High Capacity Transport in Finland

What 34,5 m and 76 t means for energy efficiency?

Otto Lahti
Chief Advisor
25,25 m 60 t old standard since 1997 - reference level in Finland
Measuring energy efficiency

- Liter /100 km
- l/100 km /tonne payload
- l/100 km /cubic meter payload
- l/100 km /trolley or pallet

- l/100 km /tonne in one way transport
  - Timber transport is good example

- g CO²/tkm or m³km
  - Probably too theoretical unit to understand

- At the end, system level efficiency matters
76 t trucks since 2013
More efficient timber transportation was a key reason in the background

Average transport distance 100 km
Average load 52 t

51 000 000 t annually

1500 Timber trucks

22.10.2021

17 x 480
The first application
And the first permit

Suomen DuoTrailer-hankkeen tutkimus- ja kehityssuunnitelma 18.1.2013

The first high speed test 7/2013

2013-2018
14 milj. km
36 trucks in the end

Several major and many local transport companies took part to trials
Comparing different prototypes and driving lines in real traffic
76 t Finnish A-double

Road friendly solution for heavy loads

Compared to 2x standard semitrailers
one axle more and 4 t less weight

14 % less weight /axle
The important number is road load
compared to payload

Truck 9 t + trailer 7,5 t + dolly 2,5 t + trailer 7 t
Standard Finnish 76 t A-double

Truck 8 t + trailer 7 t
Standard 40 t truck
Accurate comparison of payloads

Same:
- Cabin
- Power-weight ratio
- Engine model
- Transmission
- Tyres

Load 25 t

Same trailer

Truck 9 t + trailer 7,5 t + dolly 2,5 t + trailer 7 t
Standard Finnish 76 t A-double
Right length to every use

7,7 + 13,6 box
25,25 truck

7,7 + 7,7 + 13,6 box
34,5 truck

13,6 + 13,6 box
32 truck

19 m box 22 m truck
Tailor made truck and full trailer combinations to local needs

Hooklift + 3x 18 t box

9,5+17,5 body length
~13,6+13,6

Good traction and dynamic stability

8,8+15,6 load
EMS1 + 15 %

Agile to turn, steering
EMS2 traffic in Finland
We don’t measure the number of trucks
We measure traffic

HCT-YHIDISTELMIEN (yli 29m) KESKIMÄÄRÄINEN VUOROKAUSILIIKKENNE

Valittujen päivien
28
HCT-Yhdistelmä
73 305
KVL
2 618

Traffic in different week days
Weekly development

Traffic volumes on map

4 week average

HCT: 73 305
KVL: 2 618

Traffic volumes on map

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Traffic volumes on map
Strict PBS rules for trucks and big network or Limited stiff network but simply rules for trucks?

Theory

Easier then you think

Reality

32 m A-double

Supermarket 427 km from nearest terminal

Good road

EMS2 road
Light goods, long distances, tight schedules, flexible service

- High Capacity Truck, EMS2
- Efficient loading
- Latest engine technology

2-deck trolley specialist, 165 trolleys
2,9x semitrailer load
1,8x 25,25 EMS load

Efficiency level means
15 l/100 km for standard semi
25 l/100 km for 25,25 EMS1
Thank you for your interest and attention

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