

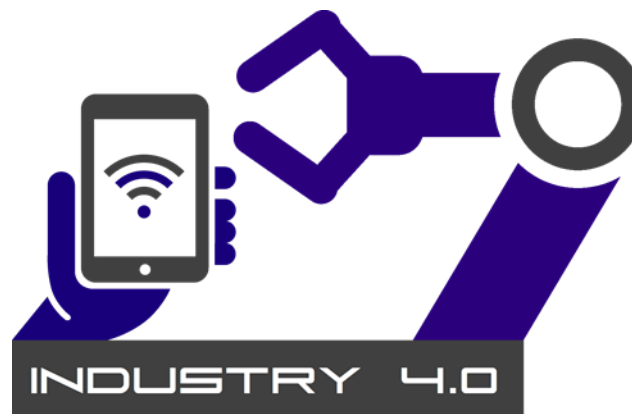


Why the Horticultural Industry needs a new trolley system

Søren Bøgede Andersen, CEO

New influencing trends since 1976

1. Increasing World consumption and population - 9 Billion people in 2050.
2. Global division of work / increased manufacturing concentration.
3. Sharing economy in the new knowledge society.
4. Digitization of all essential logistical processes (I-IOT Industrial Internet of Things).
5. Robot process automation in production and trade. Automated warehouses.
6. E-Trade disrupting established trading patterns.
7. Autonomous trucks and use of AGV (Automated Guided Vehicles).
8. Increased competition - supply chain transaction costs *must* be reduced.



Why a new trolley solution is needed

1. More sustainable supply chains – (the increasing World population and consumption).
2. Euro modul (400x600 mm) is in Europe the most frequently used crate (box) standard.
3. Profit margins are far too low, horticultural supply chains must contribute to better economy.
4. Costs for labor is increasing, and goods on wheels saves labor.
5. The working environment must be improved e.g. lifting more than 15 kg is not permitted.
6. Automatic handling (AGV, robots, automation) requires trolleys designed for the purpose.
7. Building of automated warehouse installations explodes.
8. Flexible loading heights maximizes the truck's loading capacity and saves costs and energy.
9. A new trolley must fit to many different products from many different industries.
10. A patented and RFID tagged system can protect and safeguard the pool investments.
11. Use of unique RFID-tags and GRAI-codes optimize the digital control of the supply chain
12. Soon driverless truck concepts will demand new standards for load carriers.



Why the name UNI-TROLL?

TROLL stands for TROLLEY

- **UNIQUE** – two patents, trademark & EU-design registration
- **UNITED** – users are united behind the pool by joined ownership of a Pool-Company
- **UNIVERSAL** – anyone can use Uni-Trolls as the EURO-format, fits to modular crates (plastic boxes) and Uni-Troll trolleys fits to most trucks and AGVs or robots. Further on RFID tags /GRAI and Bar codes on frames and shelves make the trolleys and the goods easy to track and trace.



The 3 Models - M2, M3 & M4

4 Uni-Troll M2 or M3 trolleys (4x616 = 2464 mm) or 3 Uni-Troll M4 (3x816 = 2448 mm) besides each other fits in the width of most trucks

Dimensions of the two models:

- **Model M2**; Base frames 891x616mm external and 815x606mm internal.
- **Model M3**; Base frames 1291x616mm external and 1215x606mm internal.
- **Model M4**; Base frames 1291x816 mm external and 1215x806 mm internal.
- All base and shelf levels fits to modular crates 600x400 mm; M2 fits for 2 crates, M3 for 3, and M4 for 4 modular crates.



UNIQUE - Why?

Why UNI-TROLL trolleys are unique

Two patents, the trademark & EU-design registration. As the trolleys are destackable, and designed for your solution to automatically stack and destack, build and break down of trolleys by machines.

The combination and customization of trolleys with crates and shelves according to your needs give;

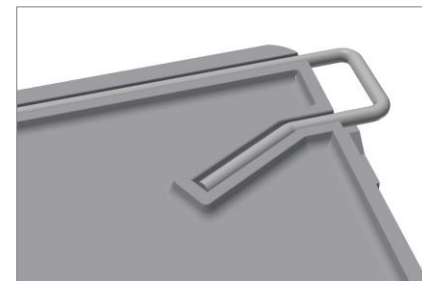
*Quick accessibility of products on shelves,
Reduce labour costs by efficient handling of
goods**

*Provide ergonomic working positions &
Save packaging to improve the environment.*

*Per circulation you save minimum 12 labour minutes . Calculated savings by 12 rotations per year.



Packed down 1:5,5



Bearing hangers



Patented posts /hooks



Shelf sloper

UNIVERSAL - Why?

UNI-TROLL trolleys are universal load carriers

- ISO modular 600x400 crates are the standard size in Europe. You can rent standard crates by eg. IFCO, EPS (European Pool System) and others.
- Can be used in all links of a supply chain; producers, industries, transporters, logistic providers, wholesalers, retailers etc.
- Can be exchanged full for empty, when you join the pool
- Supplant expensive one way pallets and shop displays
- Trolleys can be assembled and prepared with or without the load by machinery. We have identified several areas where robots / AGV can help you handle the trolleys and the construction of Uni-Troll is optimized for this.



UNITED - How?

How the UNI-TROLL is a united concept

- A pool-concept is creating synergies for the users.
- Investments are shared between the users.
- The number of rotations per trolley per year is increased.
- A higher number of rotations means lower unit costs.
- Controlling, cleaning, R&M can be organised by a pool-management service provider against a pool-fee.
- The Pool-Company is the owner of all trolleys, and has the exclusive right to control and optimize the use.
- The role of the Pool-Company is to be an “orchestrator”.
- The users have individual ownership (shares) after the number they buy/lease through a joint holding company.
- *Financing by leasing is organised in the Pool-Company at very favourable conditions (60 months – no initial payment, < 2,0% interest).*



OUR VISION IN 2.5 MINUTES

To start the video, please click and [Learn about our vision at Youtube](#)



Characteristics of present load carrier concepts in horticulture;

1. Most are not using standard (Euro Module) measurements, DC/CC 12x22 inches.
2. The height is not flexible and the trolley is not designed for stacking.
3. Not useable in automated warehouse installations and for handling by robots.
4. Copy infiltrated pool and very high repair & maintenance costs.
5. Module is not really fitting to modern trucks, and combined loads is a problem.
6. Working environment problems and high noise is challenging.
7. No innovation possible.
8. Users are standing at a cross road.

Stick to the CC-modul?



Change to the EURO modul?



How the UNI-TROLL concept contribute to UN SDG 17?

1. Improves human working environment (support use of automation).
2. Designed for double stacking (energy saving).
3. Industrial standardization creates value (less waists).
4. Designed for automation, AGV and selfdriving trucks.
5. Save energy in transport – less emission of carbon gas
6. Improves and strengthens supply chains
7. Improves logistic processes – less food losses and waste
8. Partnerships and circular economy - pool companies



Company info

**Thank you
for your
attention!**

Questions?



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