

LONGTAINER

SUSTAINABLE PACKING STACKING

Award winning
Safe & Sustainable carrier "STANDARD"
for all XL products

bosal : packaging solutions



Introduction to **bosal**

“Contributing to a **cleaner** world by consistently **innovating** in mobility and energy”



Founded
1923

€416_M
Revenue (2024)

5% net Sales
reinvested in R&D

15 Production/
Distribution
Centers

6 Engineering
Centers

2,000+
Employees
worldwide

Family owned

Long standing
customer relations

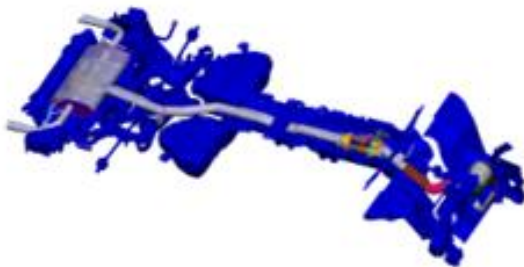
Industry **leader**
in engineering
capabilities

Global footprint

bosal : packaging solutions



Market Segments



Logistic challenges for handling & transporting “Long” objects:

⇒ Need for **Standardized solution** with multi-functional applications

- Supply chain **efficiency**, operational excellence
- **Safety** (people, process, logistics)
- **Cost** reduction & automation
- **Sustainability**, re-use and avoidance of waste

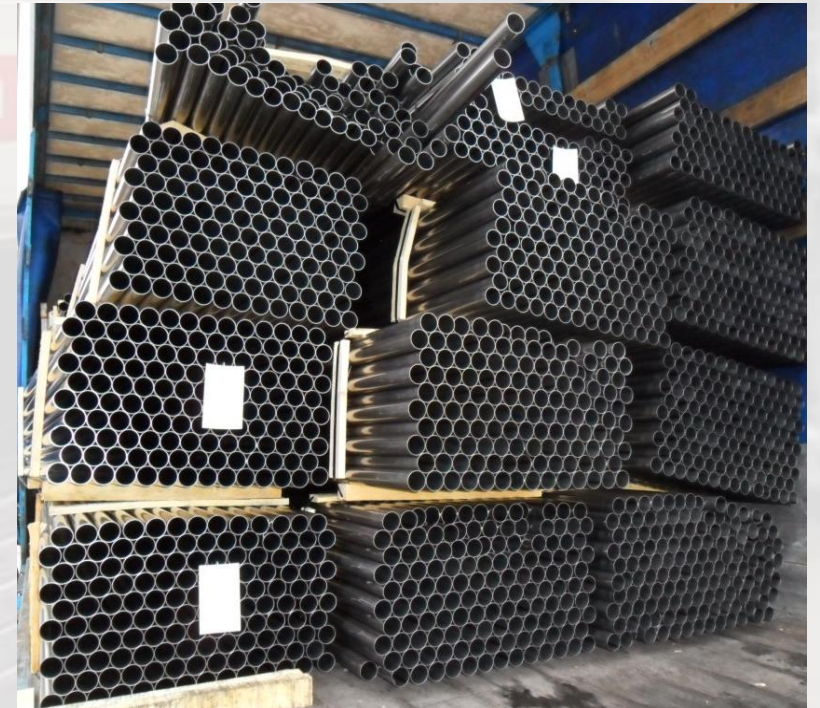


1 Facilitate optimization & Increase efficiency in all industries

Traditional methods of Packing are **time consuming** and labor intensive, causing **loss of production output** & increase **costs in warehousing & logistics**



- 2 **Eliminate Safety issues** to load/unload a truck & during transport
- 3 **Avoid Product Damage** by forklift/sideloader
- 4 **Improve Stability** of the shape of a bundle during storage & logistics



Waste reduction has become a social & economic **priority**

Today important volumes of “single use”, waste materials are frequently being used :

- Wooden planks, beams, pallets + heavy steel straps with seals & single use slings
- Wooden frames or In-house made solutions, carboard, plastic, polystyrene, ...

Eg. : Round tubes are often strapped into hexagonal bundles with- or without wooden beams in between layers

5 Fire hazard of dry, wooden, packing materials **inside buildings**





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7 Optimization of available **Warehouse space**

⇒ **Need for Modular Flexibility**, to replace fix, static installations



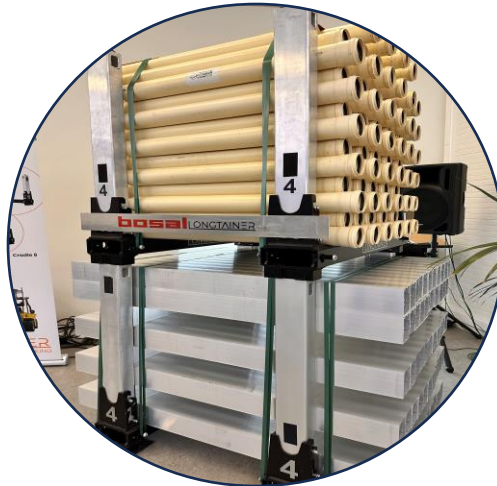
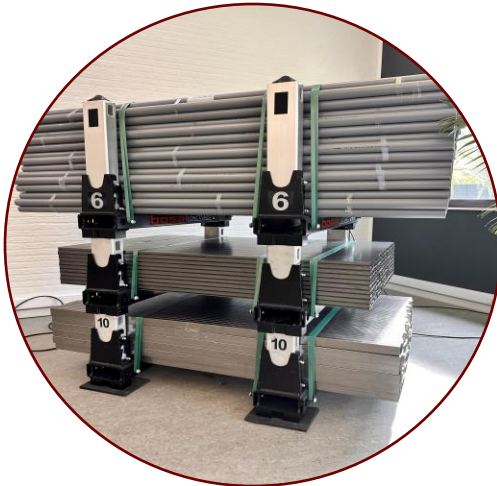
Therefore, **bosal** : packaging solutions created a new, patented®,
award winning, 360° solution for : Packing

Handling

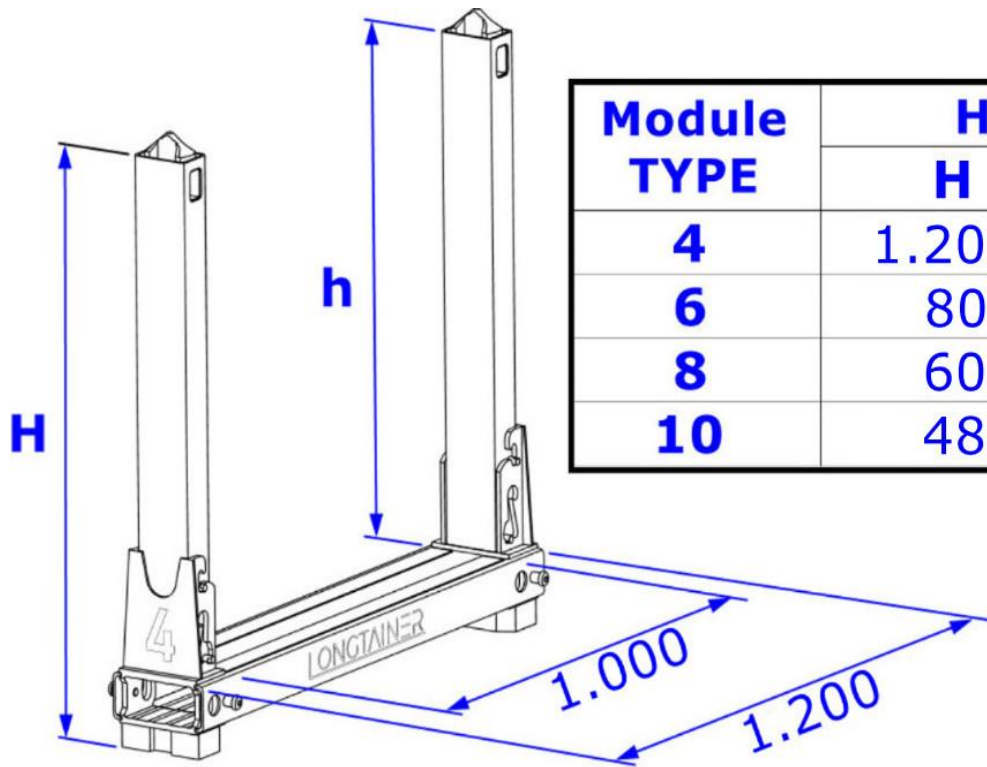
Storage

Transport

..... of long products, such as : Tubes/Profiles/Bars/Beams of any
material, ... in a **Cost Effective, Safe & Sustainable** way



Specifications :



Module TYPE	HEIGHTS	
	H	h
4	1.200	1.000
6	800	650
8	600	450
10	480	330

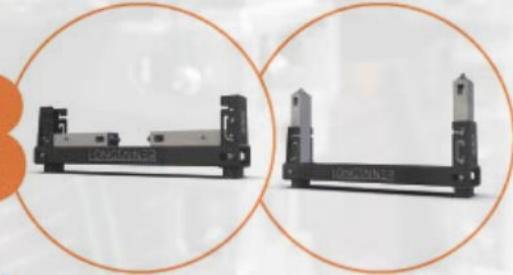
4 H 1200



6 H 800



8 H 600

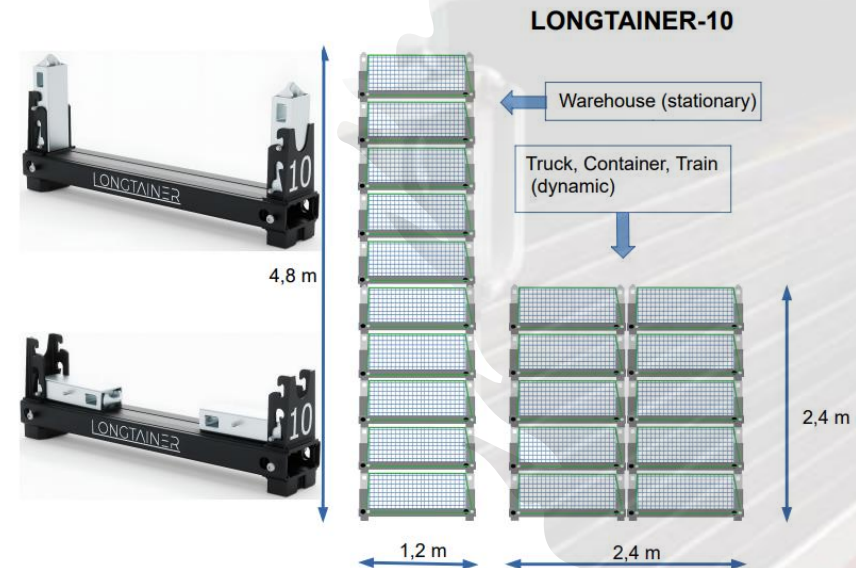
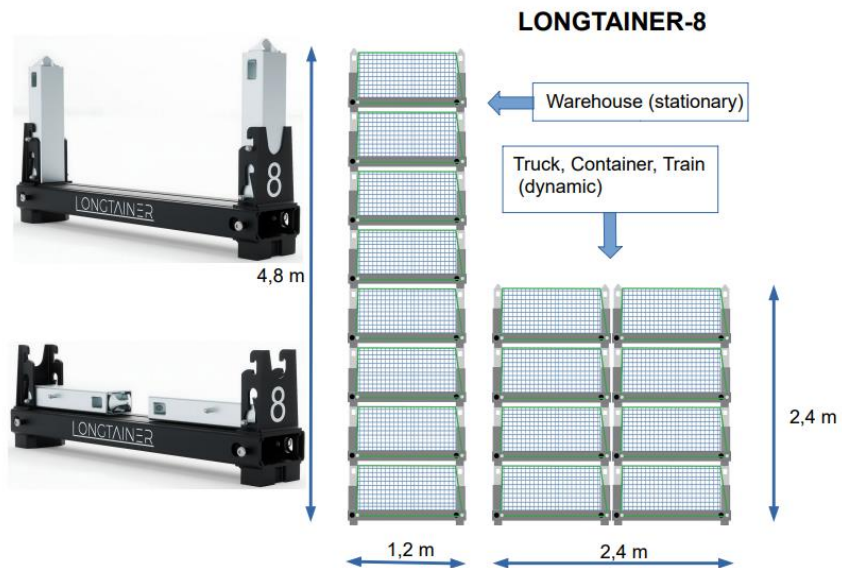
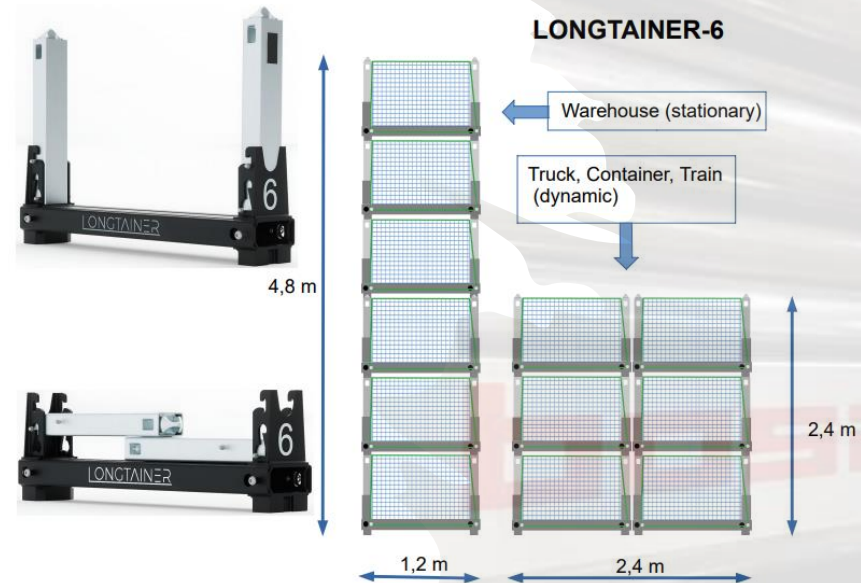
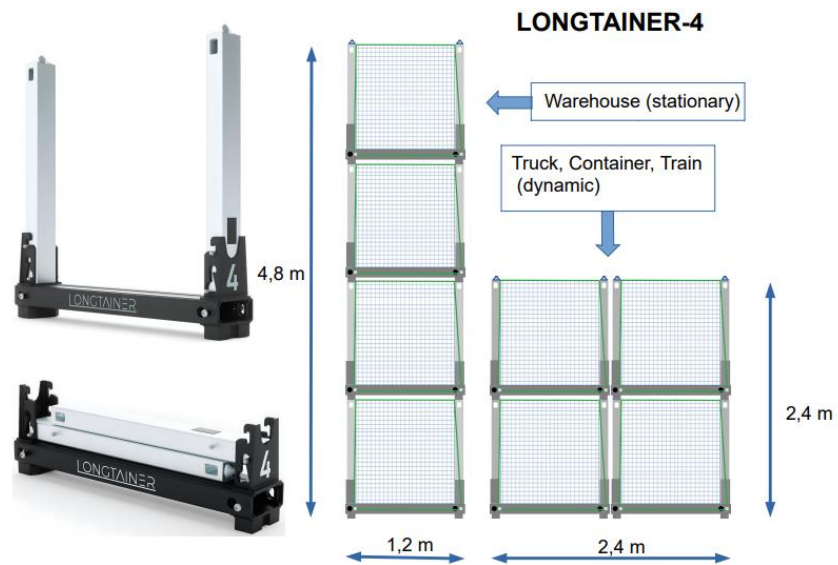


10 H 480

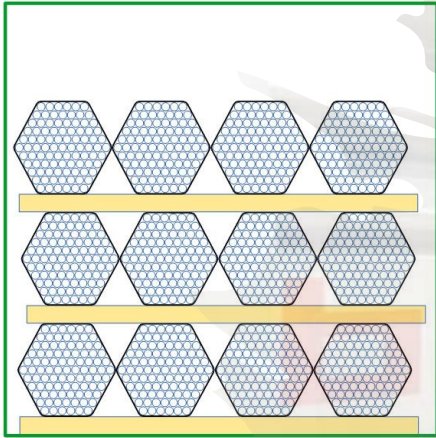


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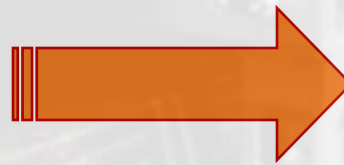


Conventional transport

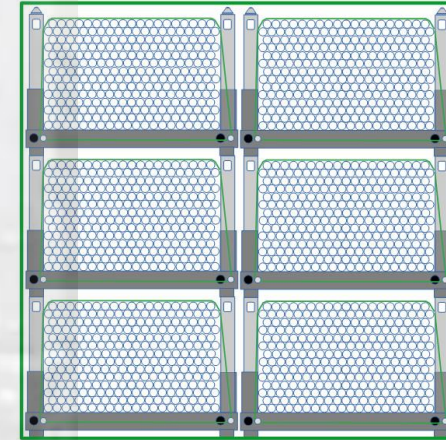


tubes/bundle: 91
 # tubes/truck: 1.092
 kg/bundle: 821
 Waste material/bundle:
 Delivering 109.200 tubes:

bundles: 12
 kg/6m truck: 9.852
 wooden beam, 2 slings
100 trucks



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tubes/bundle: 273
 # tubes/truck: 1.638
 kg/bundle: 2.463
 Waste material/bundle:
 Delivering 109.200 tubes:

bundles: 6
 kg/6m truck: 14.778
 None
67 trucks **-33%**

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Main value proposition:

1. Longtainer allows to use 100% of the loadability of the truck (volume/weight)

Supply chain efficiency: 1/3 less trucks



Reduction of 1 Truck load per 3 trucks

Payback time

is less than ½ year !!

2. Minimal cost of return freight (90%)



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SUSTAINABLE PACKING STACKING

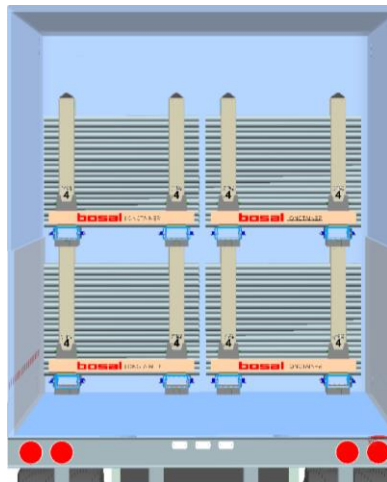
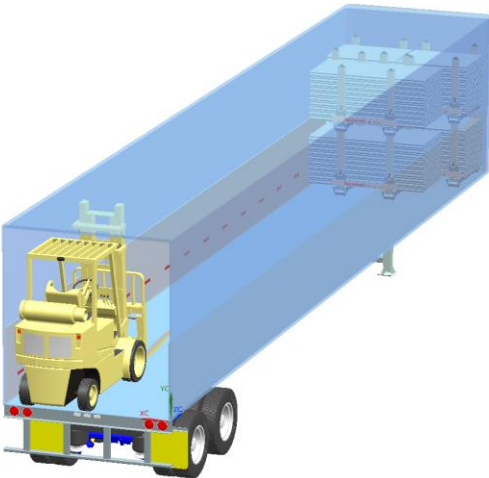
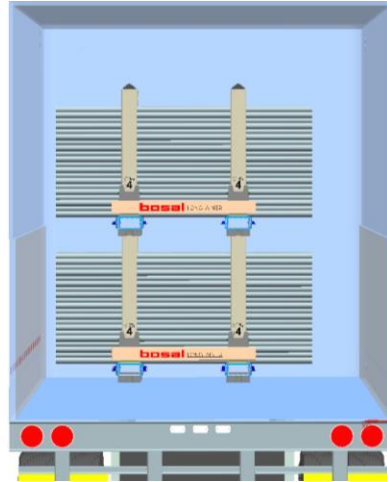
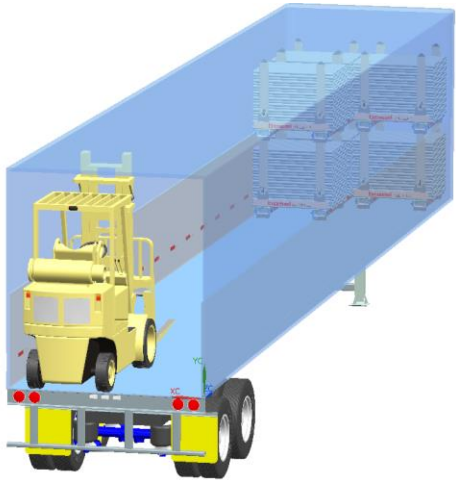
2. Cost of return freight is reduced by 90%
static solutions take same space both way
Empty & Full = double transport cost



vs. FOLDABLE Longtainer solution
Volume reduction from FULL → EMPTY
of more than **90%**



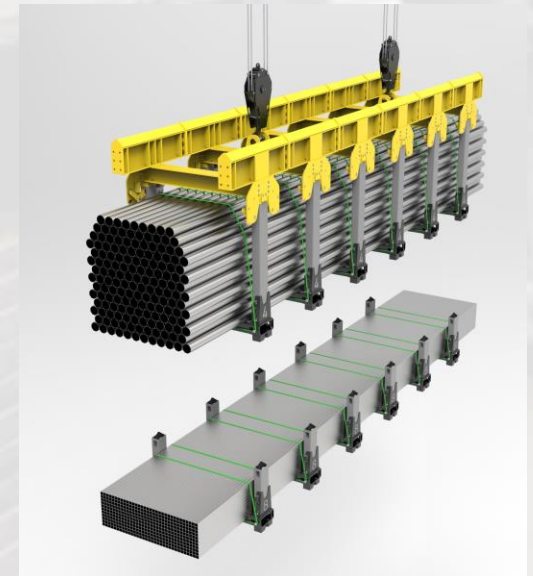
Back-loading



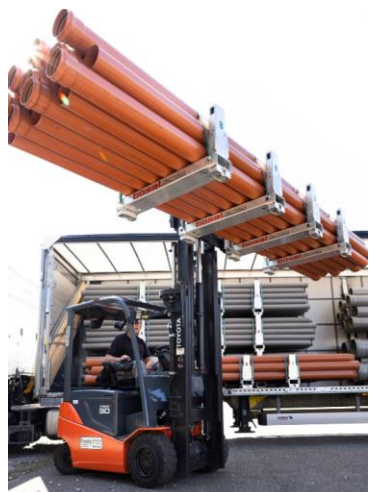
Side-loading



Top-loading



Compatible with all logistic supports



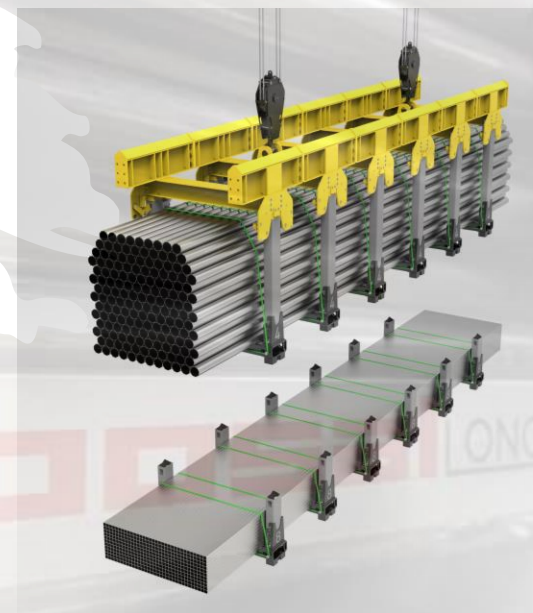
Forklift



Sideloader



Transpallet



Overhead crane

**Fully automated warehouse
becomes feasible...**



AGV or mobile robots

Conclusion

Productivity

- : Increased mill speeds thereby increasing output significantly
- : Packaging automation is much easier with always the same modules at fixed center distance (even number of modules/bundle: 2/4/6/8...) -> "Plug & Play"
- : More tubes or profiles per bundle than with conventional bundles \Rightarrow less handling
- : Higher safe stacking possible \Rightarrow Less floor space required for the same km of product
- : Faster loading/un-loading of trucks
- : Compact return transport of empty modules (no pallets are required)
Foldable = Space Saving
- : The modules can be stored outside, without risk of rusting (oxidation)

Safety & Quality

- ✓ Forks, of fork trucks & side loaders, do not stick out behind the bundles
 - ➡ No damage on products behind the handled one's
- ✓ No direct connection between the bundled products and the forks, of fork trucks, side loaders & anymore (they are in contact with the modules instead)
- ✓ The weight of bundles on top of a pile do no longer cause load on the bottom products & -straps. Hence; no more heavy steel straps required.
 - ➡ Cheaper polyester straps are sufficient & recyclable
- ✓ Better customer service through faster service and reduction of claims










**TÜV certified : dynamic & static tests
"S" turn**



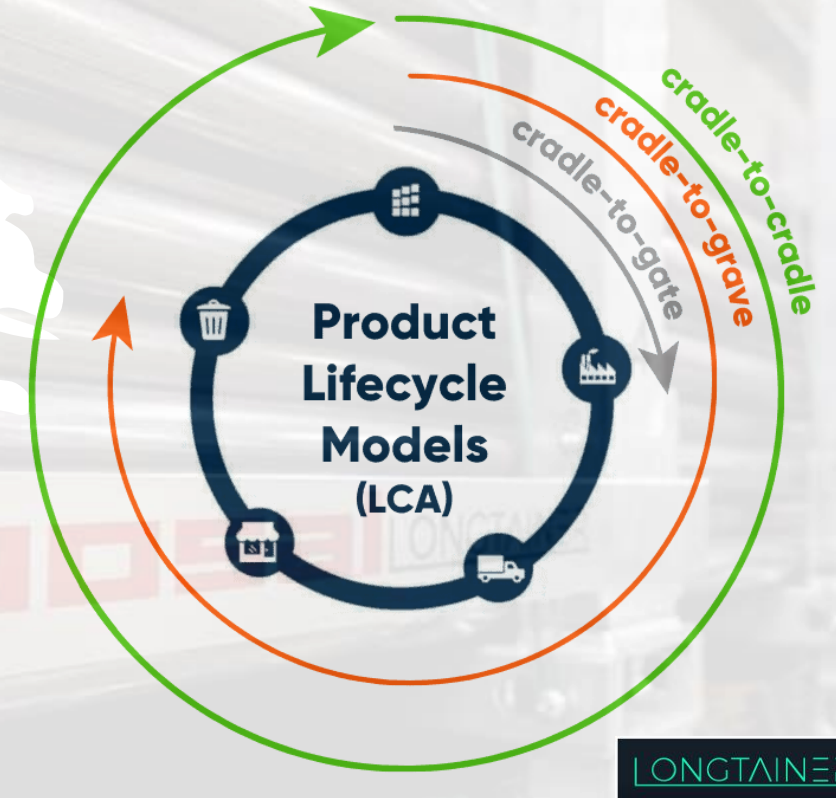
**TÜV certified : dynamic & static tests
180° turn**

Cost

-  Packing cost/m product will be significant lower
-  Increase production efficiency
 - ➡ Automation leads to higher output & reduces operational cost
-  Warehouse optimization : handling, (off)loading, storage, ...
-  Less damaging of products
-  No extra packing material or support needed
-  Reduction of Personal cost and Overhead cost
-  CAPEX or OPEX possible (renting, pay per use, ...)

Environment

- ✓ Alu re-useable & recyclable modules
- ✓ No waste packaging materials anymore !
- ✓ Less operational movements ⇔ Less energy used
- ✓ Reduction of Transport (carbon emission →)
- ✓ Cradle to Cradle possible
- ✓ Your contribution to a “circular economy”



Meeting the EU Packaging and Packaging Waste Regulation (PPWR)

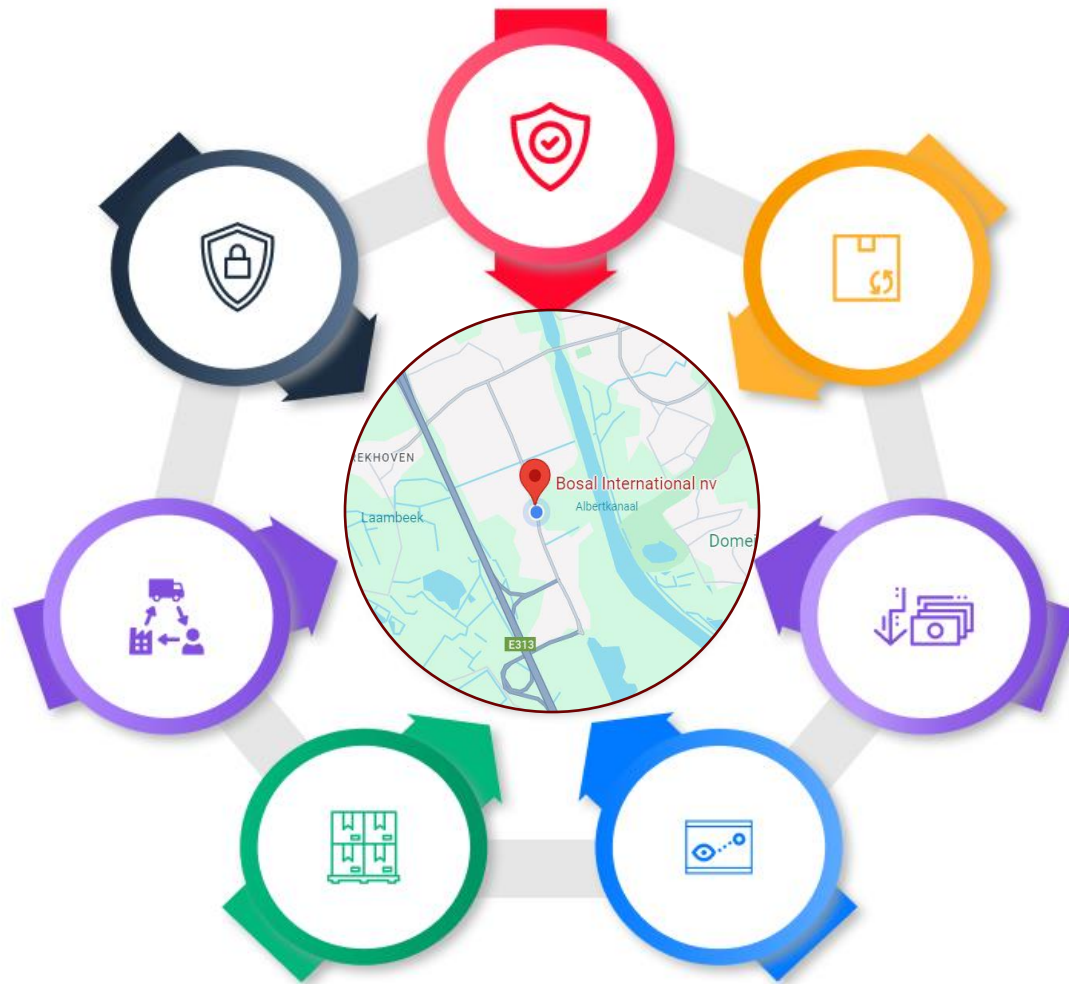
ESG Impact : Longtainer helps businesses, projects and assets to both implement and improve their **Environmental, Social, and Governance** performance

Pooling, Renting service

- ✓ Pro-active fleet management
- ✓ Joint use suppliers and/or customers
- ✓ Transport consolidation
- ✓ Asset standardization
- ✓ Packaging uniformization
- ✓ Storage minimization
- ✓ End-to-End flow through follow up
- ✓ Packaging quality improvement
- ✓ Forecasting support, chain transparency
- ✓

- ✓ Rental for 3, 5 or 7 years
- ✓ Pay per use
- ✓ Return transport
- ✓ Inspection
- ✓ Storage
- ✓ Recycling
- ✓ Tracking and Tracing
- ✓ Linking to ERP systems

Track & Trace integration possible



GPS signal : Alarms, Geo location, Geo fencing;
Time, Calendar based ...

Real Time Information : Acceleration,
Movement, Incidents, Wear...

Cost Reduction & monitoring, input for
optimization

Battery life (5000 messages +/- 3Years)

Asset Tracking : Usage, down-time, waste

Re-programming possible during use, settings

Functionality Movements, Inside tracking
possible by GPS-repeater in buildings



Corporate Impact on :

- **Continuous Innovation** leads to **PROBLEM SOLVING** and opens new opportunities (markets / business)
- **Wellbeing** of staff and stakeholders (initiative & interaction is promoted)
- **Protection of environment** by eliminating waste packaging, saving of energy & reduction of carbon footprint
- **Safety of workers** (intern & extern) & **products**
- **Increased efficiency and cost reduction** throughout the whole product flow from factory to consumer

Tubes & pipes



Carpets & flooring



Aluminium Extrusion



Transport & Logistics



Construction & Building



Logistics of mixed-goods



Big Bags & Bulk



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TUBIFICIO DI TERNI S.p.A.

TATA STEEL

 WeAlsoMakeTomorrow



Beaulieu
International
Group



TRIPPAERS
TRANSPORT
GENK



murugappa

HAROL

WE BELIEVE IN NATURAL COOLING

TREETEK



VAN MOER
Logistics



Hydro

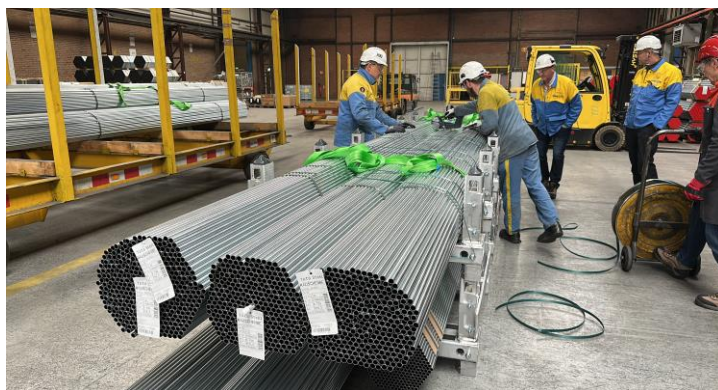


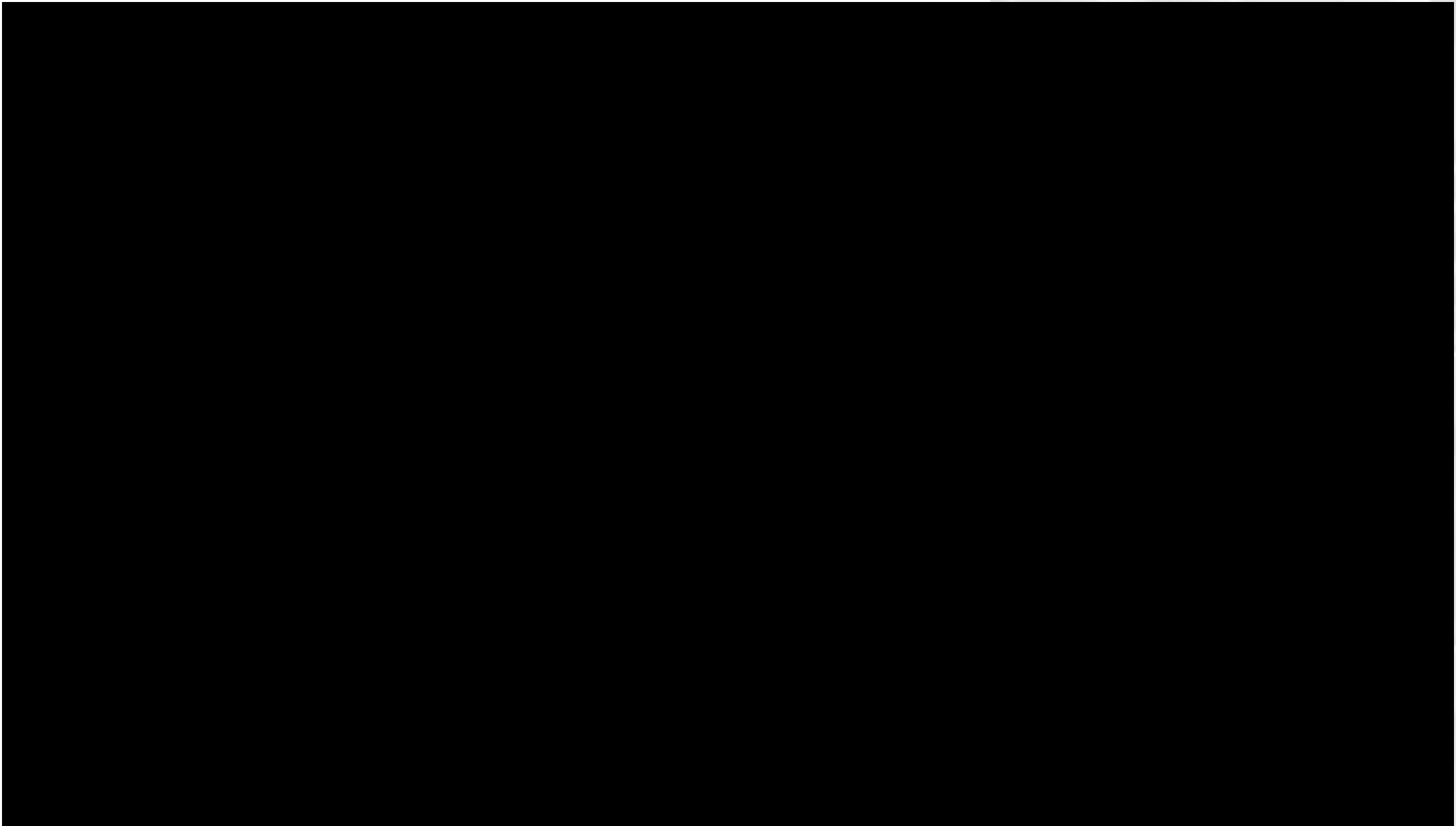
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