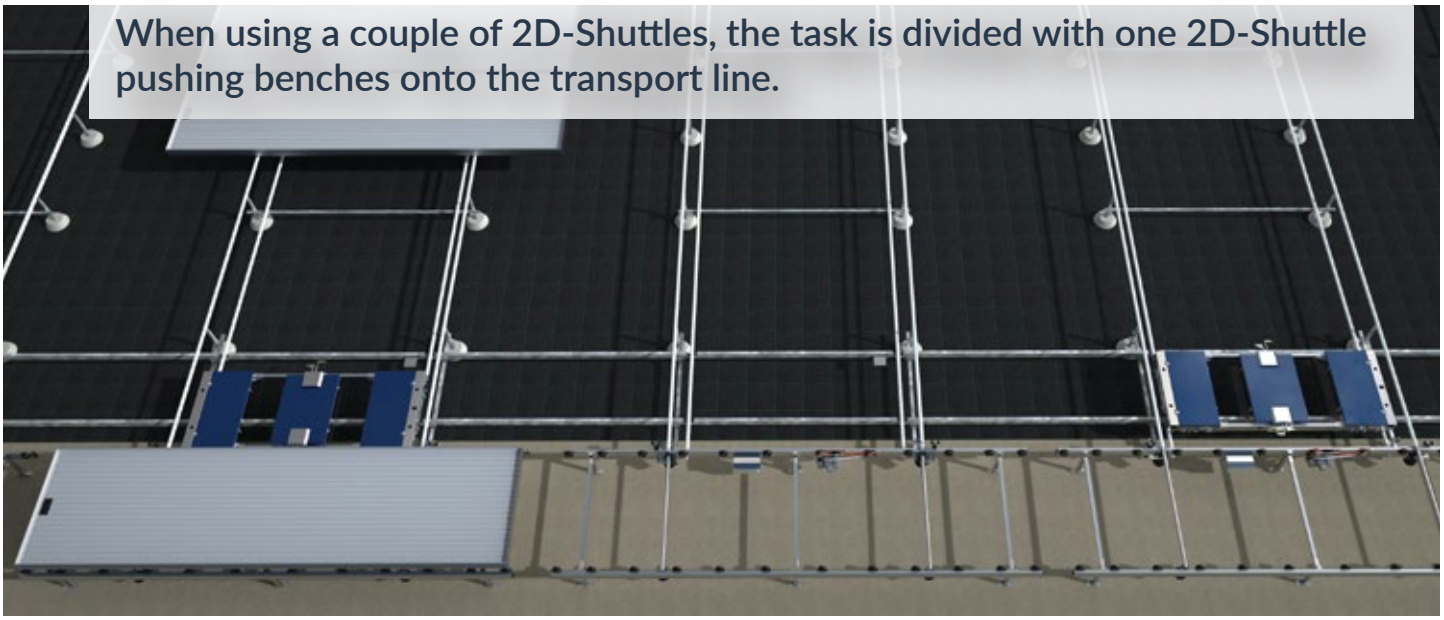


Once the bench is on the transport line, the 2D-Shuttle switches to the X-Rail, and follows the table to the destination row.

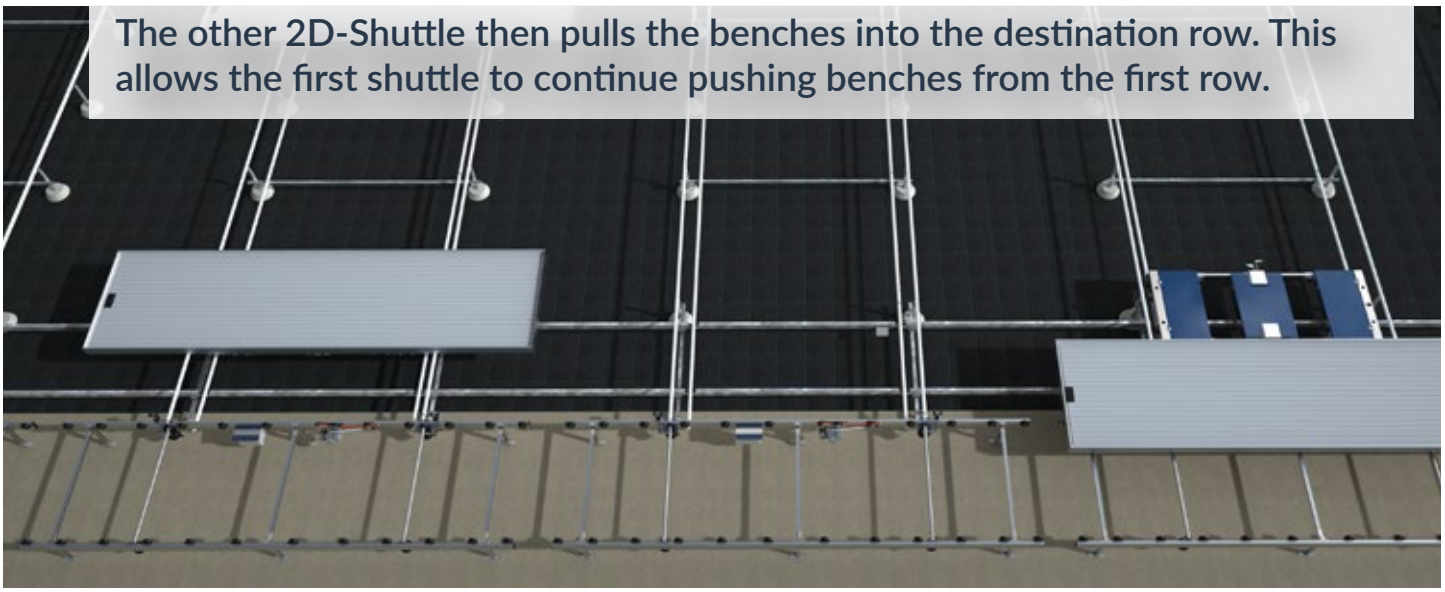


The 2D-Shuttle then pulls the bench from the transport line into the destination row. The 2D-Shuttle can now move on to other tasks.

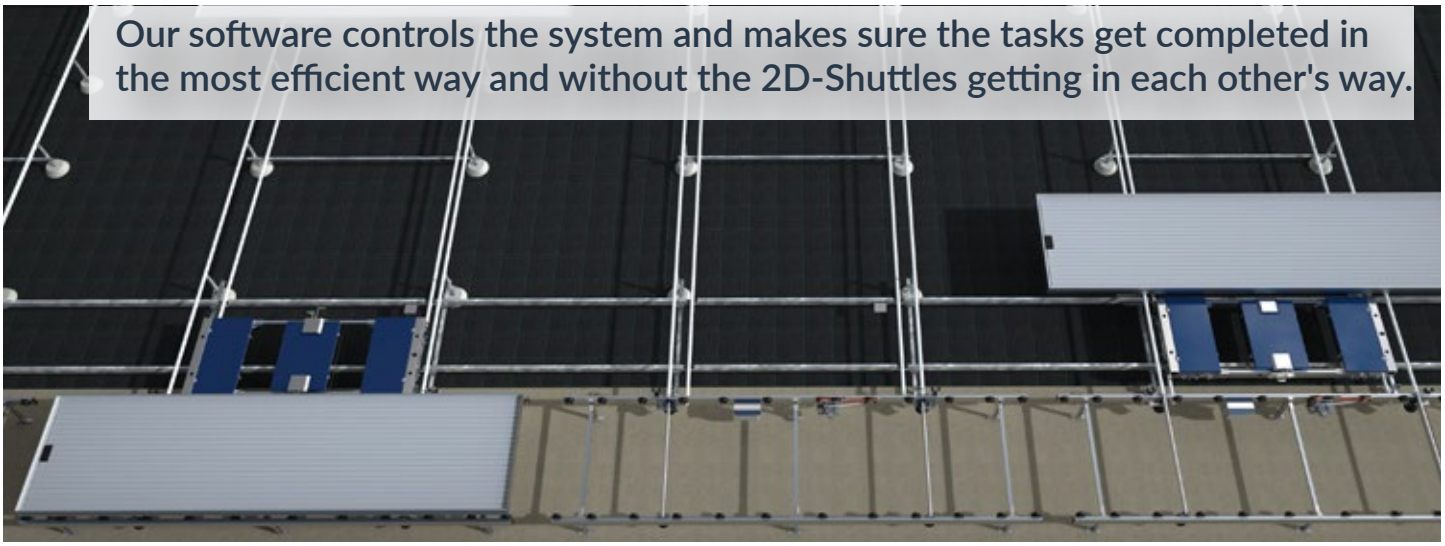
When using a couple of 2D-Shuttles, the task is divided with one 2D-Shuttle pushing benches onto the transport line.



The other 2D-Shuttle then pulls the benches into the destination row. This allows the first shuttle to continue pushing benches from the first row.

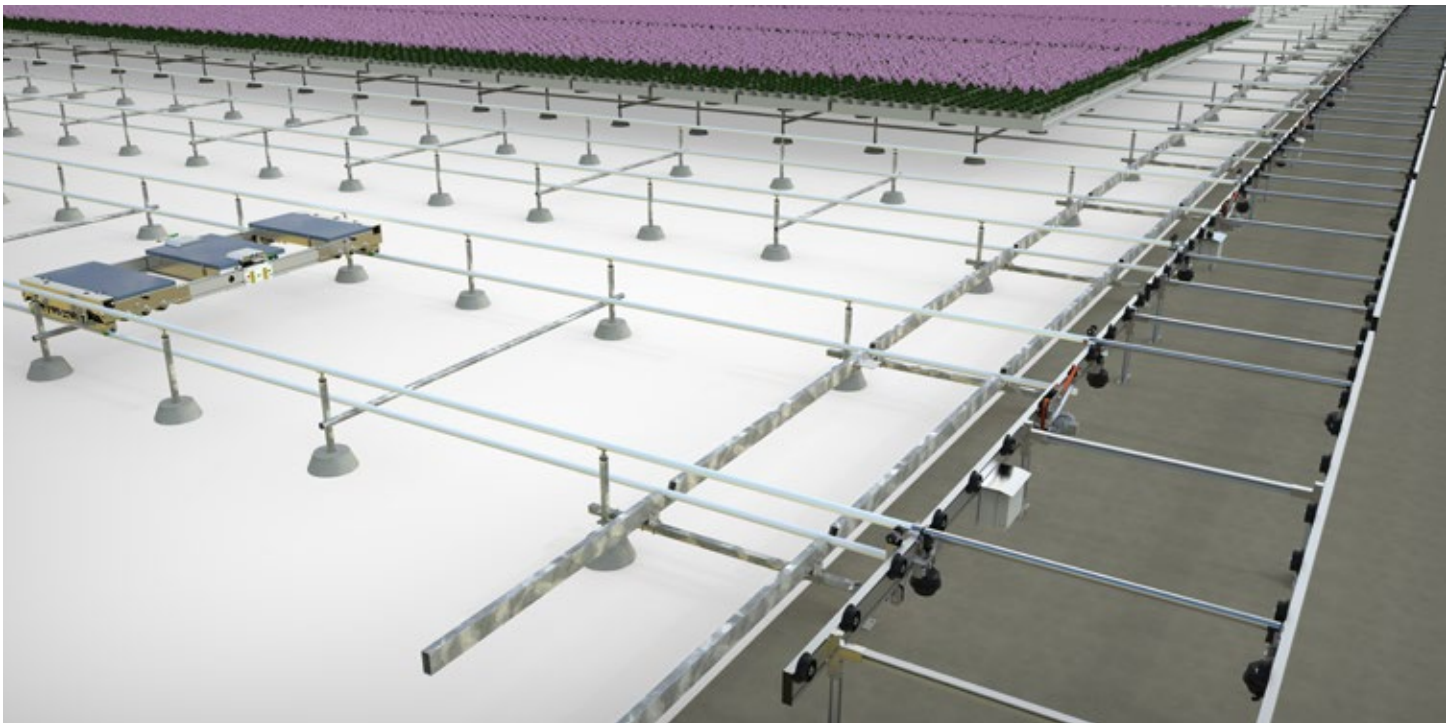


Our software controls the system and makes sure the tasks get completed in the most efficient way and without the 2D-Shuttles getting in each other's way.

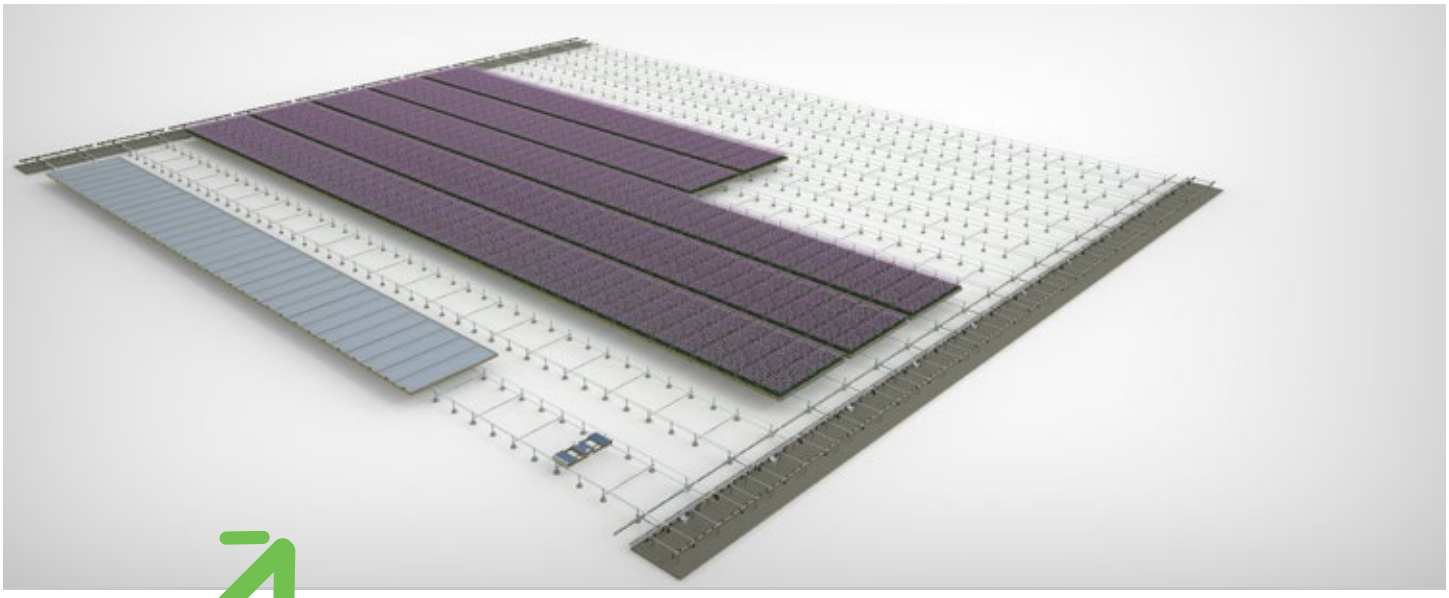


SCALABLE

Scalable in size and capacity



The ideal system for phased construction, in both hardware and software. Adding extra growing surface and connecting it to the existing system is done at a fraction of the cost, compared to conventional automation solutions. If capacity requirements grow, extra 2D-Shuttles can be added to the system without requiring any major modifications.



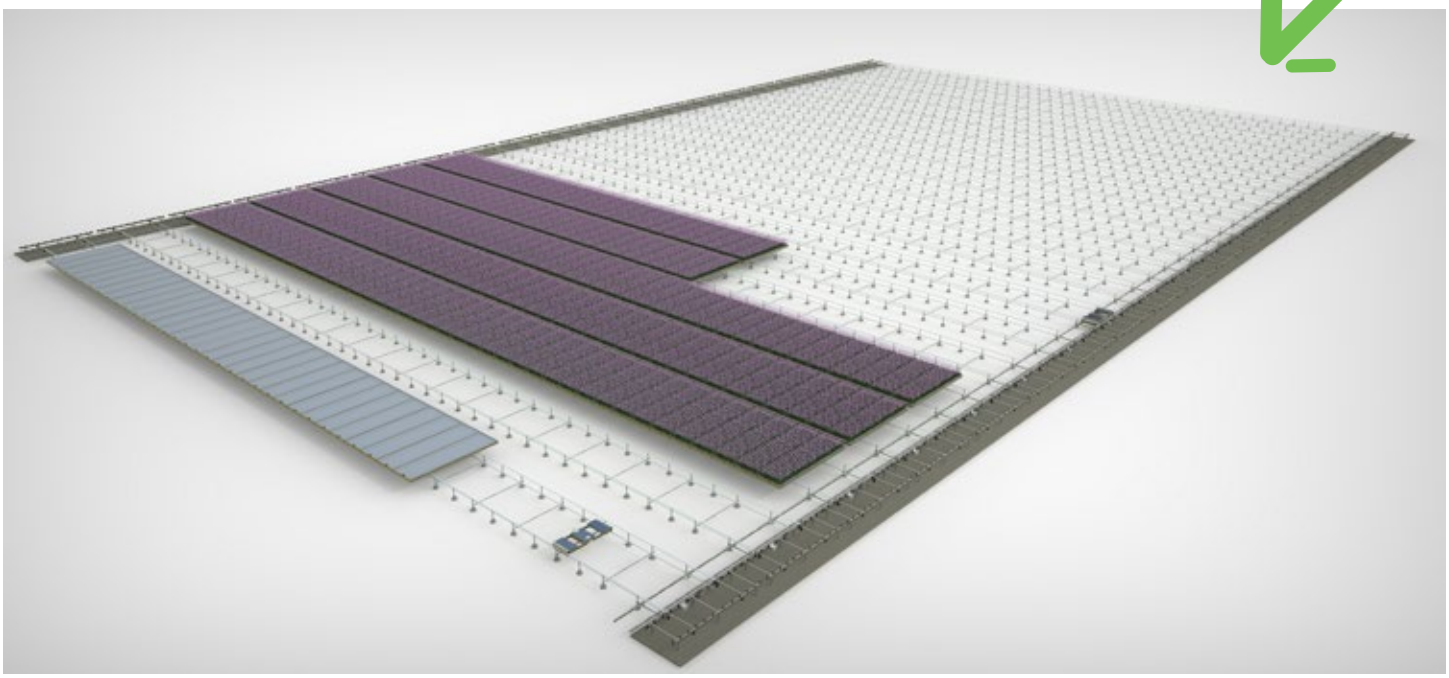
In the illustration above, you can see a system comprised of 10 rows, and each row has a capacity of 45 rolling benches.

The rows are all connected to each other using an A-Track automatic transport line.

One 2D-Shuttle serves the entire growing area and moves between the rows using the X-Rails.

In the second illustration you can see how the system is extended by another 10 rows. These new rows are seamlessly integrated with the existing system, by simply connecting the A-Track transport line and the X-Rails for the 2D-Shuttle

The second 2D-Shuttle ensures that the system maintains high availability.



MODULAR | *Step by step*

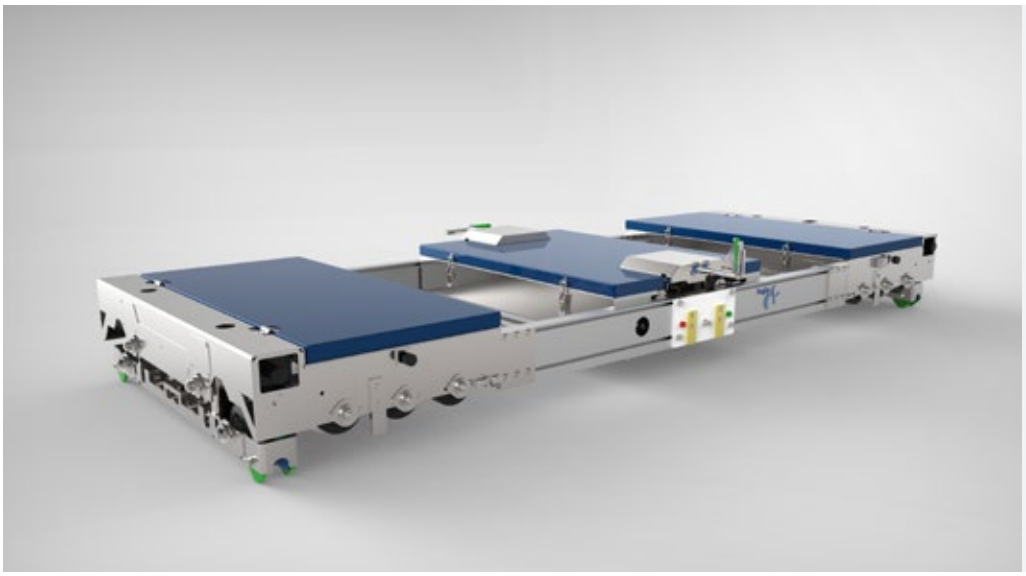
Whether it be hardware or software modularity, there is no other system on the market today that can match the 2D-Shuttle system.

This modularity makes the 2D-Shuttle system ideal for phased builds. Growers can start off with a manual rolling bench system and manual transport lines. Then automate it in the following phases. This keeps initial costs to a minimum, while at the same time giving the grower instant access to all the benefits of a rolling bench system.

Then in following phases the 2D-Shuttles and X-Rails can be added, while the transport lines can be fitted with ADU - Drive units.

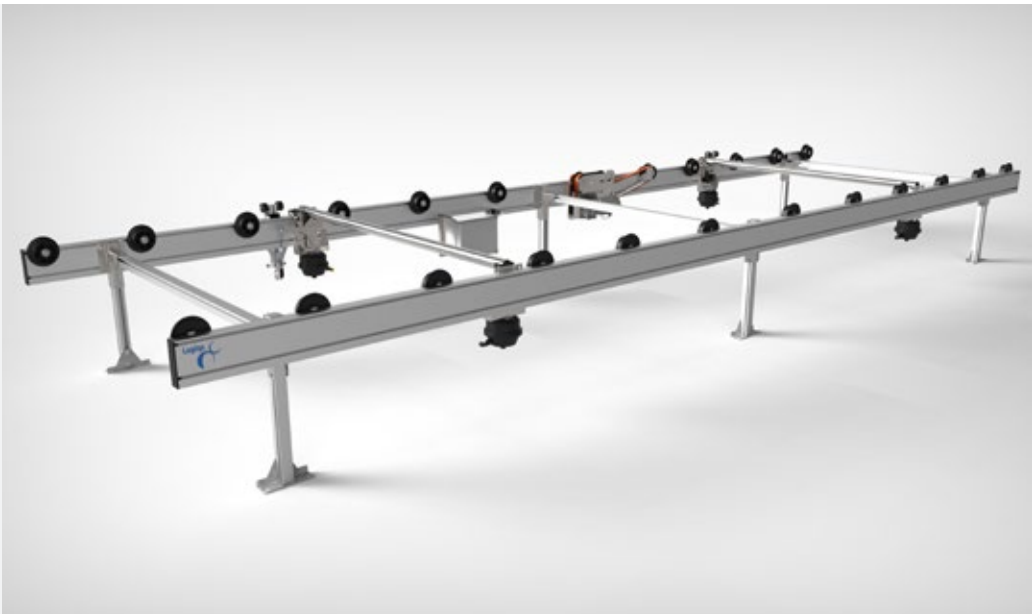
The Dat-A-Control software and all its modules can easily be adapted to take phased constructions into account.

Maximum transport capacity:	40 benches/hour	Charging time:	4 hours
Operating speed:	0,8 m/s	Communication:	Wi-Fi
Maximum bench weight:	1.000 kg	Automatic positioning:	Inductive sensors
Battery capacity:	60 Ah	Frame assembly:	Aluminum
Working hours on one charge:	10 hours	Maintenance interval:	6 Months



2D-Shuttle

A-Track transport line



Maximum transport capacity:	100 benches/hour	Maximum height transport line:	120 cm
Operating speed:	0,05 m/s - 0,3 m/s	ADU motor capacity:	0,18 kw
Speed controler:	Frequency inverter	Communication:	Bus system
Lifting frame actuators:	Compressed air	Frame assembly:	Aluminium
MInimum height transport line:	30 cm	Maintenance interval:	1 year

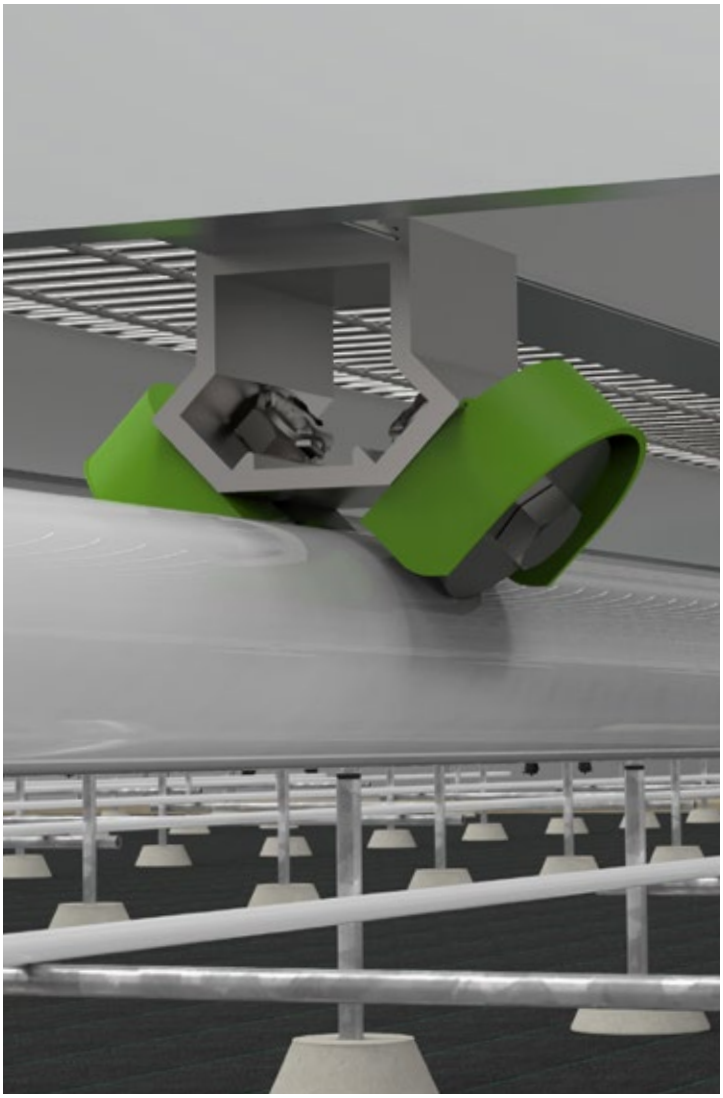
WHY CHOOSE LOGIQS BENCHES

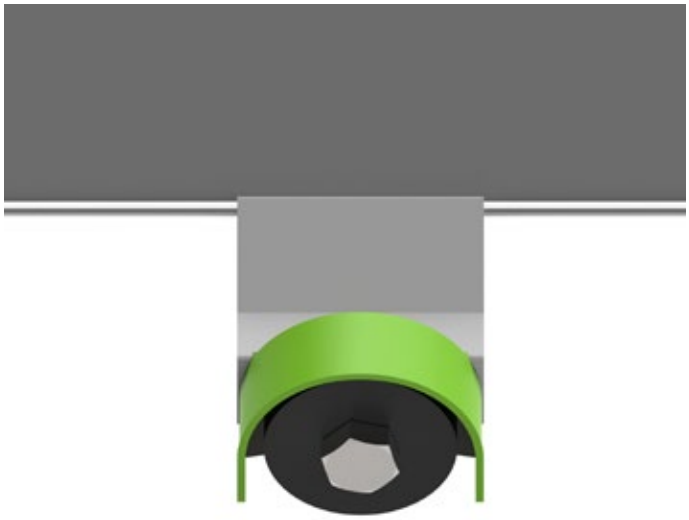
Better bench reinforcements

Each side of the Logiqs bench has a small aluminum profile going from the front side to the first crossbeam. This provides unmatched structural integrity to the bench so the front sides do not bend. Our benches also use thicker crossbeams for the wheel beams. The wheel beams are crucial since the weight of the whole bench and plant material rests on the 4 wheels.

High quality bench support system

All our rail pipes are hot dipped galvanized inside and out. They are not electroplated like so many others. This process keeps them rust free for many years. The rail pipes also have wedged ends so there is no need to weld in the greenhouse. And that's an advantage because the welding of galvanized steel can produce dangerous gasses. Our support has a large footplate 4" x 8".



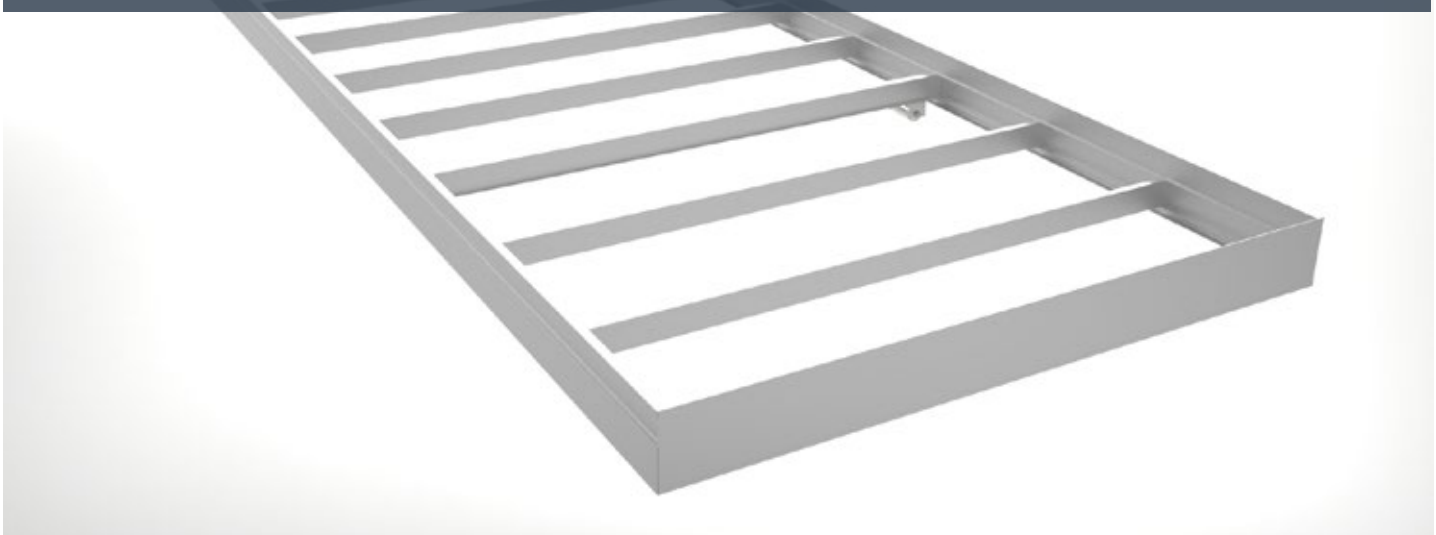


Water protection for the bench wheels

The steering wheels are also designed with protective irrigation covers which extend the life of the bearings.
The rolling wheels are also encased in the bracket so they are protected from irrigation water.

Superior aluminum alloy

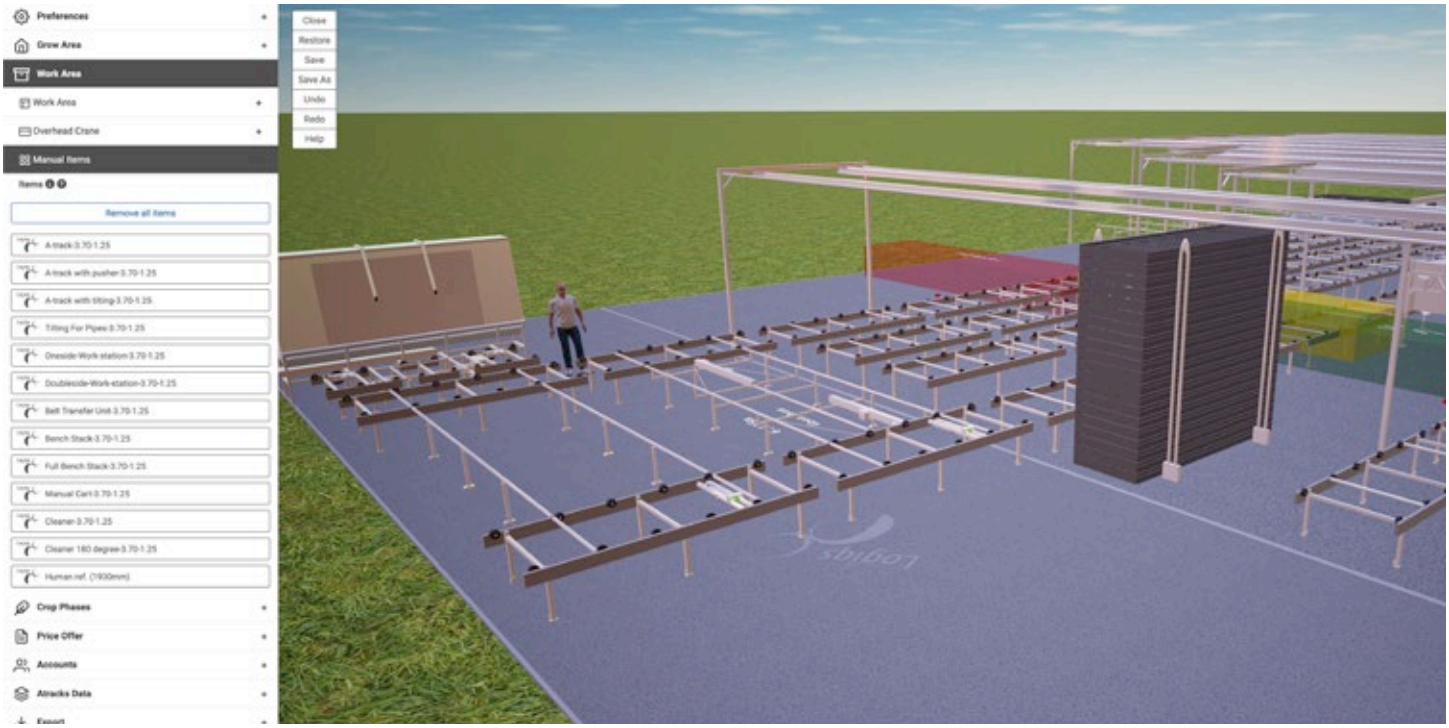
We use a hardened marine alloy for our aluminum (EN-AW-6063 T66). Compared to our competitors, the Logiqs mobile bench side and front profiles are also thicker.

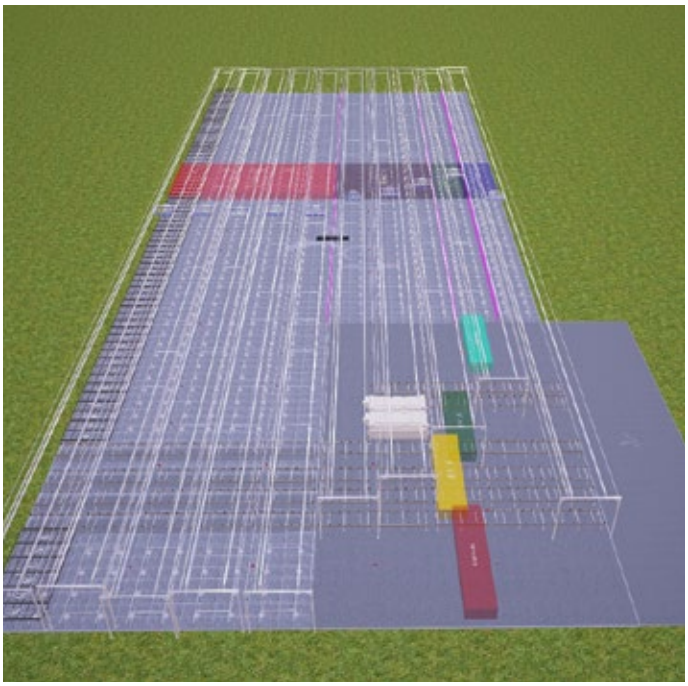


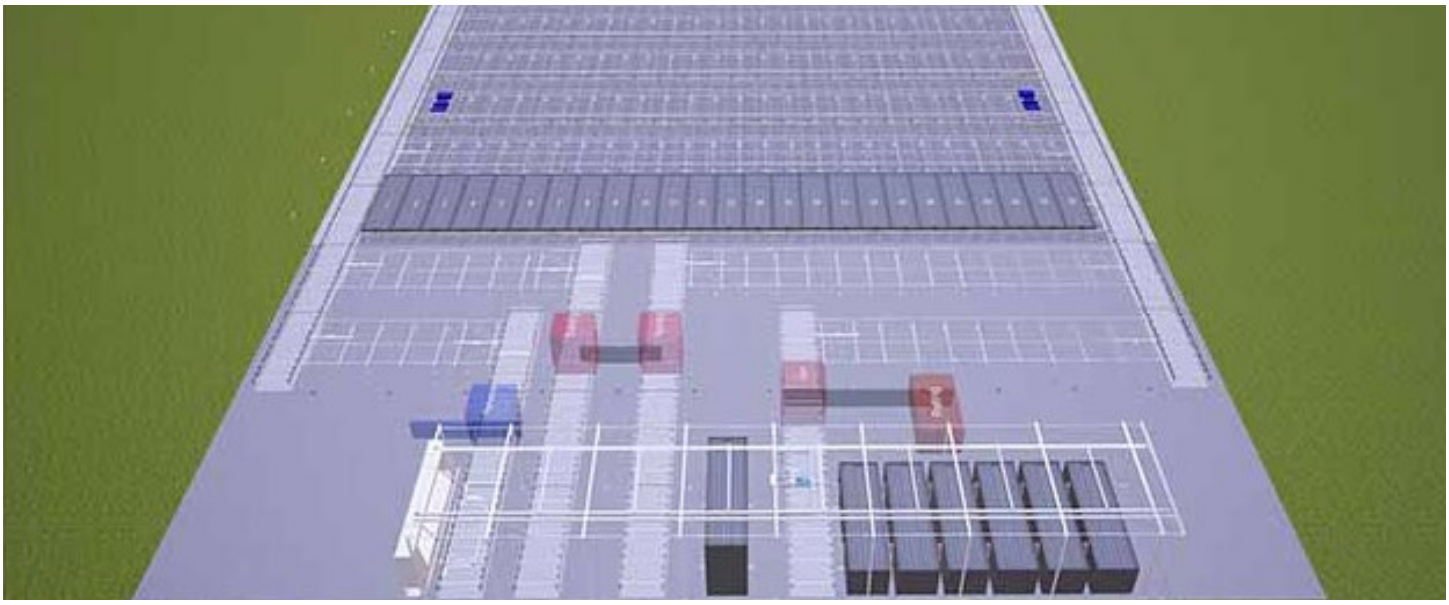
DESIGN YOUR GREENHOUSE

Convert all your wishes and ideas into a 3D design with the help of our 3D Configurator.

Experiment with different layouts, create multiple design iterations, calculate production capacity, all while seamlessly collaborating with our sales engineers in order find the best logistics solution for your crop.



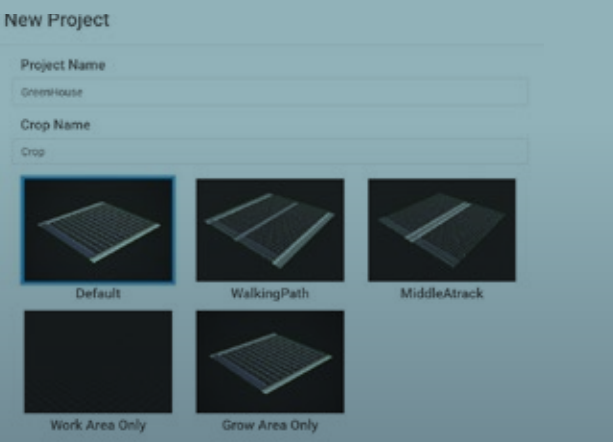


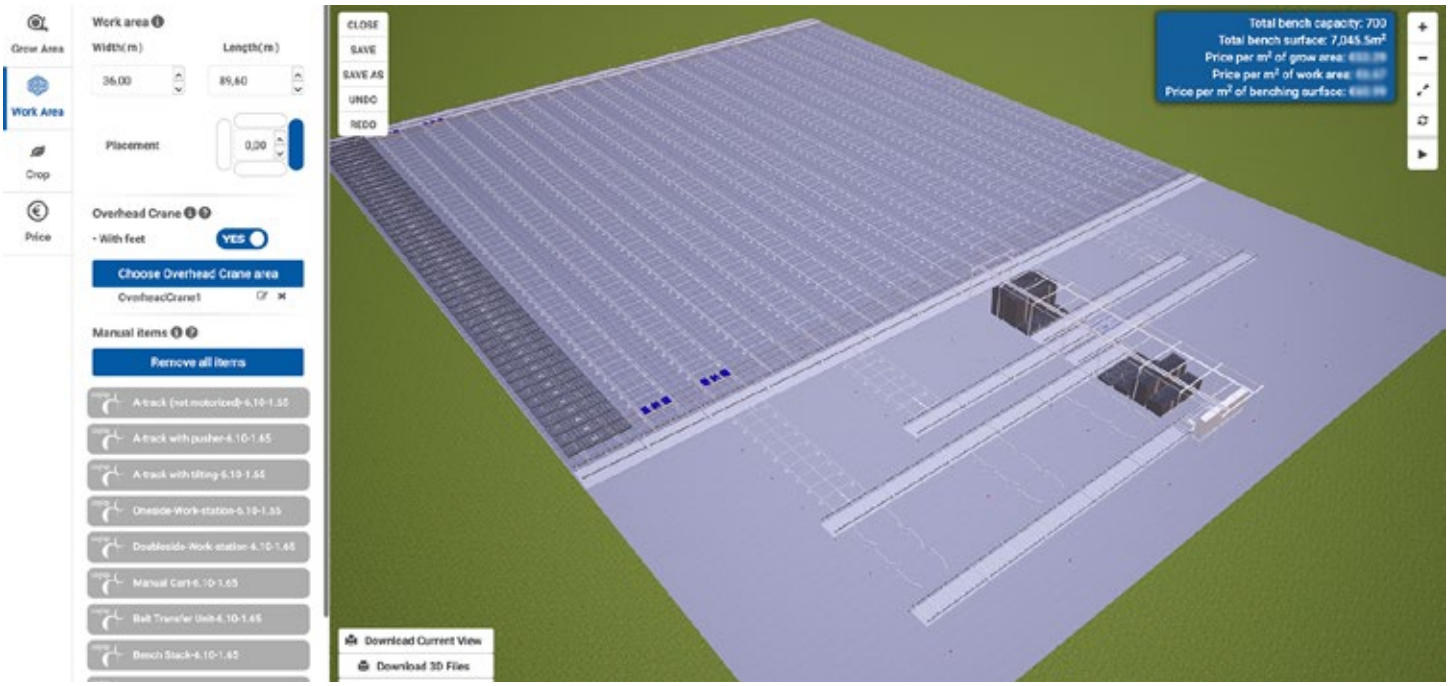


If you would like to quickly configure the 3D layout of your new grow facility, use our free 3D Configurator to bring your vision to reality.

And whenever you're ready, you can get in touch with our Sales Engineers to discuss your layout or you can request a quote for your system.

https://greenhousebenching.logiqs3d.nl/





SOFTWARE | *Industry leading Control and Registration Software*

Dat-A-Control

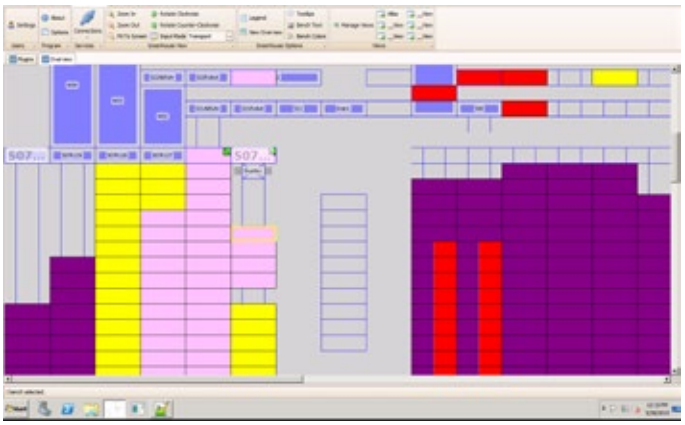
The most advanced greenhouse control and registration software available today!

By using Dat-A-Control, the grower gains full control over all the machines and plants in the greenhouse directly from a PC or a smartphone. Dat-A-Control's efficient transport algorithms ensure the efficient distribution of tasks to all the machines involved in a transport task. Because Dat-A-Control is build from ground up to be modular, growers can benefit from the integration of their potting, spacing equipment, Camera sorting systems and Automatic Irrigation booms.

When irrigation is integrated with Dat-A-Control, the grower can further automate irrigation with scheduling capabilities that can be applied per bench, plant lot, and growing phase. The system also registers the irrigation history of each bench allowing the grower to perfect their watering schedules for the various crops according to past results.

Besides the convenience of being able to control all the logistics equipment with one software interface, Dat-A-Control's plant registration makes the tracking of all the plants during the production process much easier.

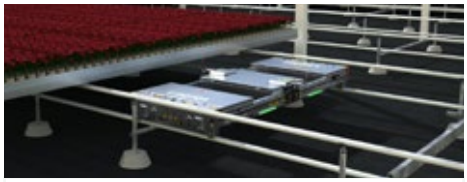
Dat-A-Control can also be linked to third-party ERP systems, so that the grower can benefit even more from the real-time plant registration. This access to real-time crop information can be leveraged for more efficient production planning and more precise delivery times.



REFERENCES

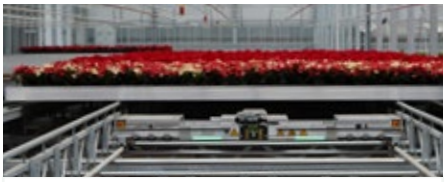
Some of our prestigious clients using 2D-Shuttle systems

AMAZONE plants



HilverdaFlorist

hartmann ...qualität in pflanzen



PLIGT PROFESSIONALS.

LKP PLANTS BROMELIA SPECIALIST

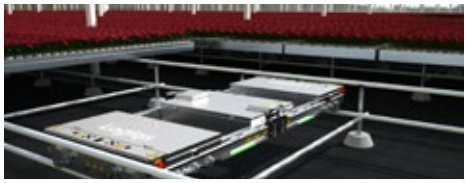
Bayview FLOWERS

RUTISHAUSER Die Blumenfamilie

GIROMAGI

OKPLANT Colourful in every season

HB HOOG BOS



CONSORZIO VIVAI PONTINI

Anthura | Arndt

Kientzler Jungpflanzen

AgriGarden 中环易达

westhoff

Logiqs

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