New Modular Loading Units and innovative handling equipment status july 2019

Ton.bertens@vanecktrailers.com

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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
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. Inter modal handling with existing equipment. Transshipment, done on subframe level very quick high efficient
Overview NMLU Types

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

standard filling of a trailer in FMCG

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 transhipment 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

Prod.plant

Cross dock DC

customers

Retail shop

Retail dc

01-10-2018
WP 4 Smart Loading Units

Modular units Clusters 2.0

Cranable Transformer trailer

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

Platforms for volume and weight cargo

- Intermodal Truck + dolly + container chassis
- 1 x C 7,82 2x 20 ft container
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 warehouses

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

ton.bertens@vanecktrailers.com
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

EHLIG Meeting - Amsterdam
20/08/19
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
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

- 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??

Van Eck Group | The Netherlands
NMLU efficiency calculation pallets on NMLU bottom type D and E in trailer use case 1

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

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%

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