



New Modular Loading Units and innovative handling equipment status july 2019

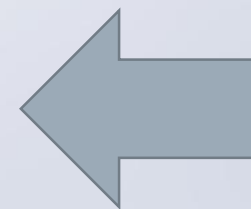
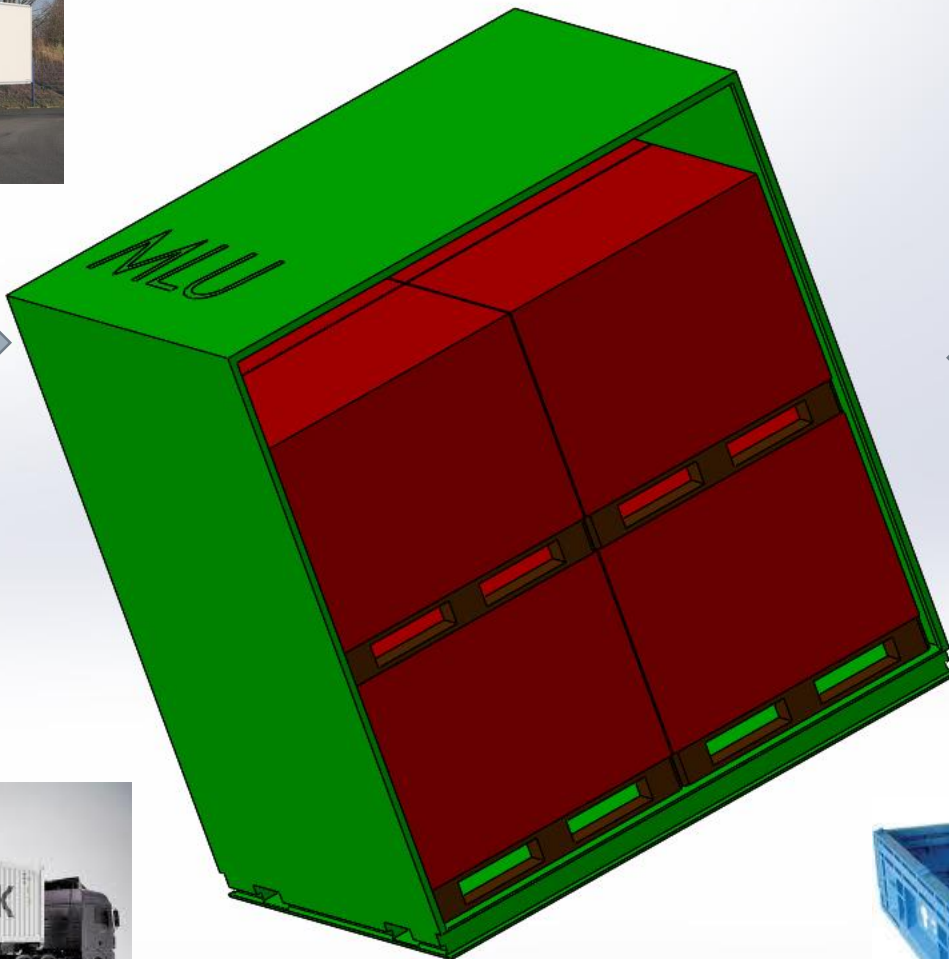
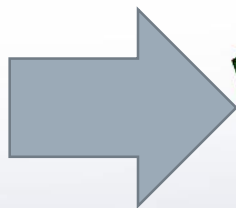
Ton.bertens@vanecktrailers.com



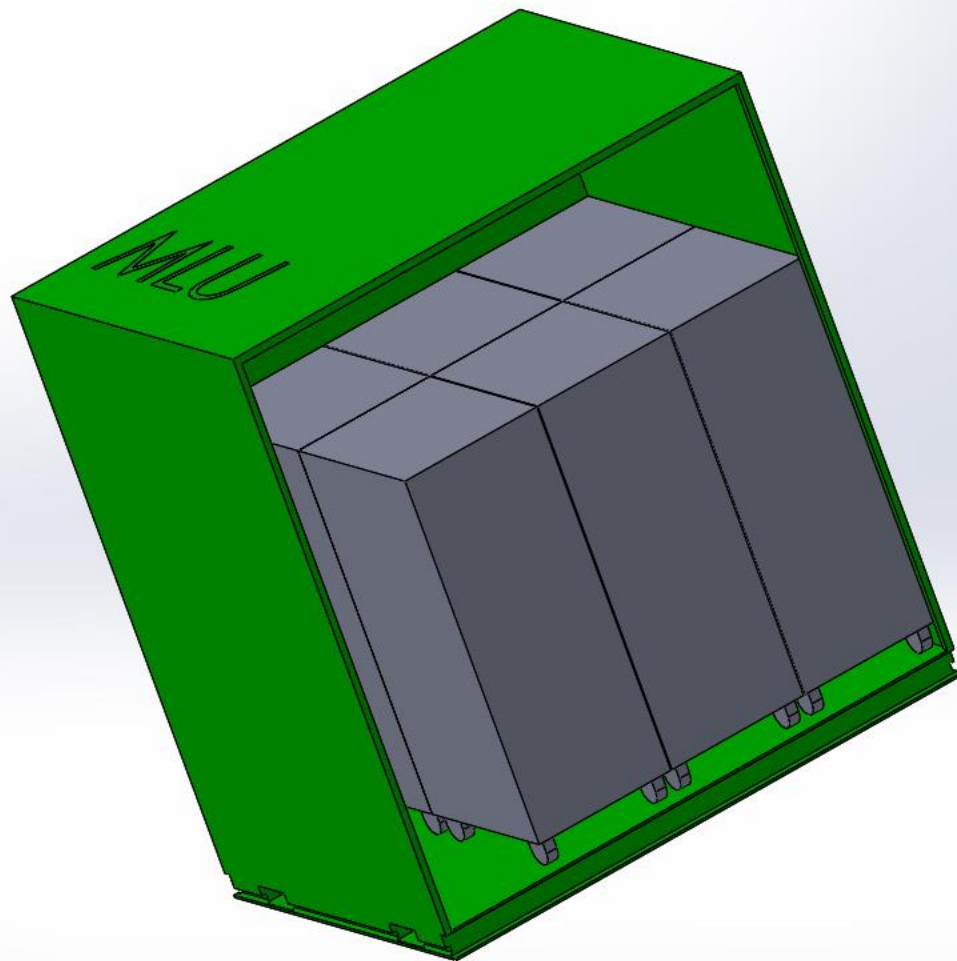
Clusters 2.0



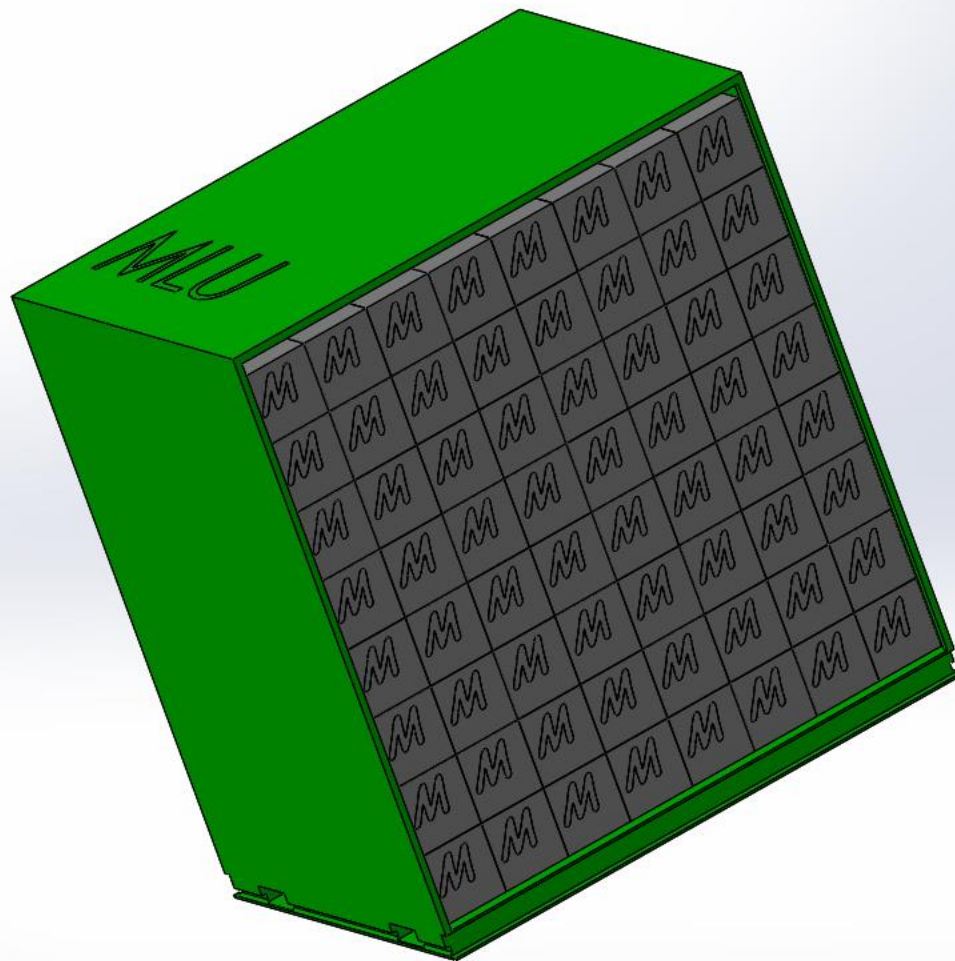
New Modular Load Unit



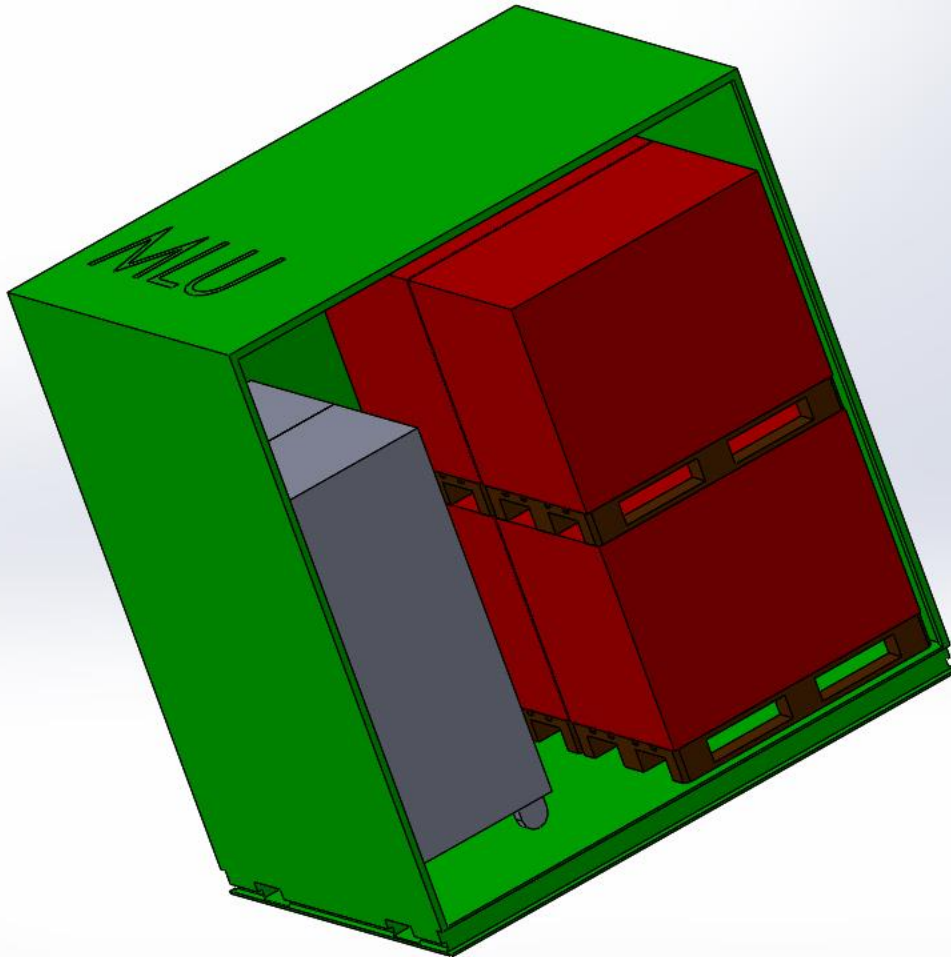
NMLU to fit rolcontainers



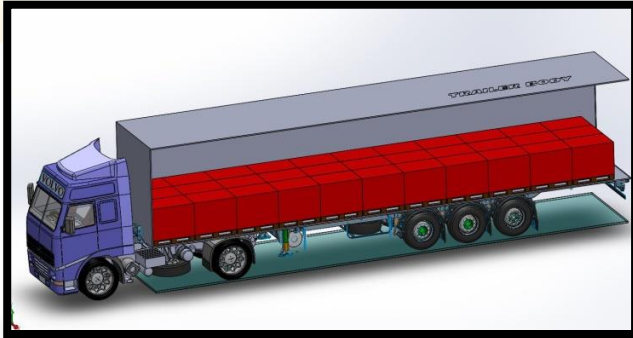
NMLU to fit Modulushca load units



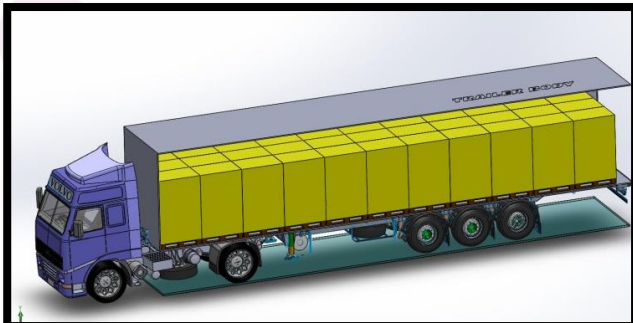
NMLU to fit mix of load units



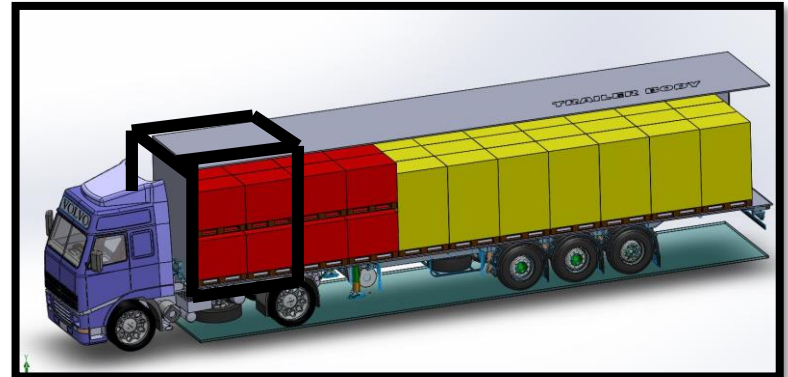
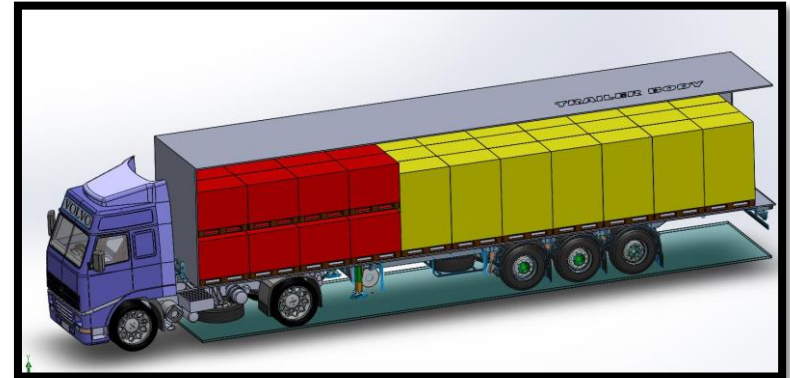
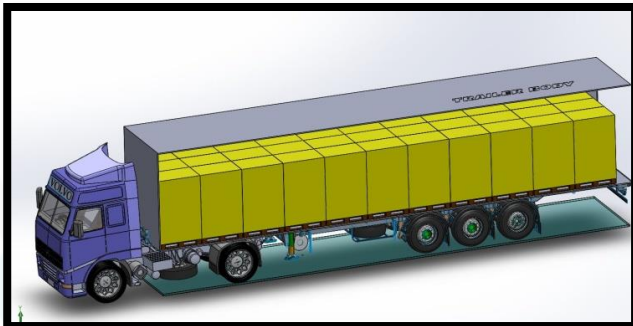
Clusters 2.0 NMLU to increase load efficiency



High density volume not used

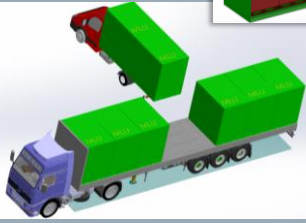


Low density load capacity not used



horizontal collaboration

Subframe



NMLU transshipment on subframe



Trailer is standard container chassis with subframe..
Subframe used when intermodal shift is needed.

NMLU's dimensioned have same outer dimension as iso containers.

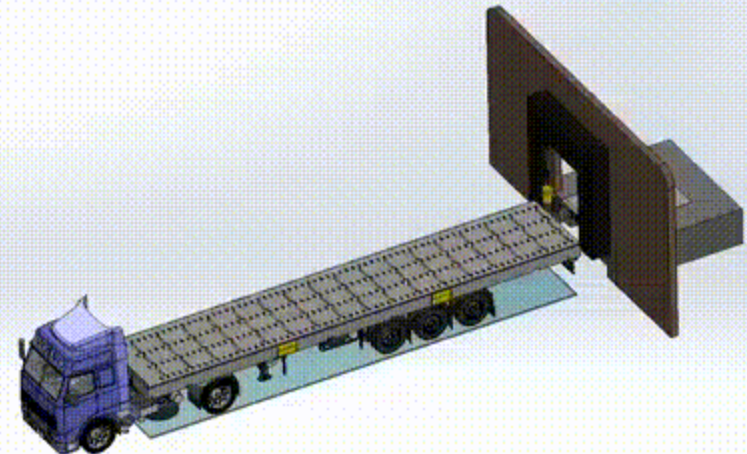
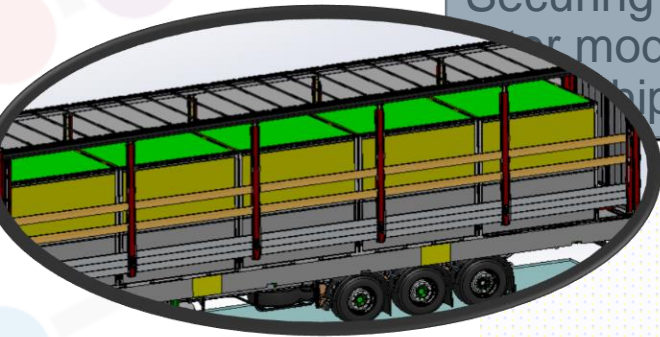
High efficiency for pallets, rolcontainers. Automatic loading unloading easy to achieve In trailer.

Trailer / container loading from back and side.

Securing on trailer / container important.

Intermodal handling with existing equipment.

Transshipment, done on subframe level very quick high efficient

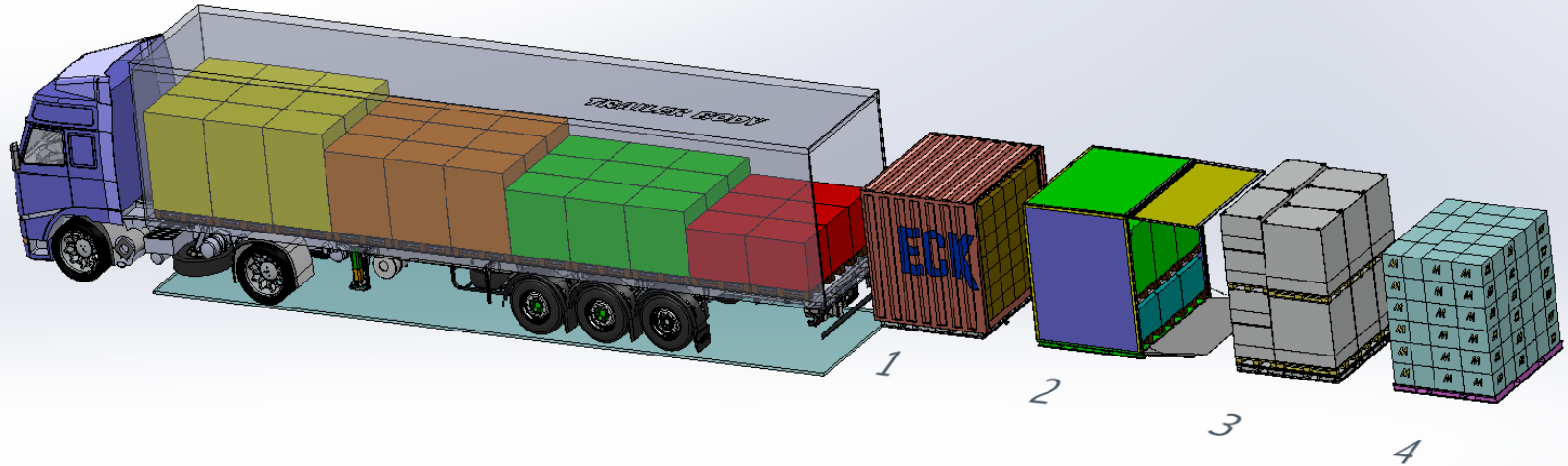


NMLU

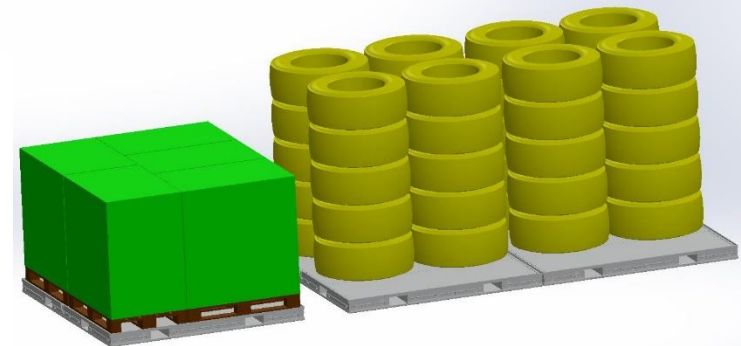
Overview NMLU Types



standard filling of a trailer in FMCG



1. CONTAINER-NMLU
2. PANEL-NMLU
3. MODULAR-NMLU
4. MODULUSHCA-NMLU



base NMLU bottom with standardized interfaces

NMLU Manufacturing

Different versions of NMLUs

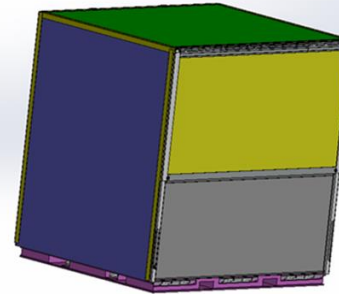


Container NMLU



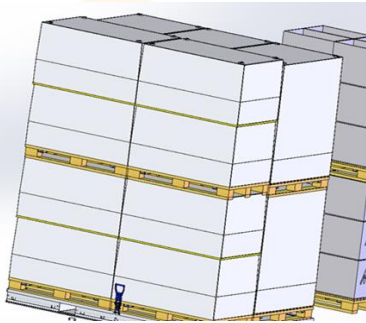
- › Pallet wide version with steel walls and two back doors
- › Suitable for light weight (parcels, cases)
- › Weight about 2.000 kg

Panel NMLU (AKE)



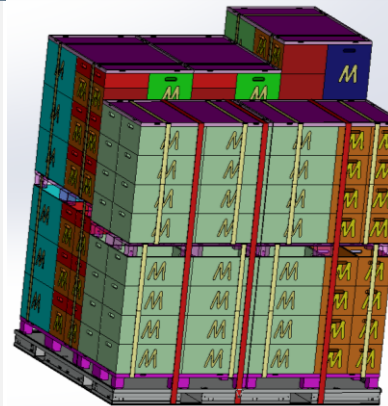
- › Light version with light weight panels
- › Body protects cargo against environment
- › Double stack floors
- › Total weight 700 kg (with Flex-Floor 820 kg)

Modular NMLU



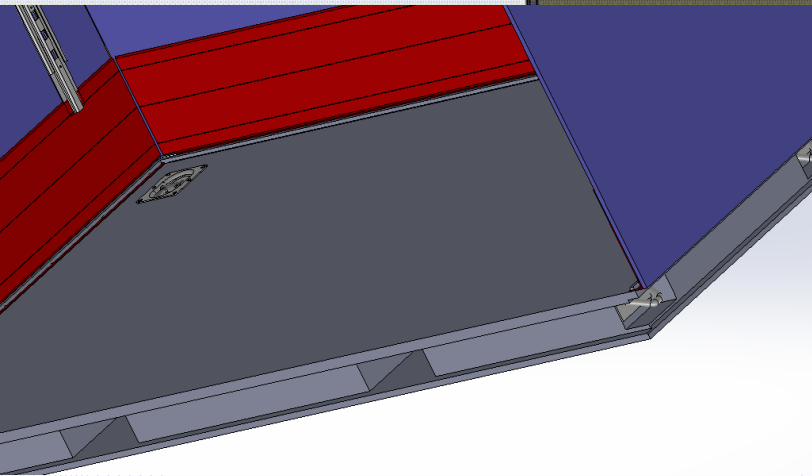
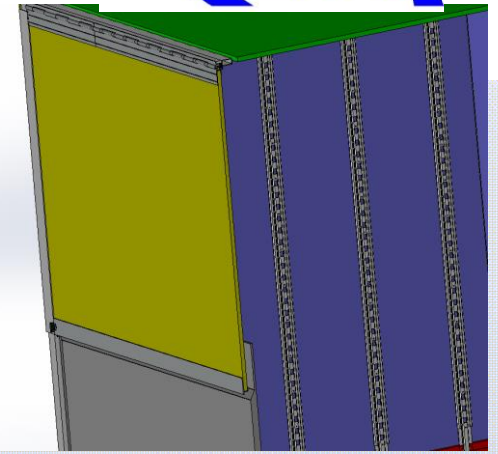
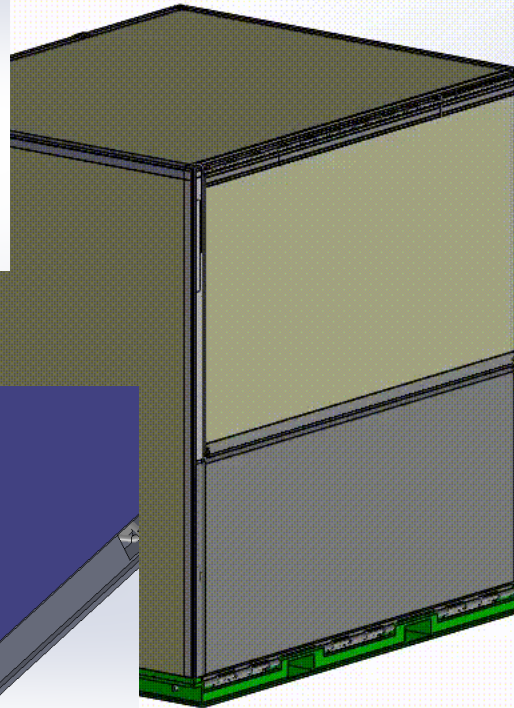
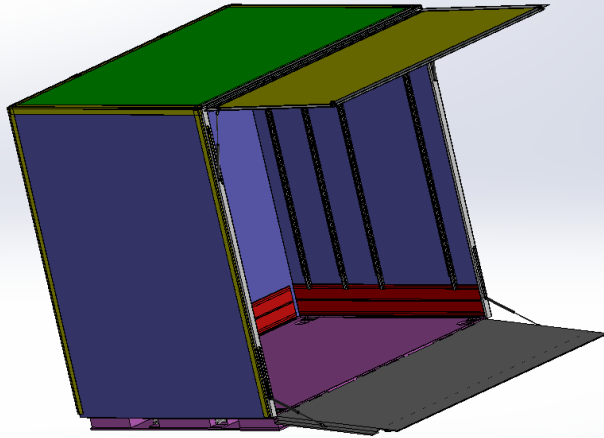
- › Completely modular build
- › Dimensions depending on hood height and number of stack → maximum flexibility

Modulushca NMLU

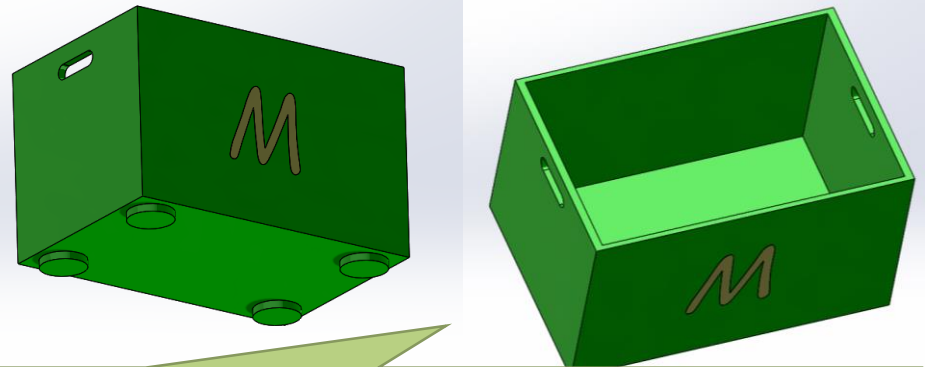
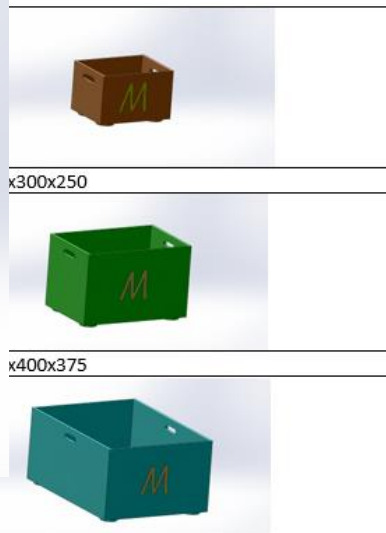
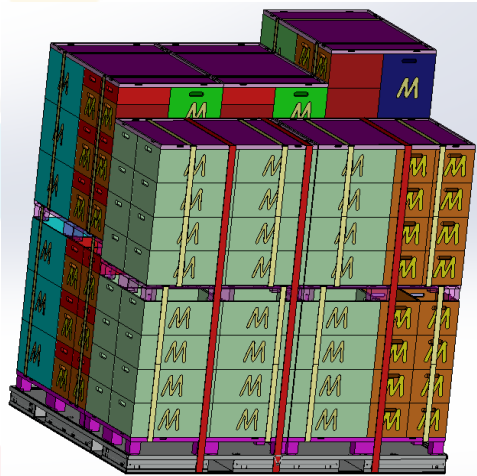


- › Fast and easy transshipment and handling of modulushca
- › Sets of Modulushca boxes can be handled as a “pallet” in warehouses and retailshops

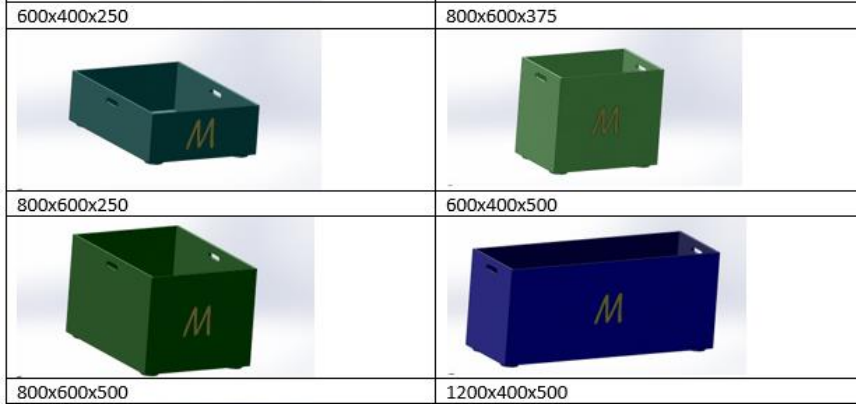
NMLU design of body according D



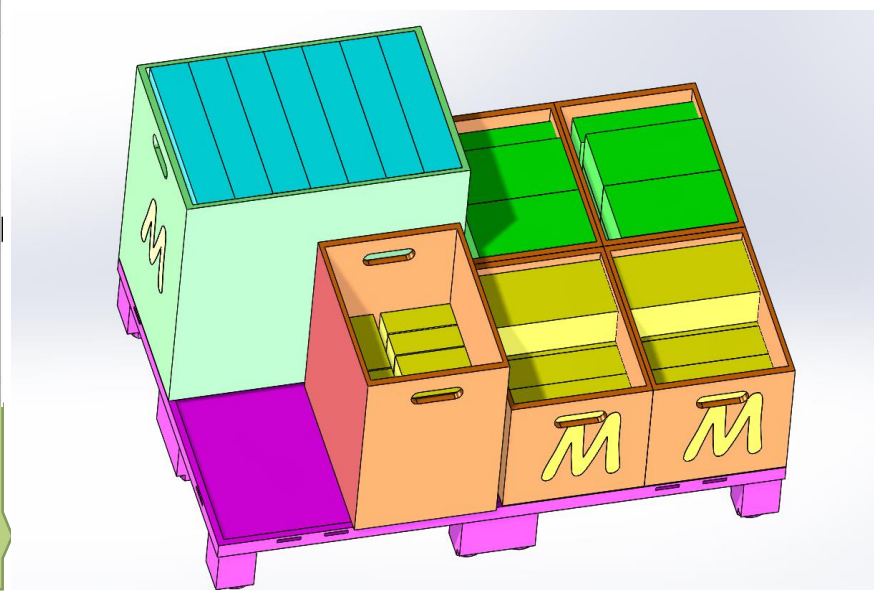
NMLU modulushca No carton anymore!!!! Zero waist



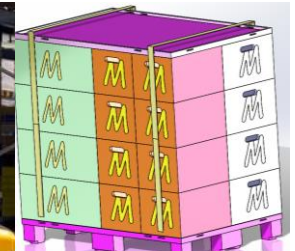
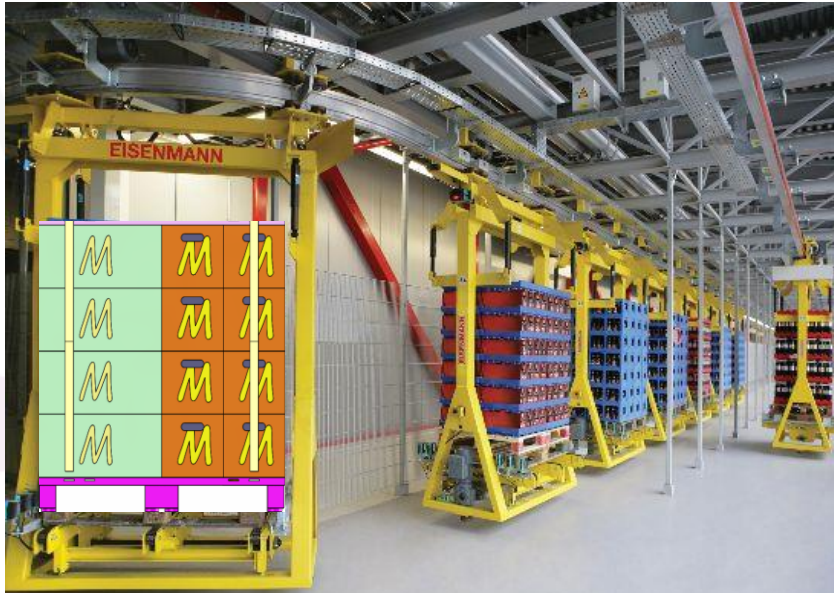
Modulushca boxes open top fits in each other like lego boxes



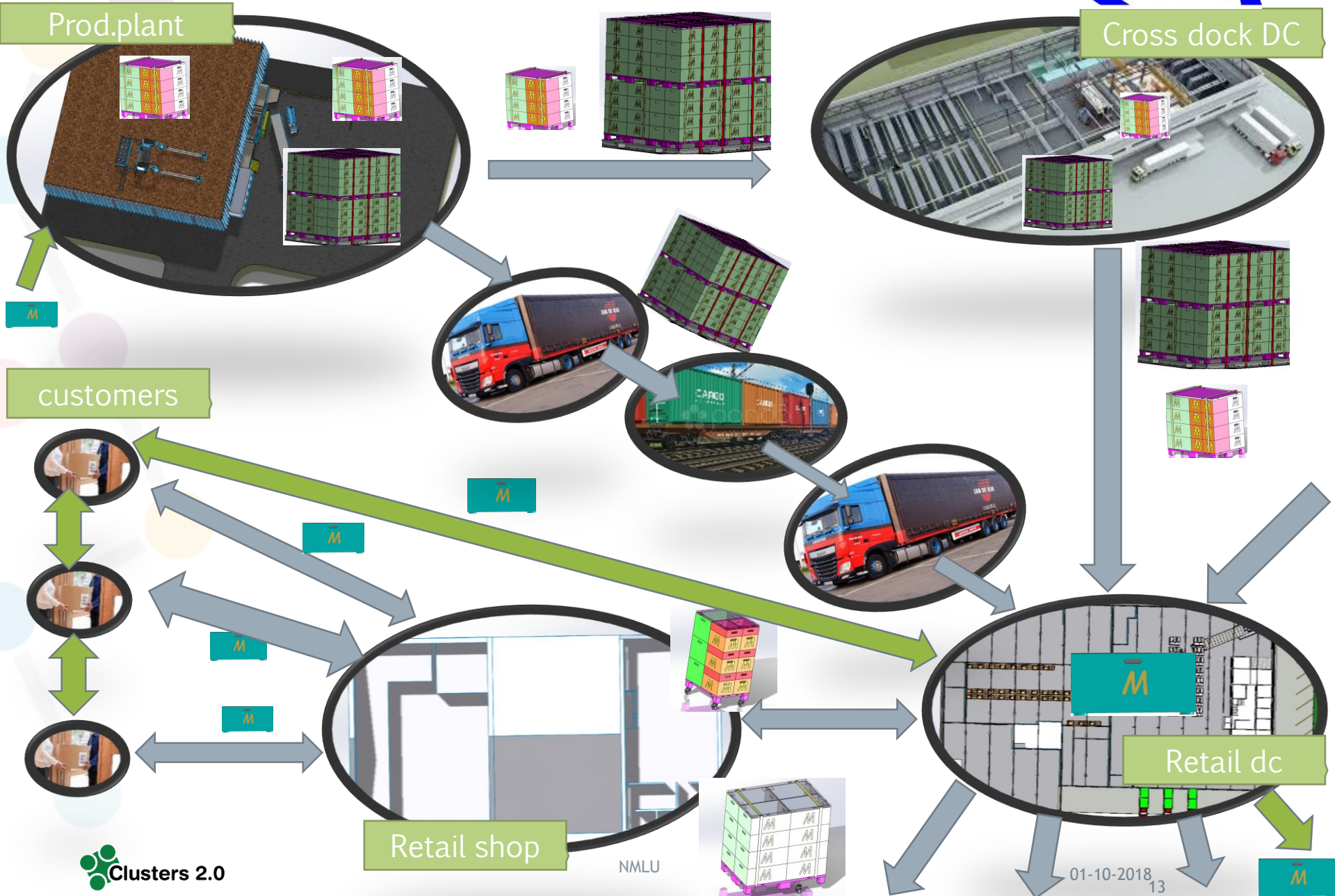
Different dimensions but fit together



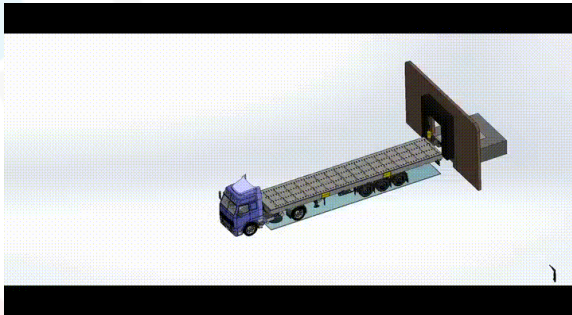
NMLU orderpicking in retail warehouses



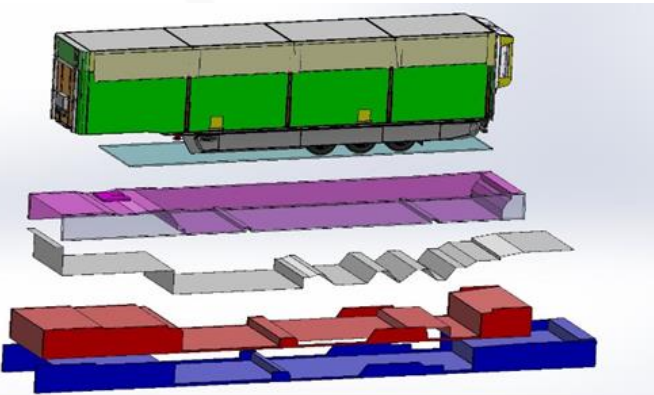
Modulushca NMLU in FMCG logistics zero waist



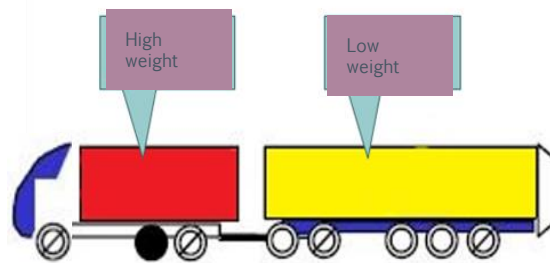
Modular units Clusters2.0



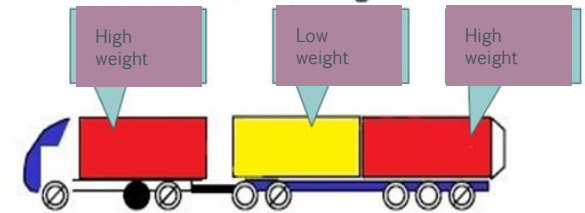
Cranable Transformer trailer



Combine heavy weight with light weight to fill both volume and weight !

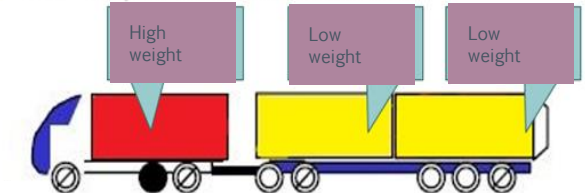


Demonstrator Truck +Dolly+ VEG trailer



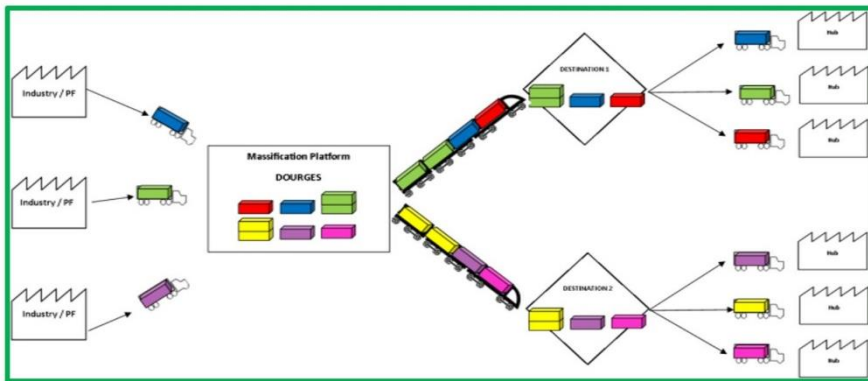
• Intermodal Truck +dolly+containerchassis

• 1 x C 7,82 2x 20 ft container



Platforms for volume and weight cargo

Use Case : Hor collaboration project combining LTL's

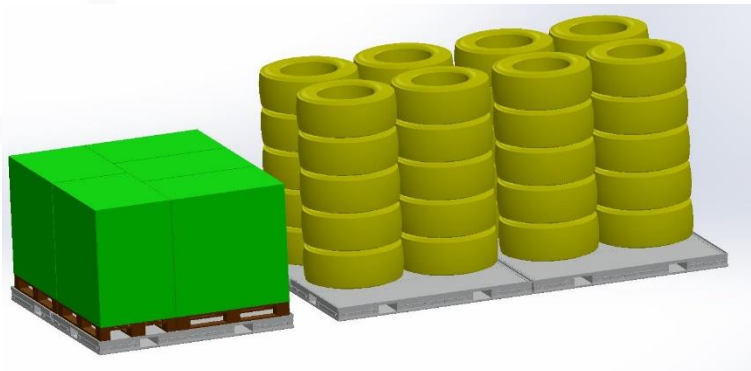


Testing hor coll project with NMLU's

Testing has been proposed with different containers on vehicles

Proposal now to use NMLU's to more easily fill a container (LTL)

Product form the different contributors are packed on the NMLU bottoms , in their ware houses



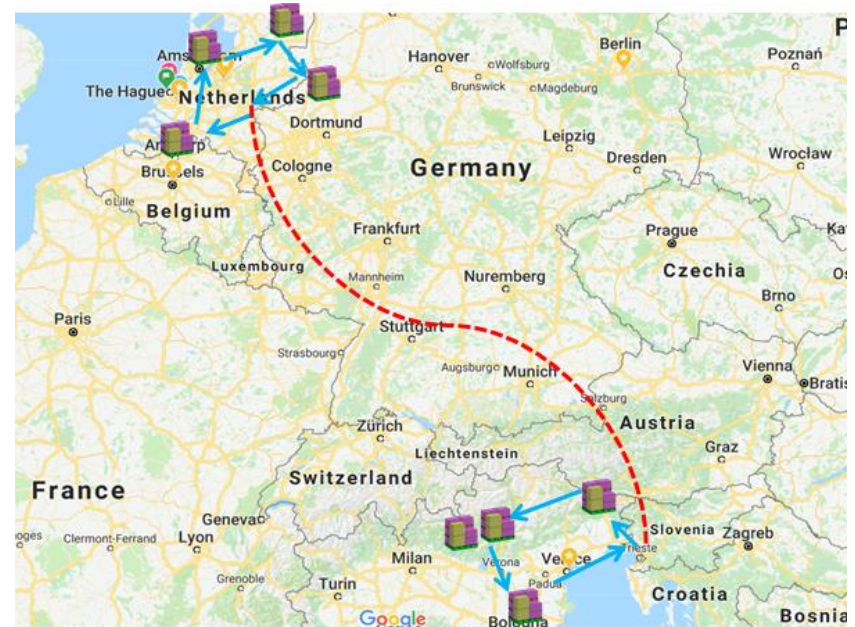
The NMLU bottom can be filled with products on euro pallets or rolcontainers or loss products (city depot??)

Needed: enough NMLU bottoms , trailer JDR

NMLU Testing Use Case : Horizontal Collaboration



- › I. JDR has a intermodal control center at Venlo. This is also a cross dock location where LTL freight is being combined into FCL freight. From this location daily truck transport to the rail terminal in Venlo are being carried out. From the rail terminal Venlo TX Logistik operates and controls the train to Milano.
- › II. INNOVA will test the modal transfer from truck to train and backwards
- › The NMLU bottom can be filled with products on euro pallets or rolcontainers or loss products



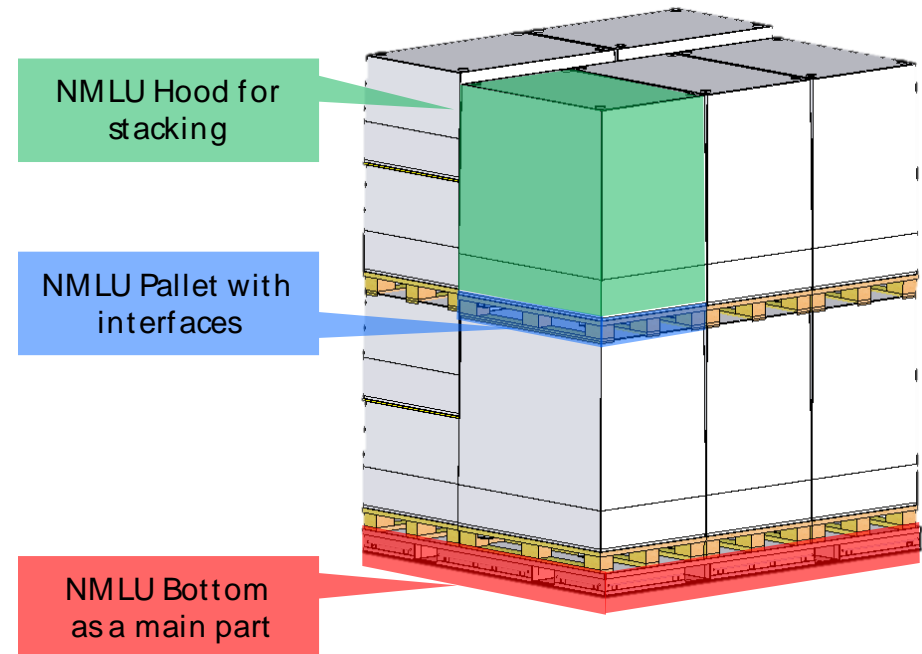
Thanks for your attention

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Prototype Testing

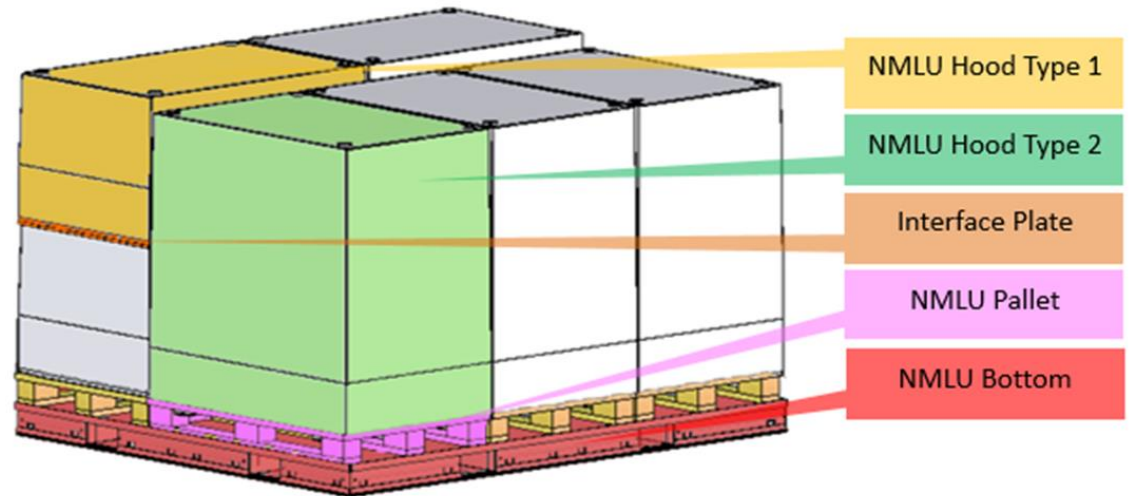
Concept of First Prototype

- › Flexibility during transport planning
- › Enhanced volume and weight utilization ratio
- › cross company bundling possibilities that LSPs, producers, and retailers gain benefits from all alike
 - smaller shipments for retailers (order management optimization)
 - chances to jump onto transport platforms just like CargoStream for smaller players
- › Integrated within and optimized for transport, handling and storage processes



NMLU Manufacturing

First NMLU Prototype



NMLU Prototype Testing Procedure

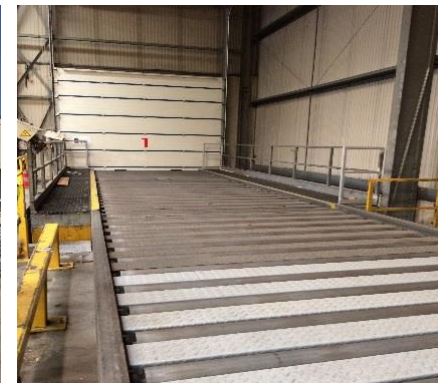
Testing will be done with four partners and under two different aspects:

› Testing of NMLU-Pallet and Hood

- JDR: Handling and mechanical testing in warehouse

› Testing of Complete NMLU

- WFS: Behavior on forklift
- DHL: Behavior on roller beds and automated loading and unloading

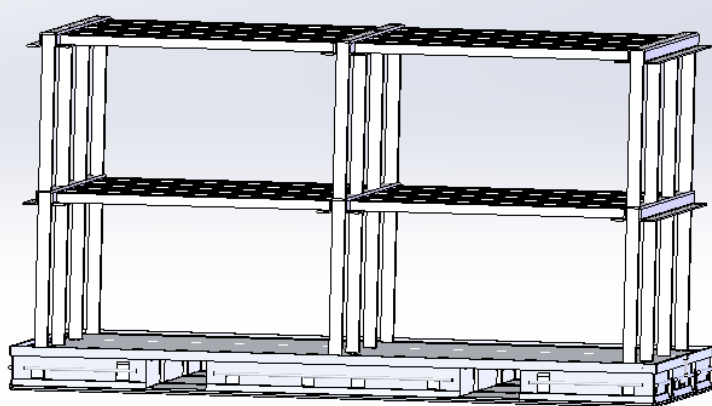
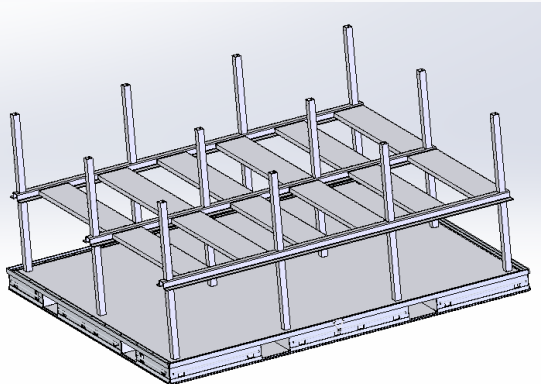
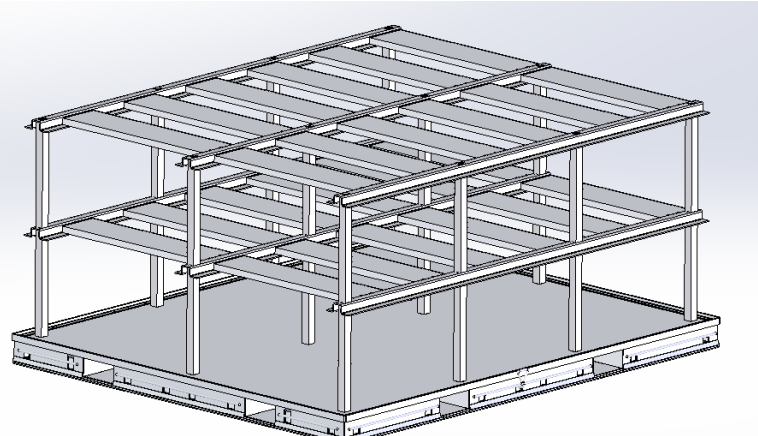
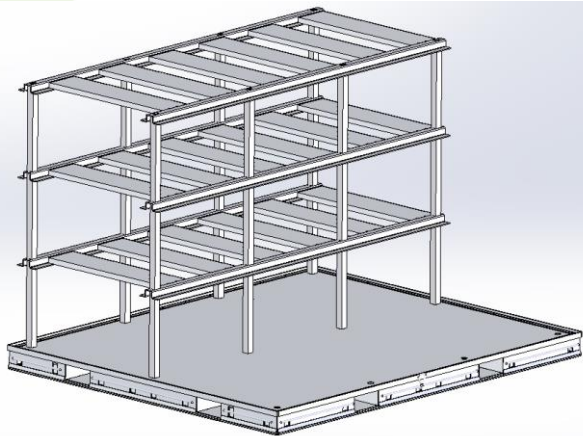




Testing the NMLU Hood

Request Leroy Merlin - FM Logistics Operations

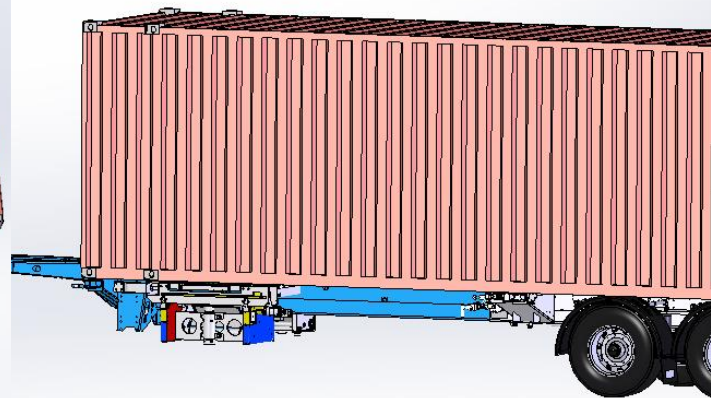
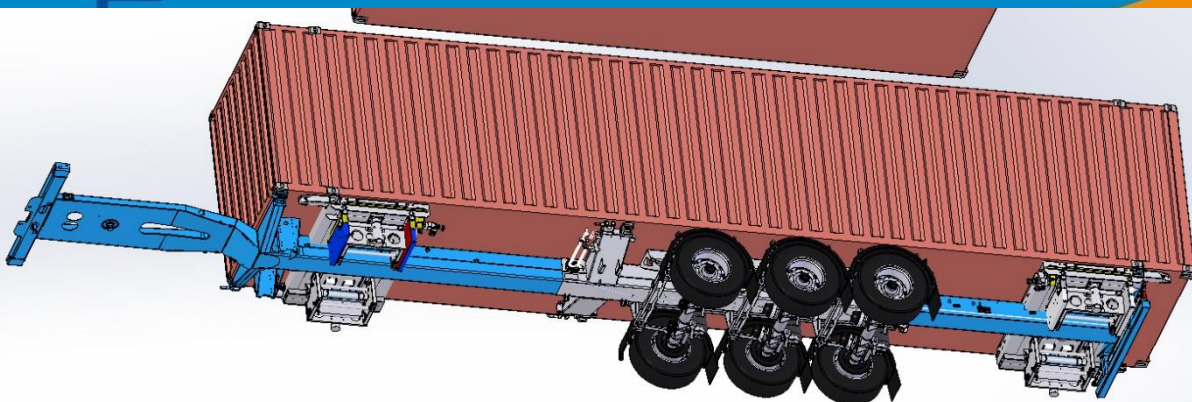
- › Leroy Merlin is looking forward to studying the feasibility of NMLUs for their supply chain in Spain and Portugal
- › NMLU type 5?? But again the same NMLU bottom



The Van Eck opportunities in Clusters 2.0

TRAILER MADE | 95 YEARS

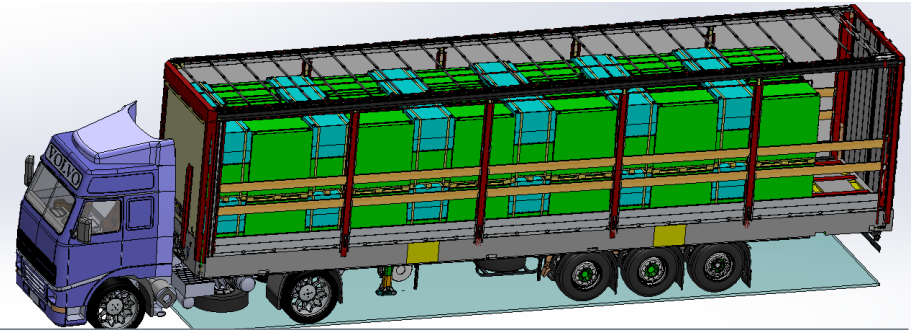
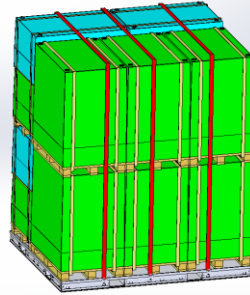
- More rollerbed trailer for pallets
- 10 bottoms needed for tests
- 45 ft curtainsider container with rollerbeds
- Container chassis for / with Innovatrain
- Modulushca boxes with chep??



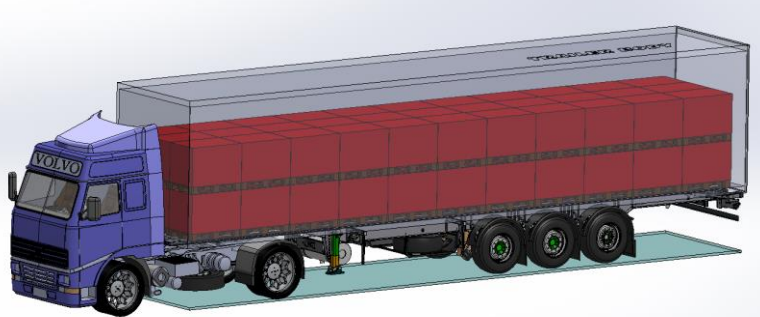
NMLU efficiency calculation pallets on NMLU bottom type D and E in trailer use case 1



Same cases hood system

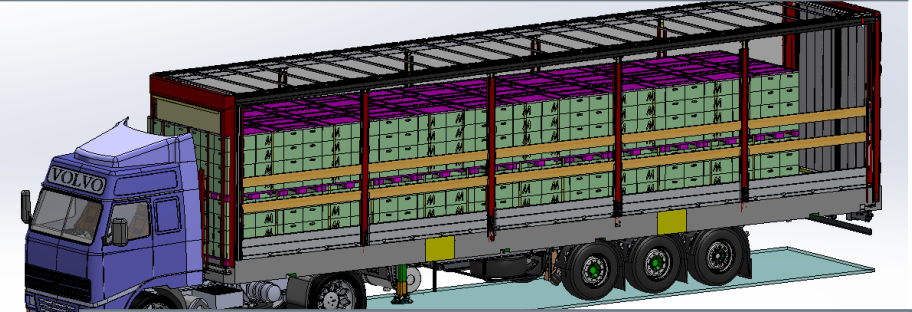
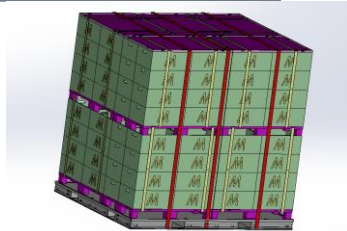


Modular pallets mix of double and high+low pallets on bottom
Type D+1% Type E+6 %
Intermodal : 44 ton
Type D+16% Type E+20 %



Use Case 1 mix of double stock
Very optimized shipment
pallets height 1000 mmm weight
300-450 kg per pallet
Weight shipment 23 ton

No cases products in modulushca



Modulushca pallets mix all same number of layers
Type D+2% Type E+3 %
Intermodal : 44 ton
Type D+9% Type E+13 %
Higher with mix of layers