



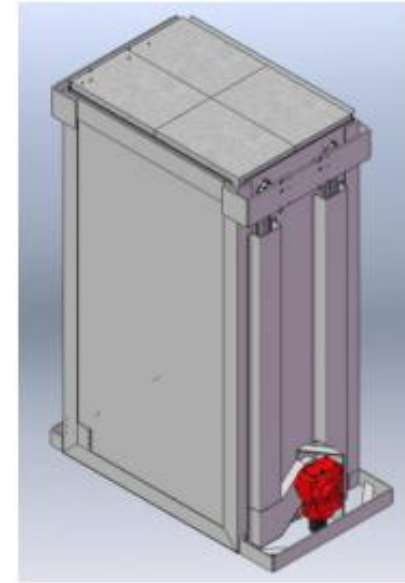
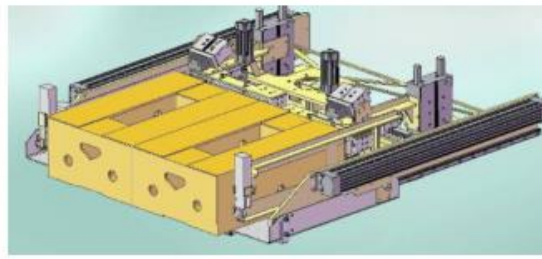
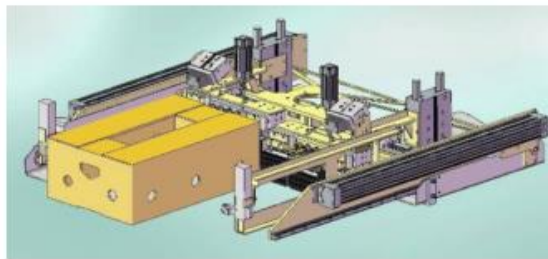
# Fruit and vegetable picking system



**A unique system design with technological innovations from VECTO based on the latest technology and new material flow components.**

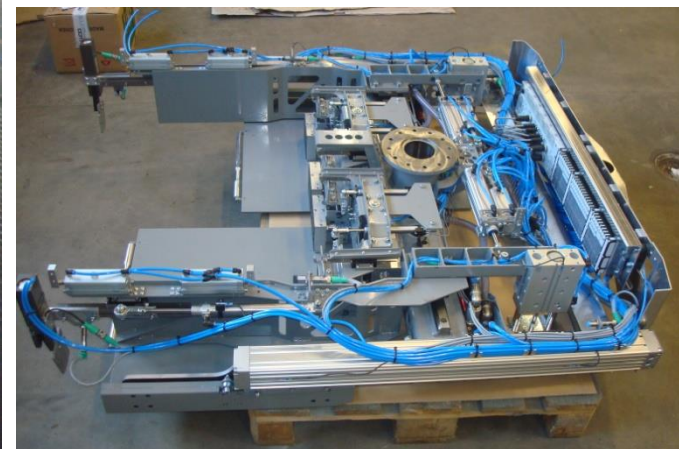
## **Patented key modules which make this solution possible:**

- ” Special developed multi functional robot gripper
- ” Special developed palletizing rack





## Gripper for order picking (VECTO patent)



**VECTO patent (European patent no EP 2441709 )**





# Pallet rack guide system (VECTO patent)



**VECTO patent**

**(European patent no EP 2392525)**



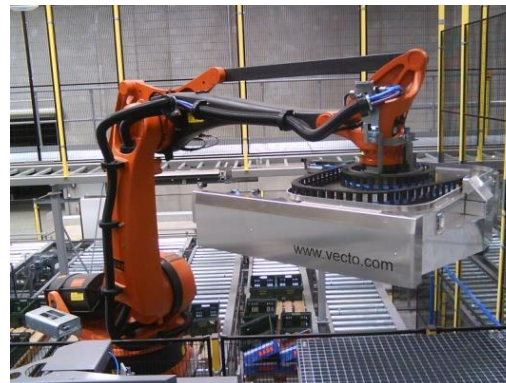


# Fruit and vegetable automation concept



## Key benefits of the system:

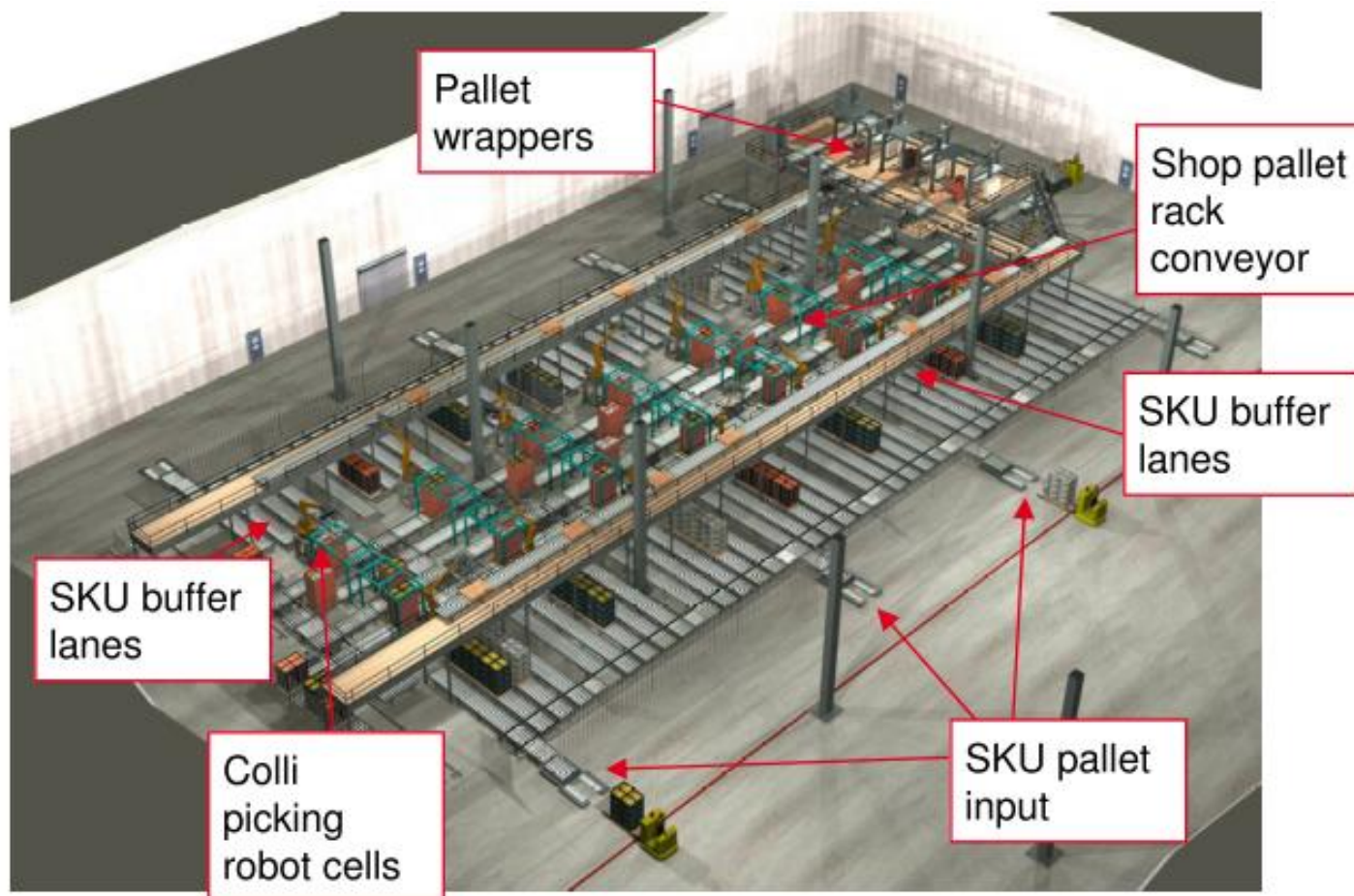
- “ Product picked only once, directly from SKU pallet to shop pallet.
- “ Orders are processed sequentially (i.e not a batch)
- “ Typical order processing time less than 30 minutes
- “ Flexible to number of orders
- “ Buffers for SKU pallets
- “ It is possible to input SKU pallets into picking system outside production time when receiving SKU pallets from supplier.
- “ SKU pallets do not need to be input in a particular sequence
- “ Redundant solution, for example in case of problem in one robot cell all others continue the process with picking and palletizing







# Fruit and vegetable picking system



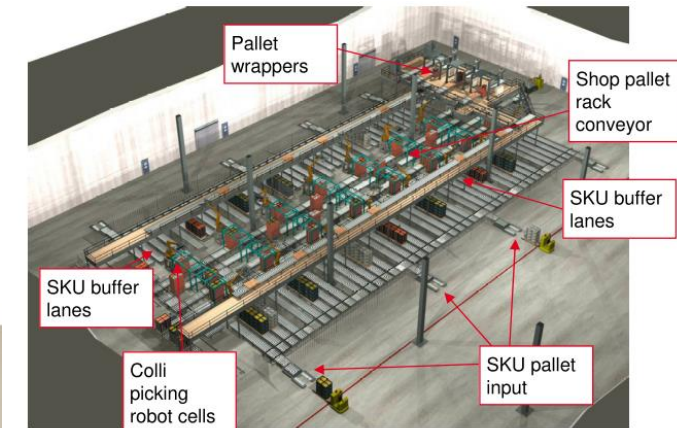
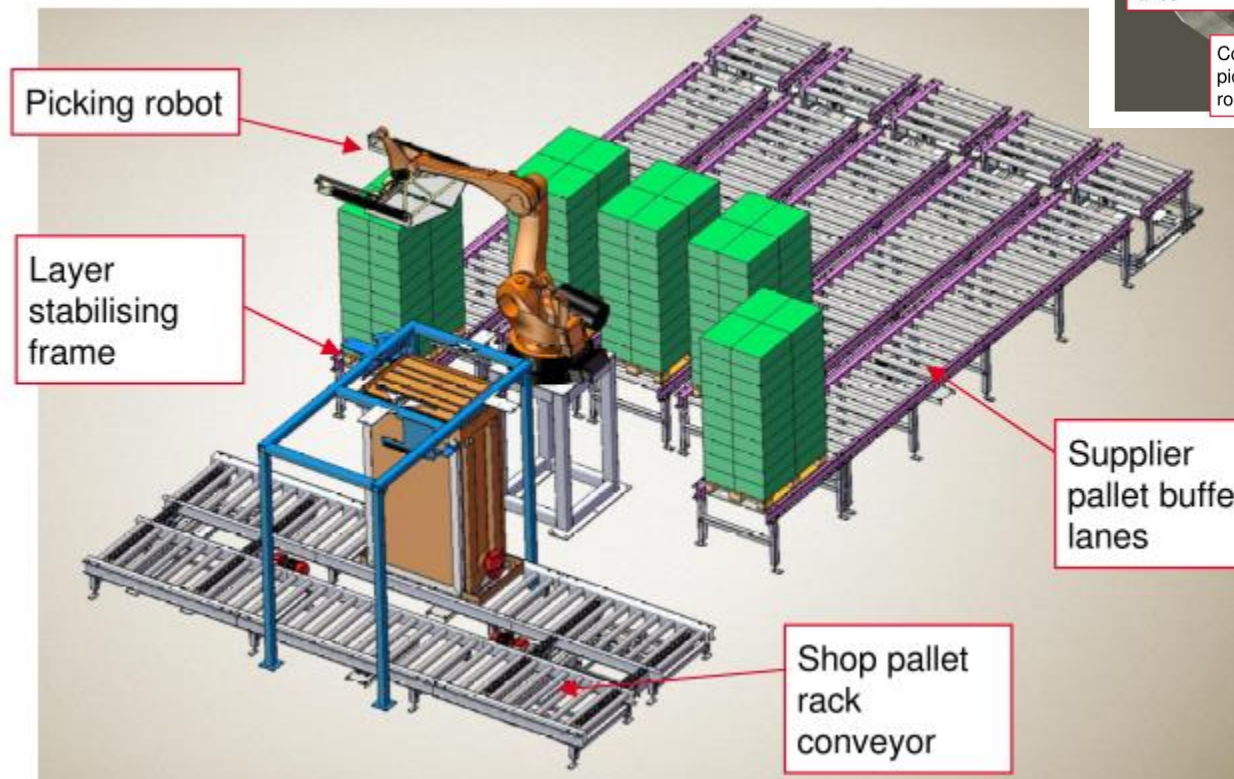


# Fruit and vegetable picking system



## Automatic picking and palletizing system for fruit and vegetable

The automation concept is build up on a layout with several identical robot cells that interact and work in parallel to achieve the requested capacity/output.



One robot cell consists of one picking robot, five picking positions and one palletizing station with layer stabilising frame





# Fruit and vegetable picking system







# Fruit and vegetable picking system







# Fruit and vegetable picking system



## Product that can be picked automatically

### General conditions:

Width & depth of colli must be 400 × 600 mm.

Plastic tote & cardboard boxes are in most cases possible.  
Other materials & new types must be tested.

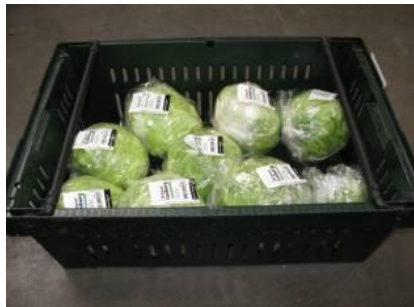


Fig. 1 Plastic tote (Type A)



Fig. 2 Banan cartons (Type B)

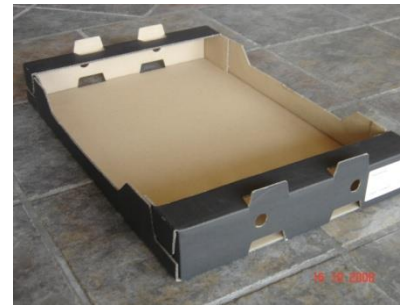


Fig. 3 Example of SKUs type C



Fig. 4 Example of SKUs type C



# Fruit and vegetable picking system



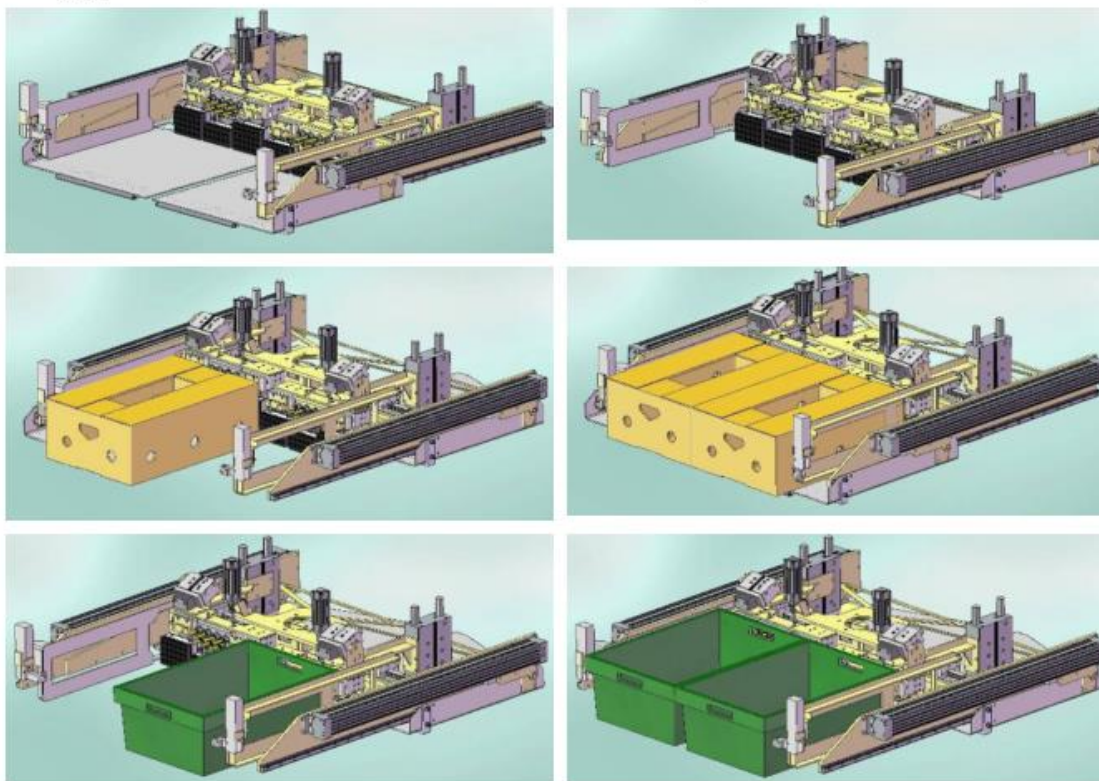




# Fruit and vegetable picking system

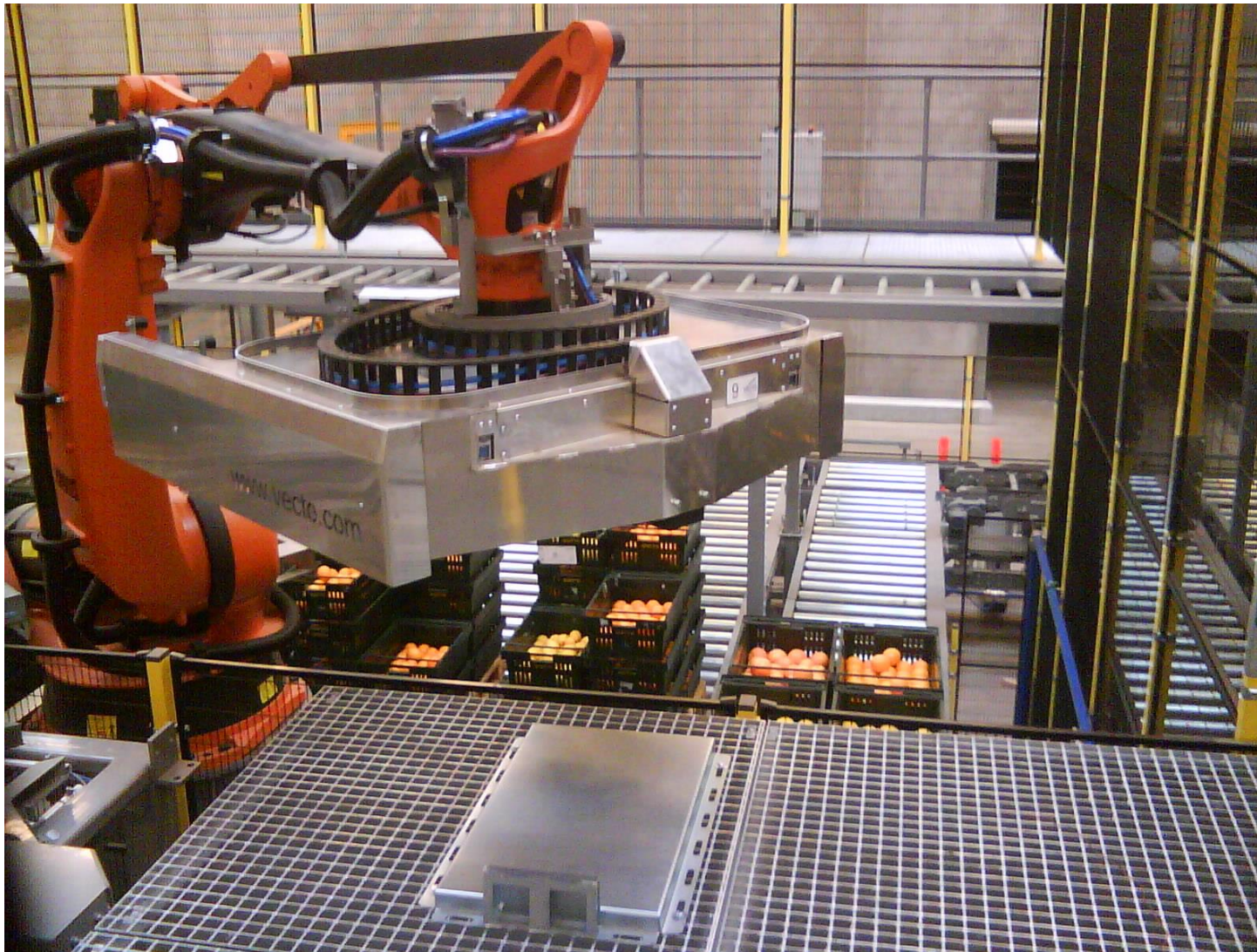


The gripper can handle one or two colli. It will be carried by a four axis industrial robot.





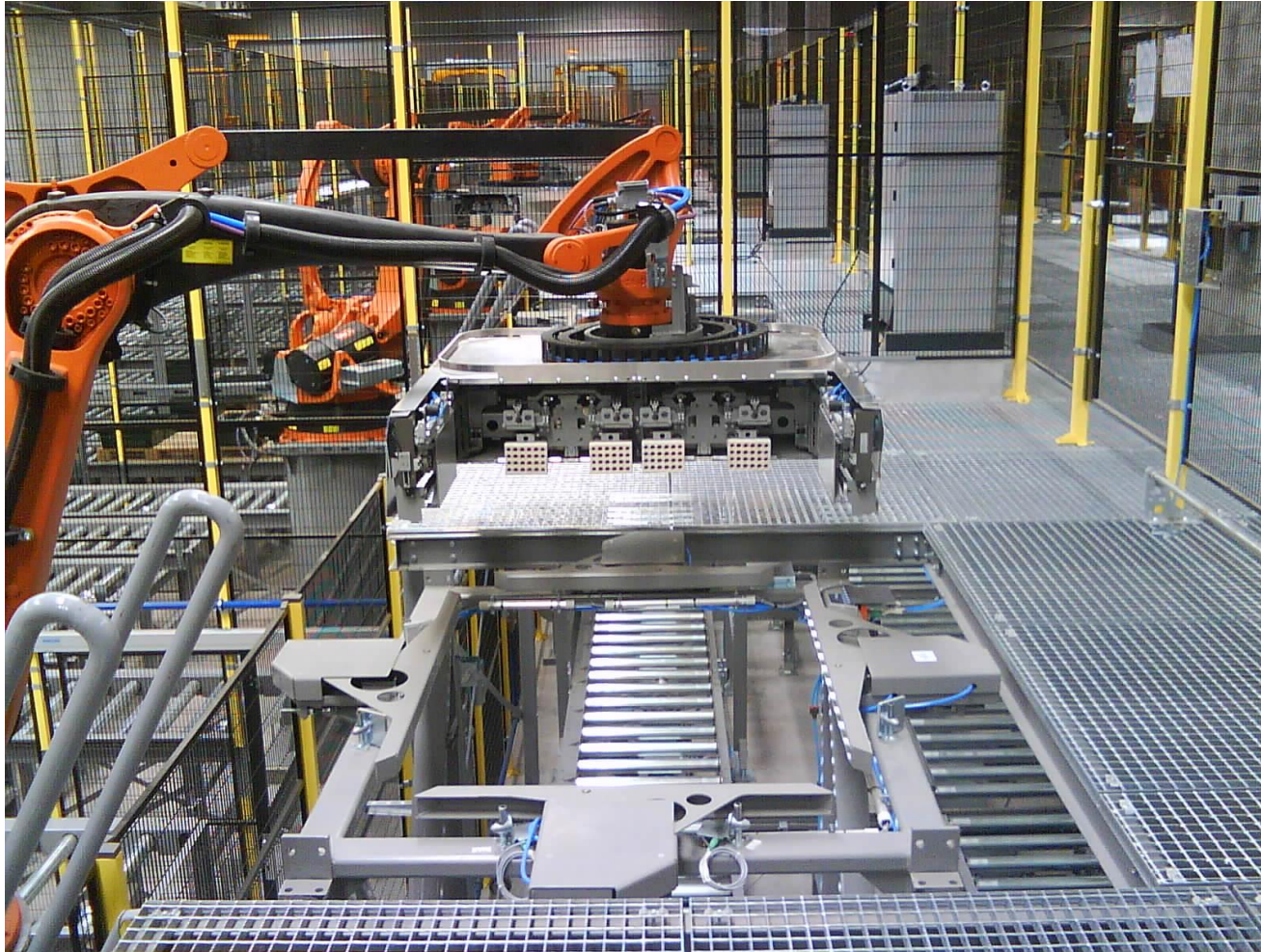
# Fruit and vegetable picking system







# Fruit and vegetable picking system





# Fruit and vegetable picking system







# Fruit and vegetable picking system





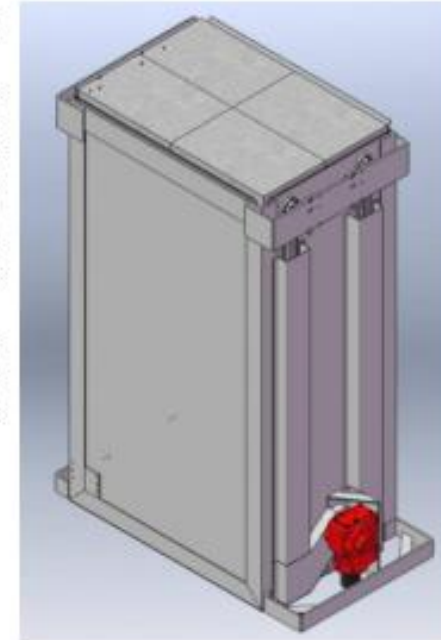
# Fruit and vegetable picking system



Picking to shop pallets is carried out using palletising racks.

The palletising racks have four sides that support the palletised boxes until, and during, wrapping. The rack is equipped with a hoist with an undriven roller conveyor. The hoist has no electrical motor. It will be driven by a motor placed on the places where vertical movement is required.

The robot will always palletise on the top of the rack. When possible the hoist on the rack will lower the newest layer of boxes down into the guides.



When palletising the rack will be in a fixed position.





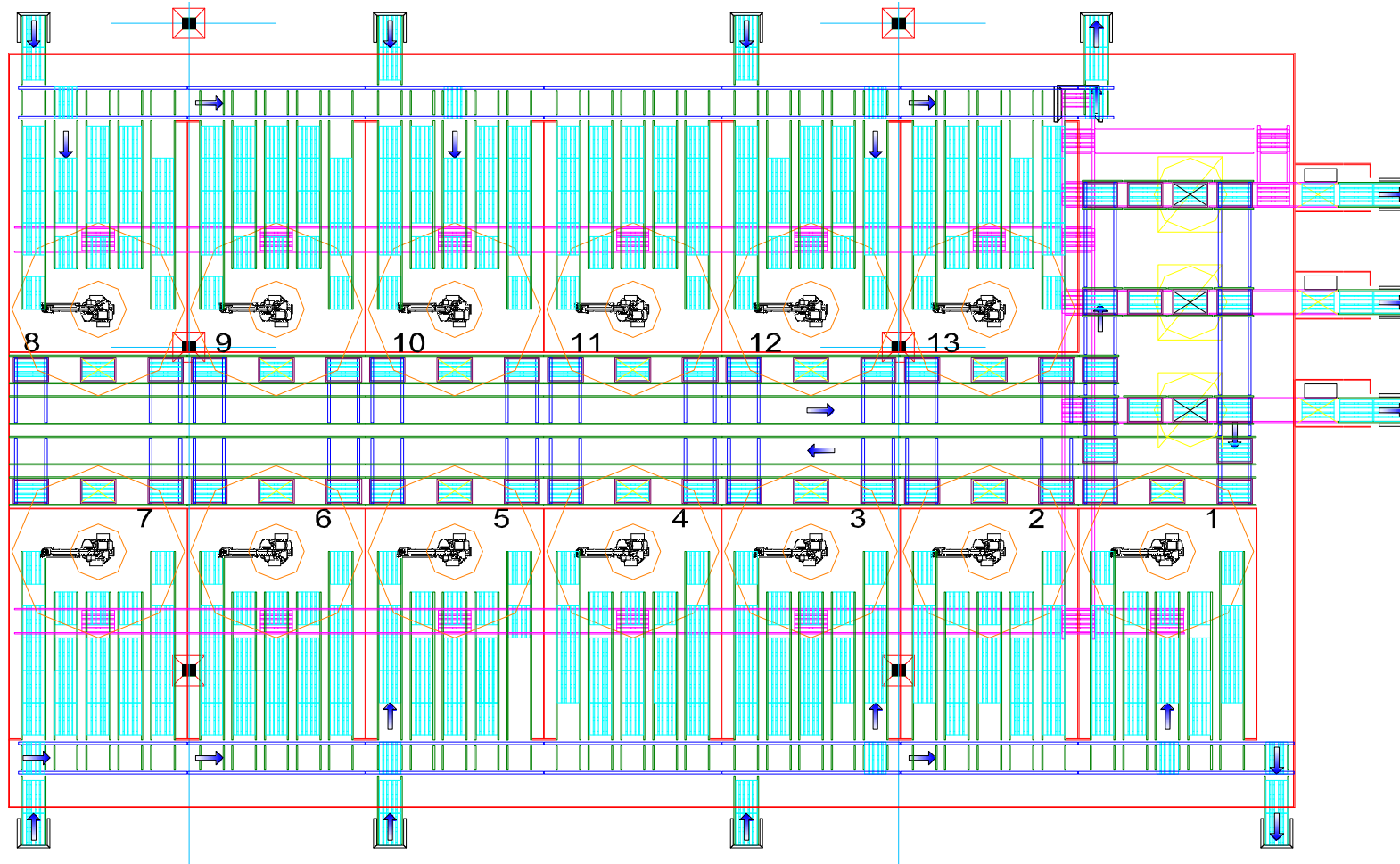


# Fruit and vegetable picking system





# Fruit and vegetable picking system







# Fruit and vegetable picking system



**See testing and verification in our factory during the development phase**

[http://www.vecto.se/Vecto\\_film/Automated%20order%20picking%20system/Vecto%20automated%20order%20picking%20system\\_short%20Vecto.wmv](http://www.vecto.se/Vecto_film/Automated%20order%20picking%20system/Vecto%20automated%20order%20picking%20system_short%20Vecto.wmv)

**See also implemented equipment finally installed**

<https://www.youtube.com/watch?v=RJaqtZnL2Co>