

OptiLedge Training Program

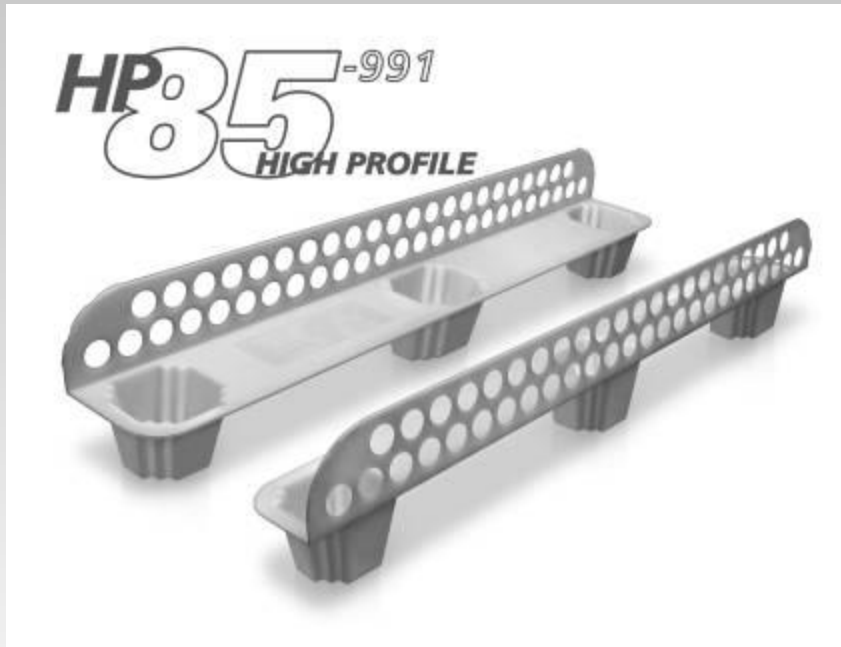


OptiLedge® is a trademark owned by OptiLedge LLC



Ship Lean. Save Green.

OptiLedge Models



HP85-760 HP95-760
HP85-991 HP95-991
HP85-1200 HP95-1200



LP45-760
LP45-991
LP45-1200

OptiLedge[®]

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The OptiLedge – *What it is...*

- > One way, economical, flexible shipping platform**
- > Nestible, strong and light**
- > 100% recyclable, injection moulded from Polypropylene**
- > ISPM exempt**
- > Completely unique in the world**
- > Ideal for odd-size cargo**
- > Ideal for heavy cargo**

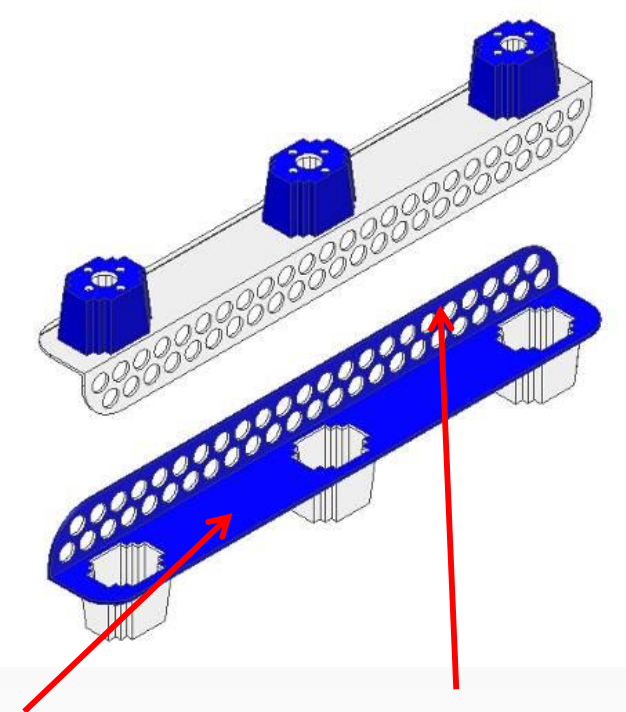


The OptiLedge – *What it is not...*

- > A pallet (unless combined with other materials)**
- > Protective material for unit load**
- > Rackable**
- > Suitable for high stacking**

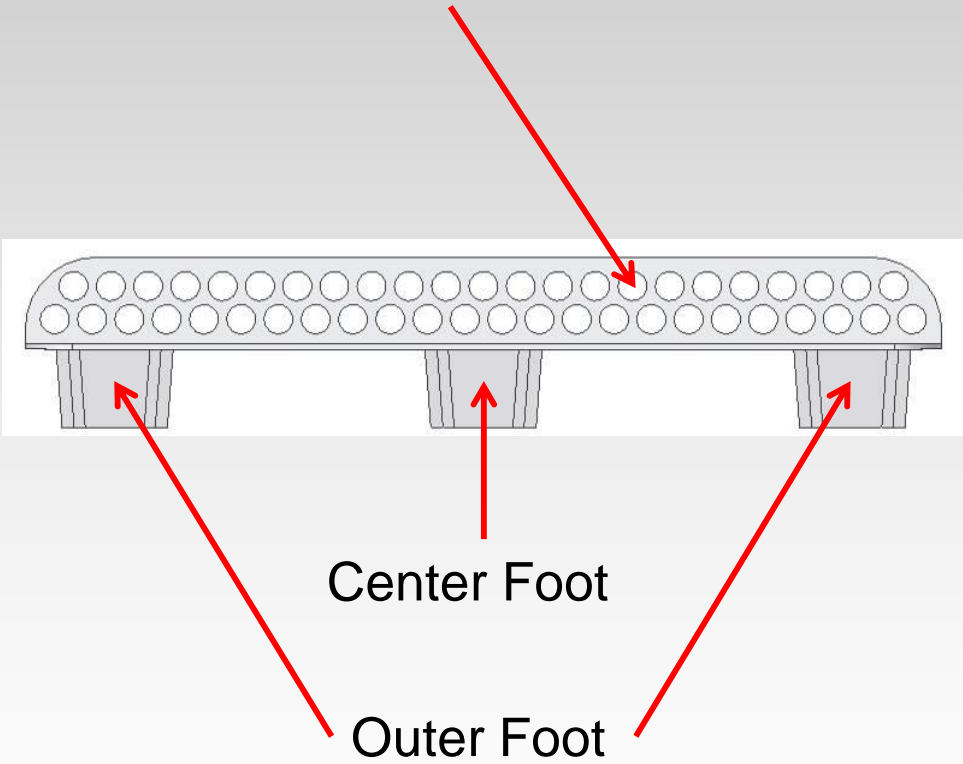
OptiLedge Details

Load-Bearing Components
-“Feet”



Horizontal and Vertical Flange

Vertical Flange (Sidewall)



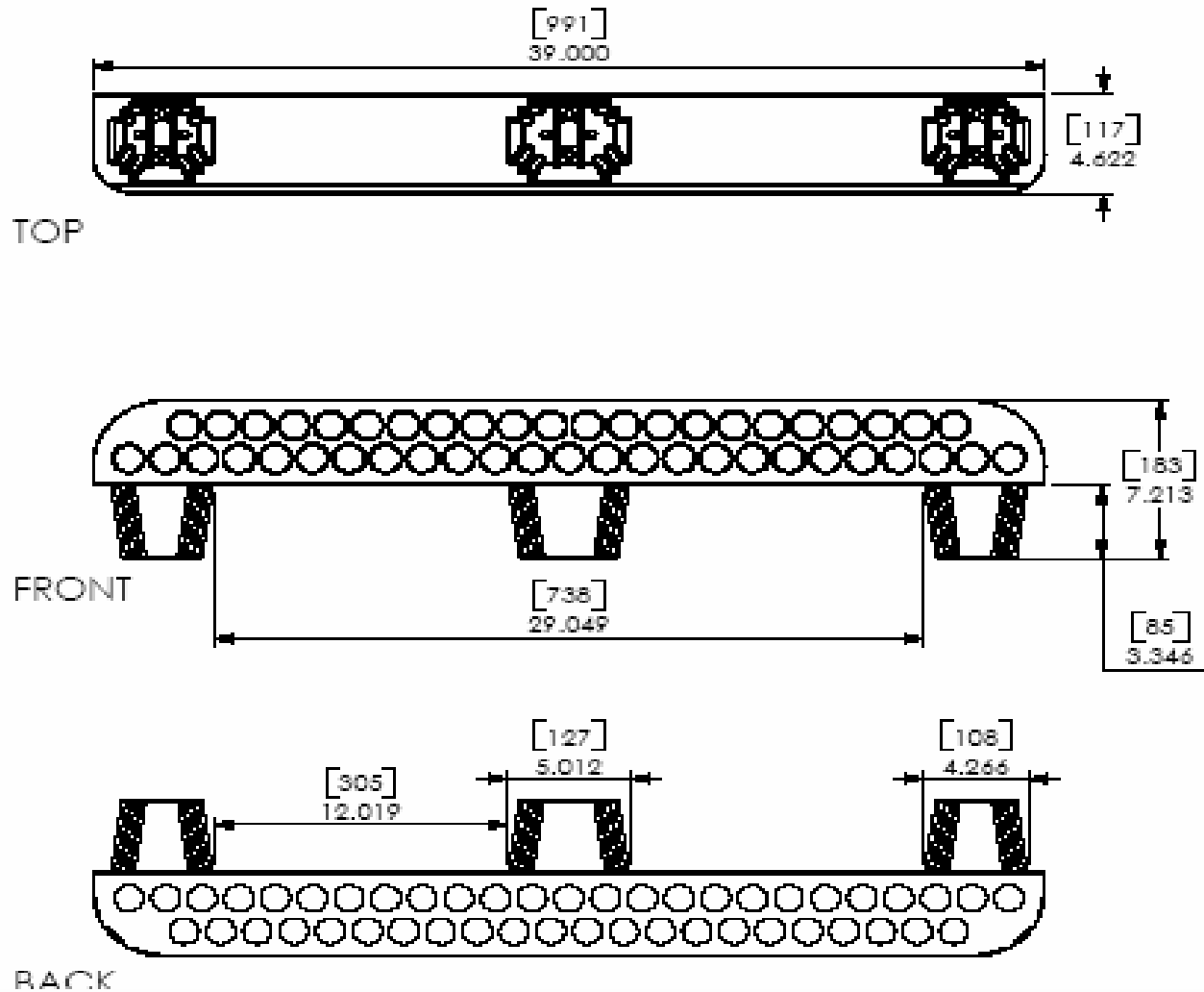
Center Foot

Outer Foot





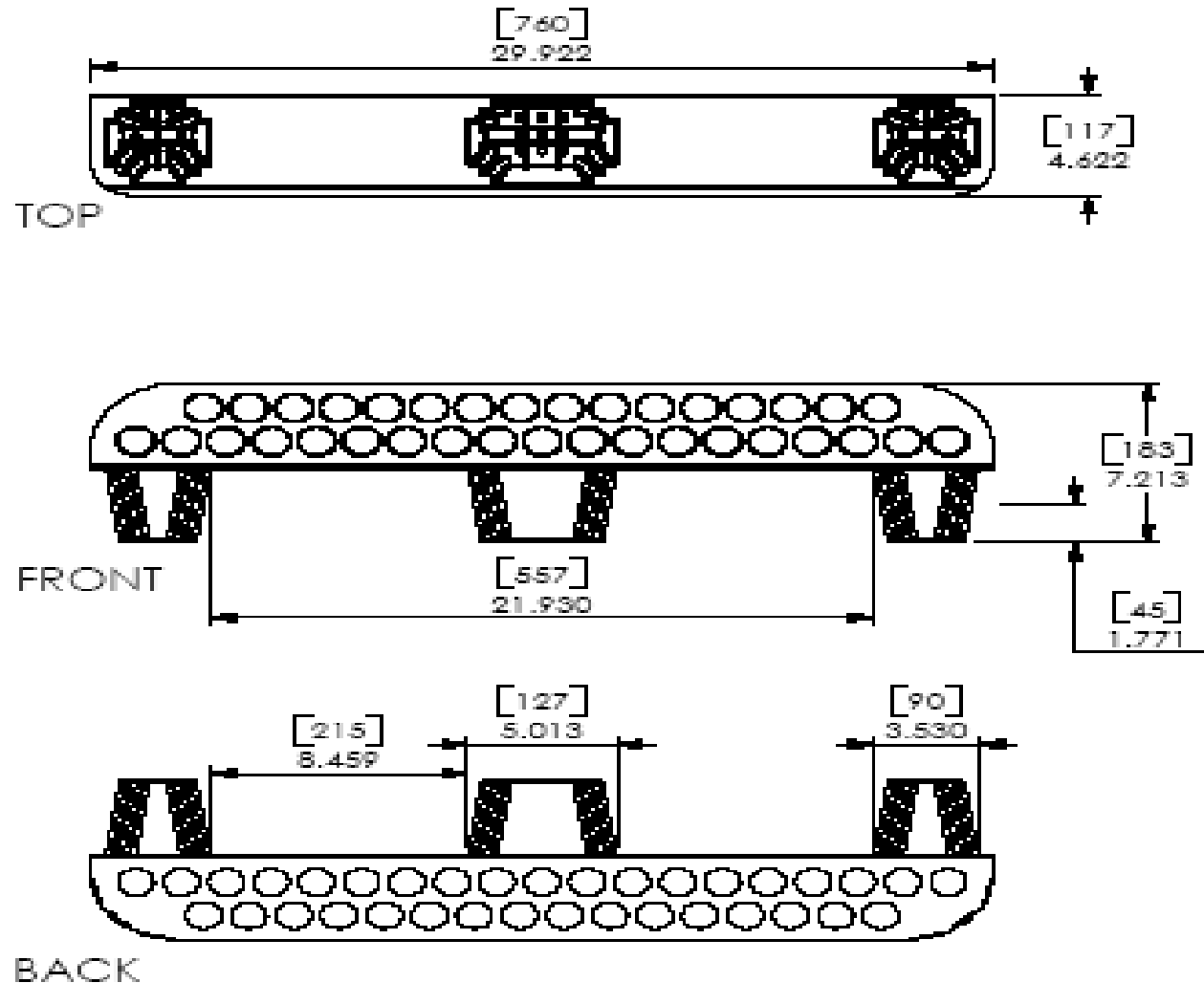
HP85-991 Specifications





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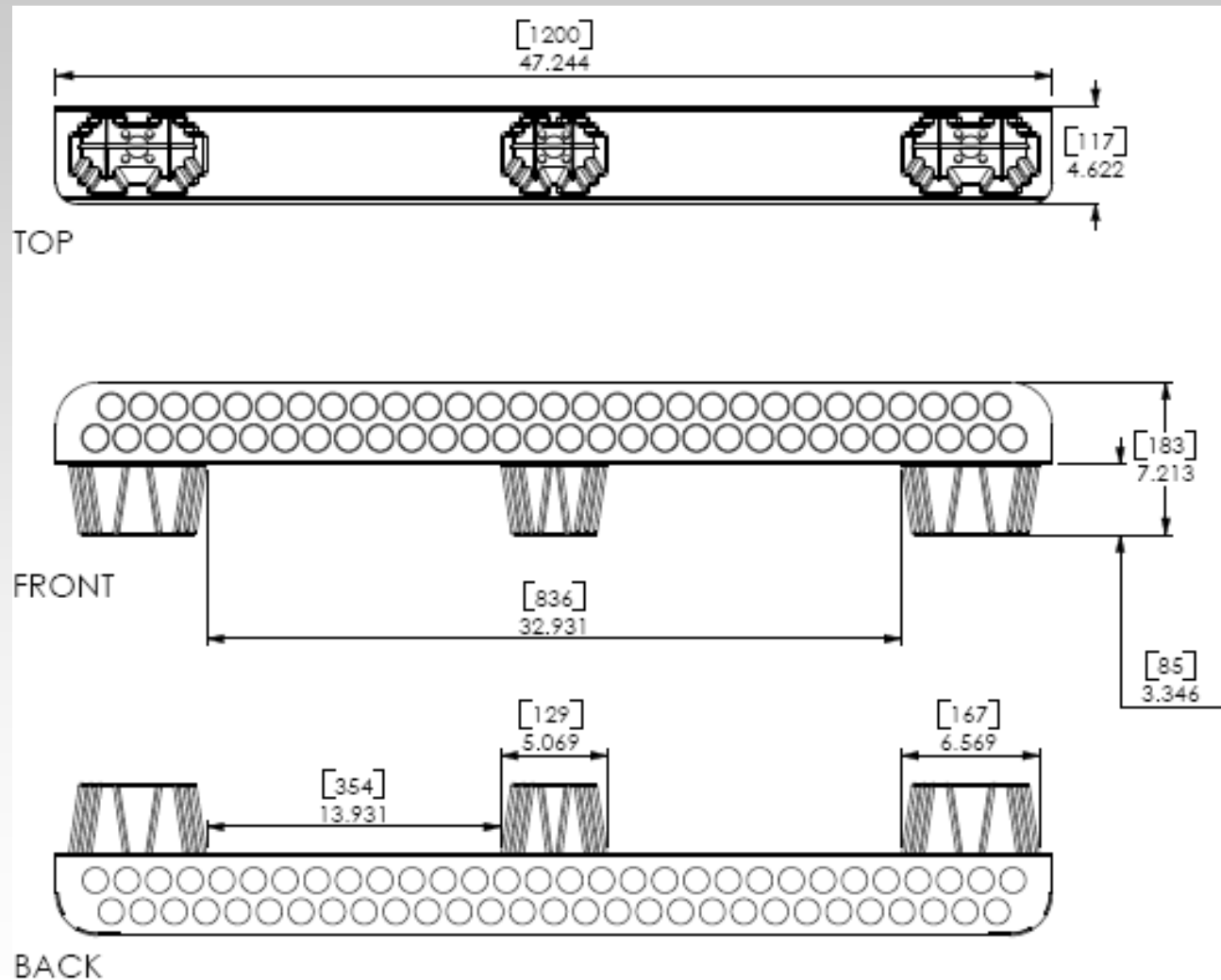
HP85-760 Specifications



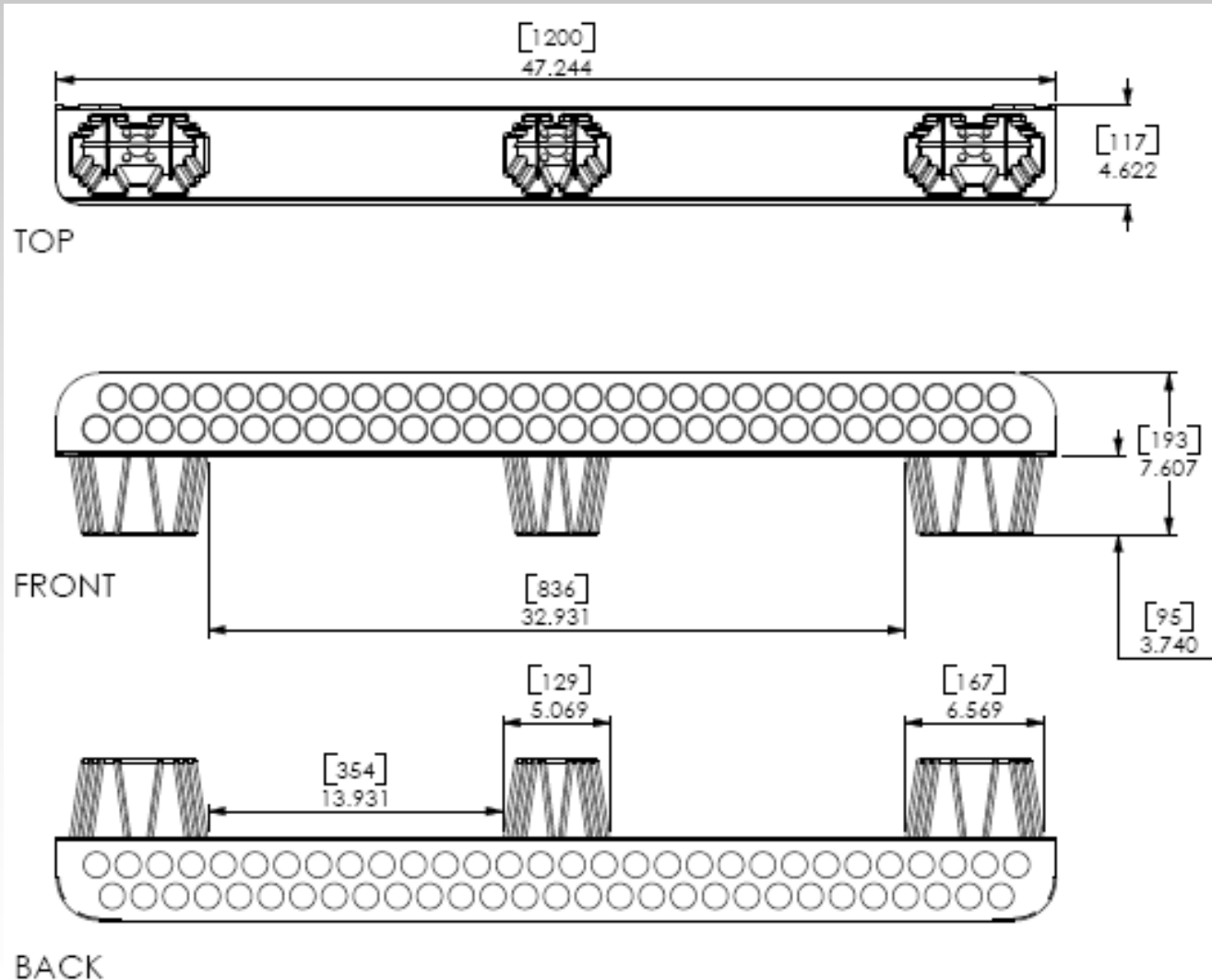
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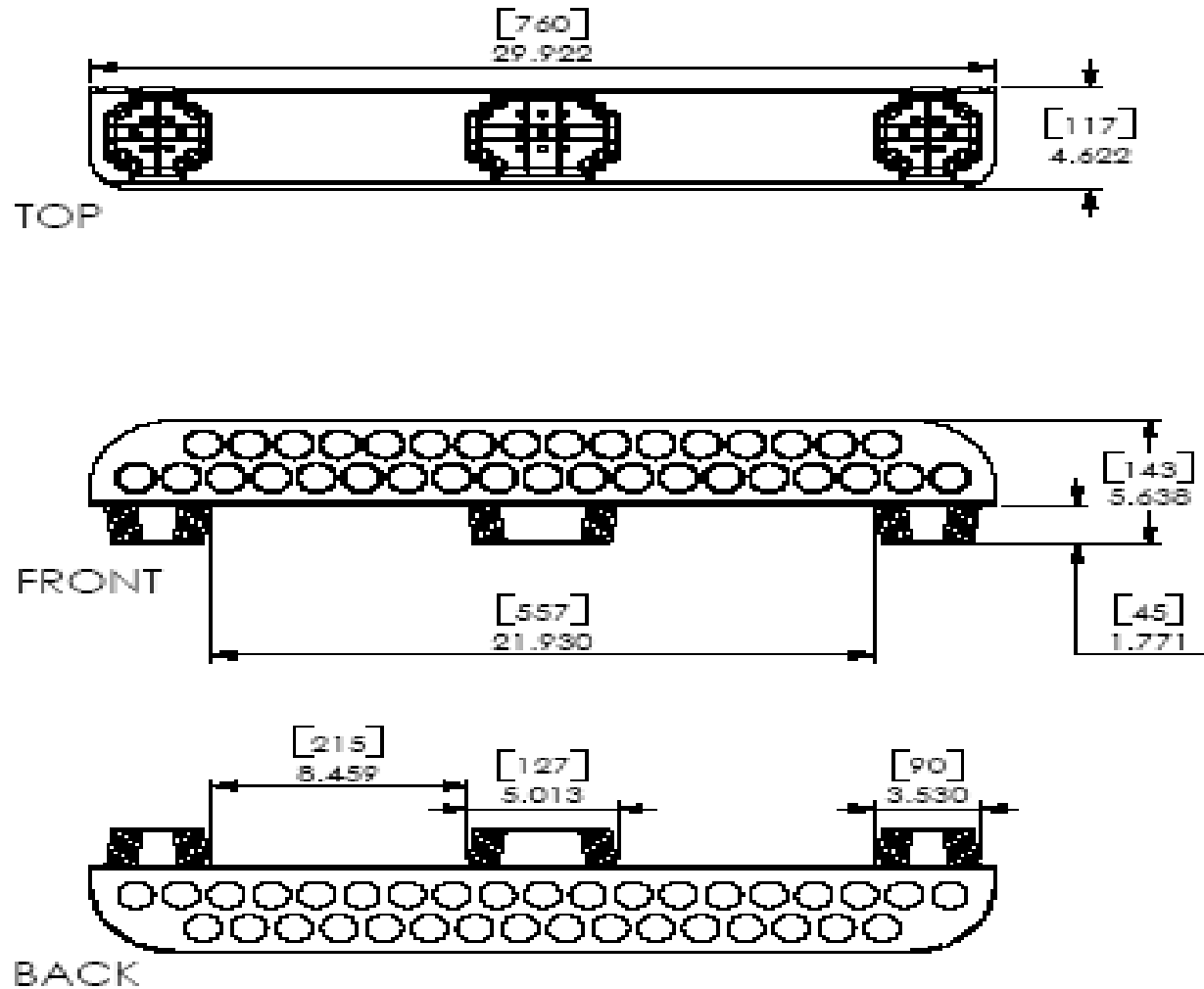
HP85-1200 Specifications



HP95-1200 Specifications

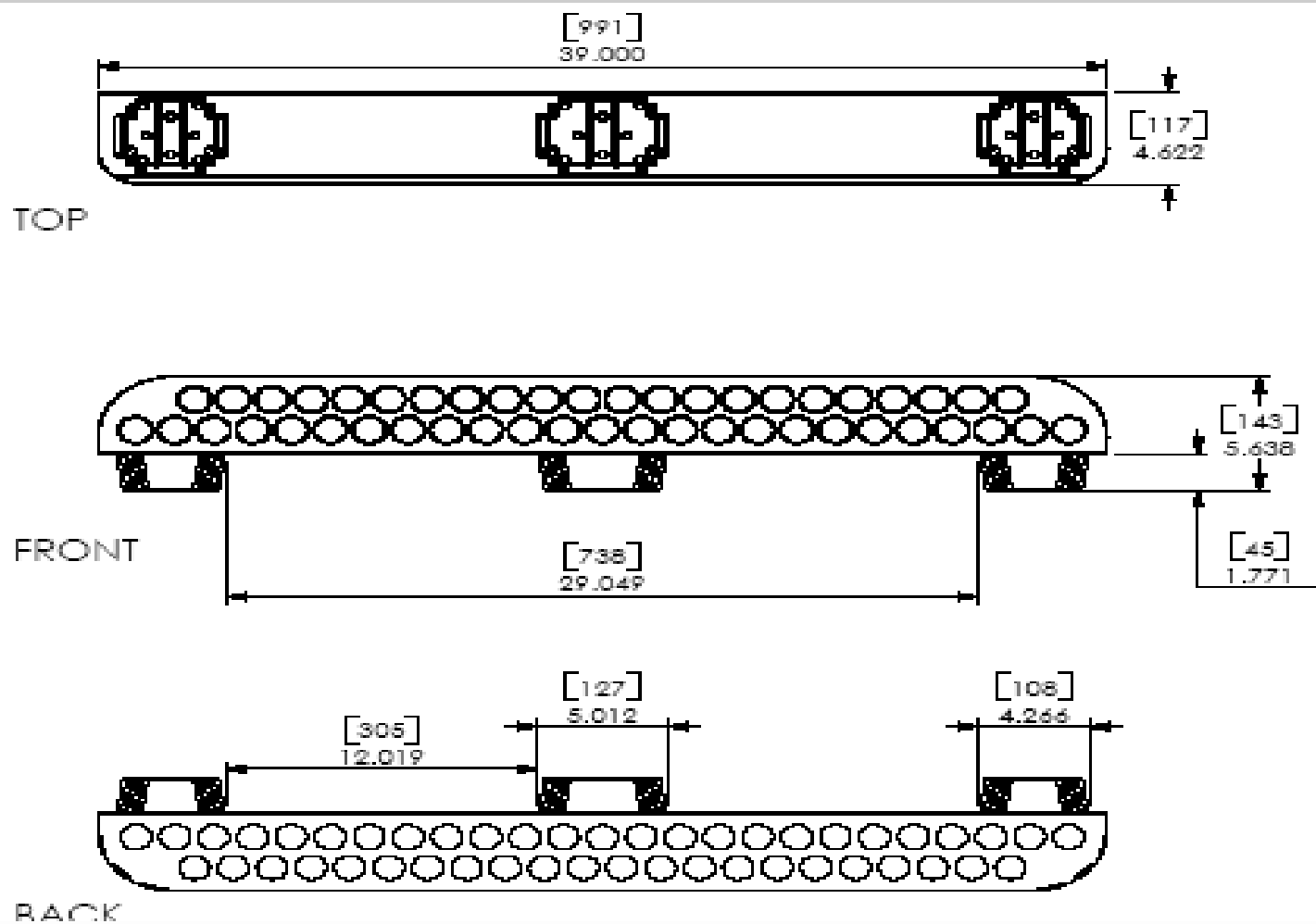


LP45-760 Specifications





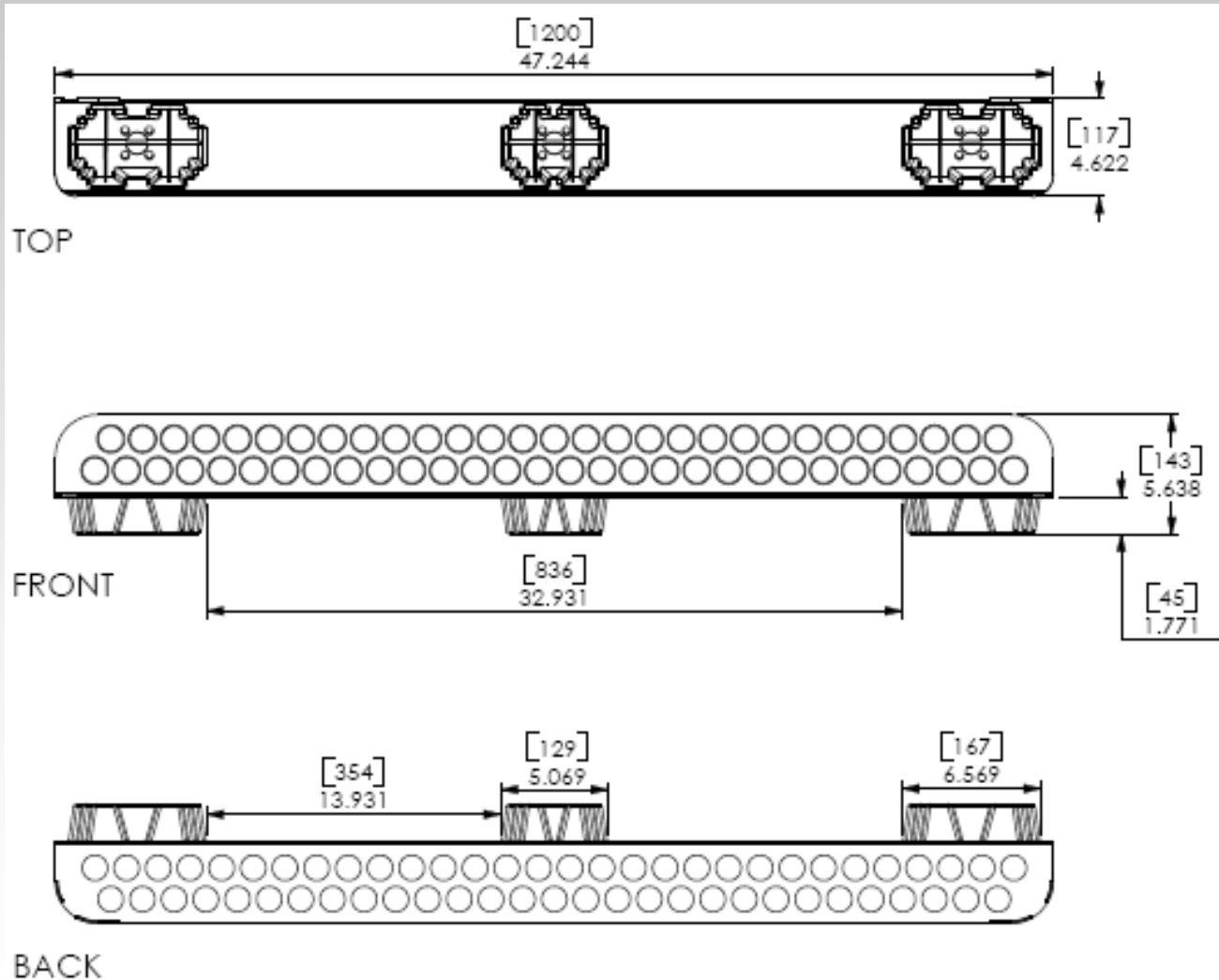
LP45-991 Specifications





Ship Lean. Save Green.

LP45-1200 Specifications



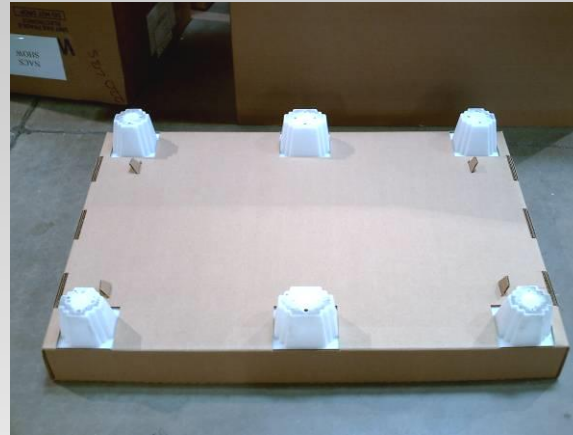
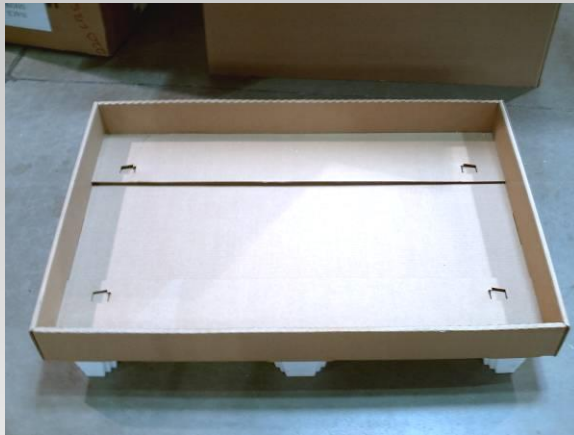
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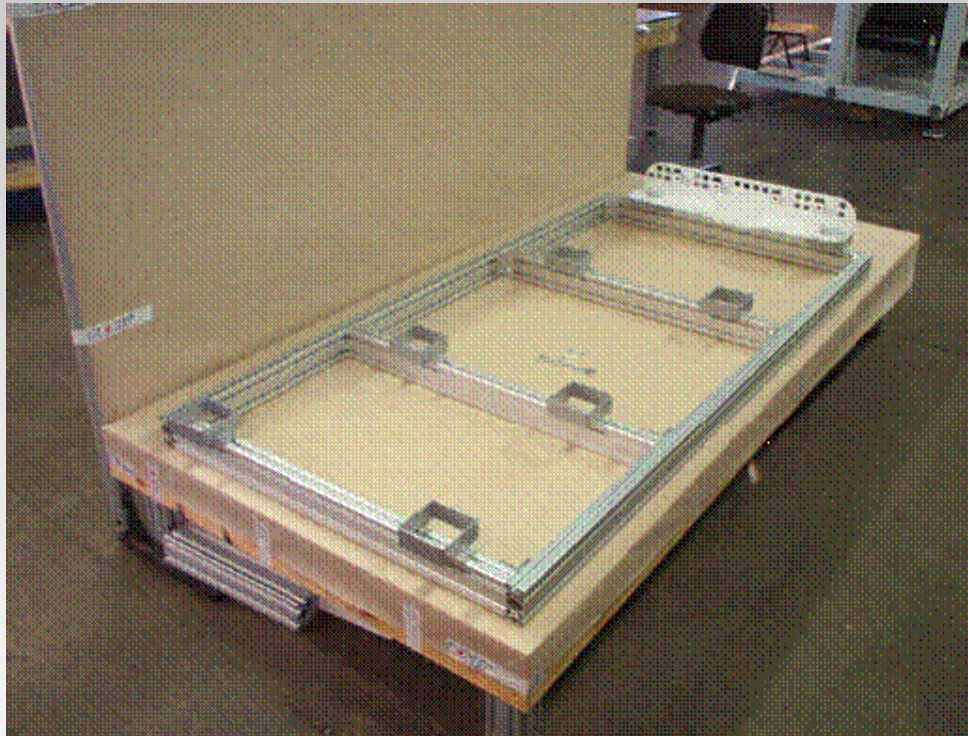
OptiLedge Specifications			
<u>OptiLedge Length</u>	xx-760	xx-991	xx-1200
Metric	760 mm	991 mm	1200 mm
Imperial	29.92 inches	39.02 inches	47.24 inches
<u>OptiLedge Clearance Height</u>	LP45-xx	HP85-xx	HP95-xx
Metric	45 mm	85 mm	95 mm
Imperial	1.77 Inches	3.35 Inches	3.74 Inches



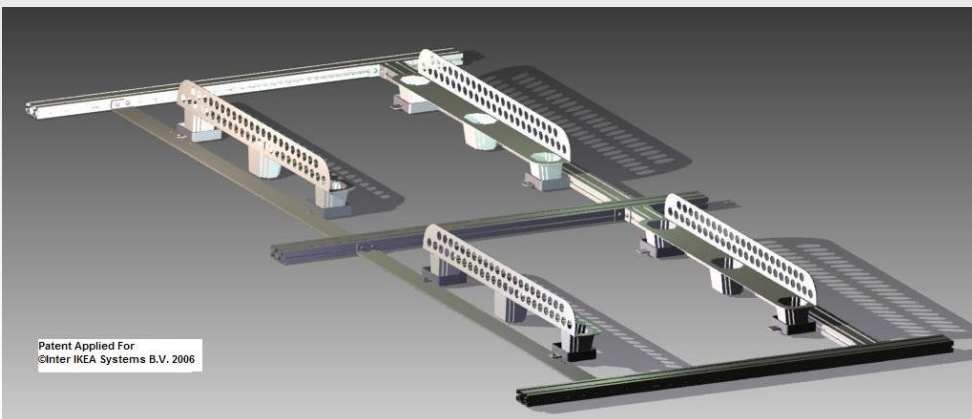
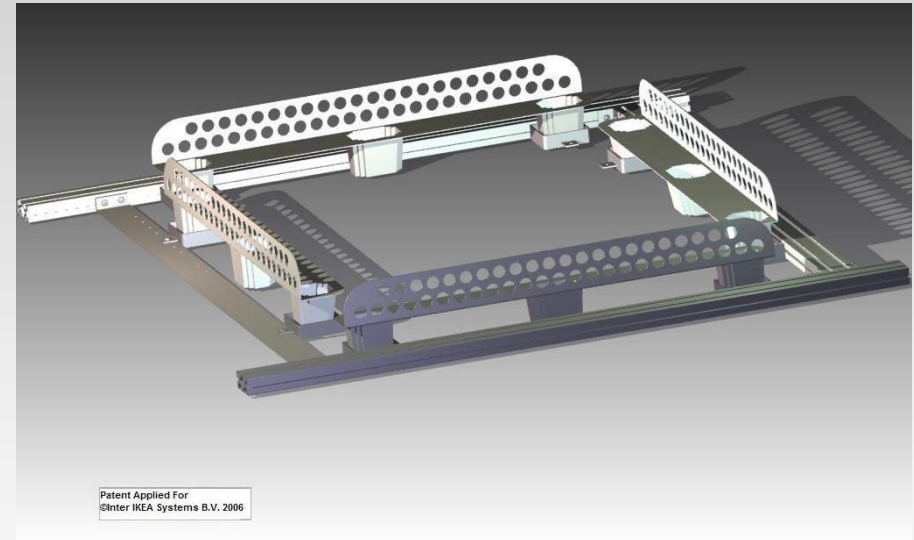
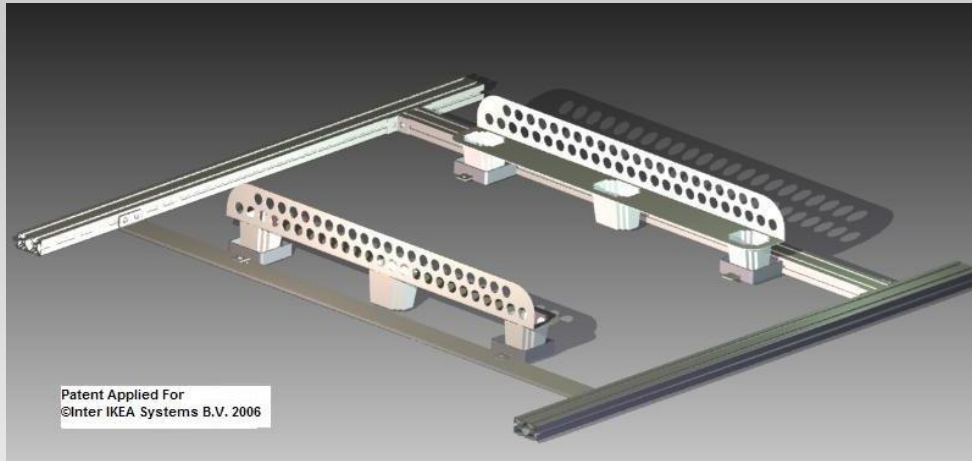
Other Products - Trays



OptiLedge Solutions - Fixture



OptiLedge Fixture - Continued





Ship Lean. Save **Green.**

OptiLedge Performance

Load Conditions	Pair of HP85-991	Pair of LP45-991	Pair of HP85-760	Pair of LP45-760	Pair of HP85-1200	Pair of LP45-1200
Stacking @ 70° F	7,000 lb./ 3,167 Kg	8,500 lb./ 3,846 Kg	7,000 lb./ 3,167 Kg	8,500 lb./ 3,846 Kg	7,000 lb./ 3,167 Kg	8,500 lb./ 3,846 Kg
Dynamic (Transport)	3,000 lb./ 1,357 Kg	3,000 lb./ 1,357 Kg	3,000 lb./ 1,357 Kg	3,000 lb./ 1,357 Kg	3,000 lb./ 1,357 Kg	3,000 lb./ 1,357 Kg

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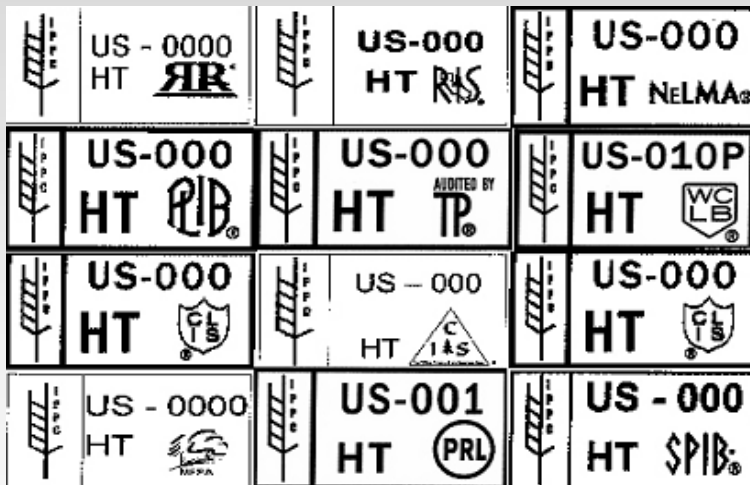
OptiLedge Benefits

Eliminate 'Under Hang'



OptiLedge Benefits

> OptiLedge exempt from ISPM 15 Regulations



Benefits: ENVIRONMENTAL SUSTAINABILITY



- > **OptiLedge is 100% virgin co-polymer polypropylene, highly recyclable**
- > **Unit load weights dramatically reduced**
- > **Requires less fuel for transport thereby reducing carbon footprint**

Environmental Sustainability

29,000 per 53' Trailer

14,720 pairs

2.4 lb. per pair

48" X 40" Pallet

630 per 53' Trailer

60 lb. each



> 97% Reduction in Weight, Transport Expense and CO2 Emissions

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Market Acceptance



Transportation Payment Benchmark Study: www.AmericanShipper.com/Payment2012

American Shipper

INTERNATIONAL TRADE & LOGISTICS

APRIL 2012

The Monthly Journal of

Liner carriers attempt **REVENUE GRAB**



Shippers are hit with planned rate hikes, despite burden of vessel overcapacity

www.AmericanShipper.com

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Unease on the waterfront	54

OptiLedge®

TRANSPORT / INLAND

IKEA's knock on wood

Furniture maker scraps traditional pallets for cost-saving, plastic shipping platform.

By Eric Kluwe

The ubiquitous wooden pallet has been a staple of the shipping industry since the advent of containerization almost 60 years ago, enabling companies to move stacks of goods at one time.

While some shippers are incorporating plastic pallets into their supply chains, the cheap wooden standard dominates as the shipping platform of choice.

But "wood" and "pallet" together are dirty words in the vocabulary of Swedish retailer IKEA, which is made of better care of the environment and is going all in for doing business. This is just the start of contemporary ready-to-assemble flat-pack furniture, will complete the phase out of wood pallets from its logistics network as part of its forest preservation efforts.

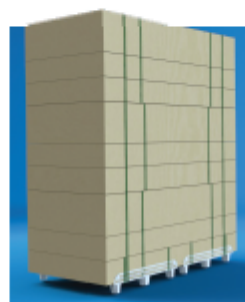
IKEA will be the only high-volume retailer in the world to transport and distribute merchandise without traditional pallets, according to the company.

In its place, IKEA and its suppliers are using recycled plastic loading ledges — low-profile, one-way shipping platforms that aim to increase transportation efficiency by reducing the amount of unused space in a truck or container — or paper pallets. Both alternatives are much lighter than wood and liberate the company from having to transport empty pallets back to its 287 stores and distribution centers and more than 1,000 suppliers around the world.

The furniture chain estimates that it will save 10 percent, or \$1.8 million, on its transportation spend by eliminating the 10 million pallets previously used to move product through its supply chain, spokeswoman Mona Liss said.

The loading ledge was designed about 10 years ago by IKEA's maker and handling group to reduce the company's dependence on the wooden pallet as a way of unitizing packages in a single shipment, said Jonathan North, general manager of the OptiLedge business unit at Inter IKEA Systems B.V., that is working to commercialize the ledge beyond IKEA to benefit manufacturers, logistics providers and retailers.

IKEA stores operate as branch offices and



Inter IKEA, in Delft, the Netherlands, is the first to use the OptiLedge concept. It owns the intellectual property for the loading ledge, which is being marketed as the OptiLedge.

One of IKEA's key differentiators is that it takes a holistic view of furniture design. That means how furniture is packaged and shipped is factored into the design as much as aesthetics, functionality and how it bolts and fits in the home.

"We think of [the ledge] almost as part of the packaging. It's priced and designed so you're not all that worried about getting it back again," Jeff Lamb, president of Unit Load Systems, which makes and sells the OptiLedge in the United States and China, under license to IKEA, said.

The biggest difference is that the L-shaped OptiLedge is not a fixed size, and therefore eliminates overhang or underhang, he explained. It sits on the edge of the carton and conforms to the shape of whatever is being shipped as opposed to having to fit the load to a 40-inch-by-48-inch wood standard. Goods are strapped to the OptiLedge.

A pair of injection-molded ledges weighs less than two pounds, but will hold 2,700 pounds. Wood pallets, by comparison, are 60 pounds apiece. A truck can haul 1,300 pounds less weight for every 30 loading positions with a ledge. That equates to 600 pounds saved for 60 standard cargo positions, or almost 4 percent of the allowable gross

vehicle weight, which translates into more product capacity and fewer miles to deliver the same amount of freight.

In addition to reducing shipment weight, the ledge frees up space in a trailer or container.

The 45-millimeter ledge has a 10-centimeter advantage over a normal European pallet of about 150 mm. In terms of the U.S. standard system, that's a little more than 4 inches of extra room — or eight inches if double-stacking loads — that IKEA uses to fit another layer of freight.

The ledges also nest together, allowing a supplier to fit more than 20,000 of them in a truck compared to 500 wooden pallets, North said. A large shipper like Italy that receives four trucks of pallets per day would only need about a third of the ledges about once a week.

The pallet alternative also provides benefits to ocean shippers by reducing the labor costs associated with unloading and loading containers, North said.

Many manufacturers and consultants in China load containers by hand from the floor to the ceiling of a container because many importers don't want to pay for the cost of a pallet and the resulting loss of cubic space. Unloading these containers in the United States, where labor rates are much higher, is more expensive and can take eight to 10 hours. Manual loading also makes cargo more susceptible to damage. The ledges allow an easier loading and unloading by equipment with negligible loss of cube.

"In all the studies we've done, you more than make up for that potential lost space by the ability to load and unload with a stability," North said.

"And in some cases it's fair to say that using the OptiLedge has allowed some importers to bypass West Coast import docks and move straight into a continental distribution supply chain," he added.

An OptiLedge flat sheet says shippers can save \$2,000 to \$300 per 40-foot container by replacing wood pallets.

It's not all IKEA, several years to being its concept to full fruition because it had to adjust supply chain practices and find equipment to easily handle the new shipping platform. The conversion process was done one product at a time because a lot of automated equipment, such as packaging lines, didn't fit the new configuration and had to be changed. North said incorporating new stock keeping units will be easier for IKEA. In the future now that up-front modifications have been completed.

The furniture retailer also had to change some of its standards. The OptiLedge comes in three different heights — 45 mm, 65 mm and 95 mm — and the low-profile version

46 AMERICAN SHIPPER APRIL 2012

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OptiLedge - Attachment Methods

> Adhesives

- > Must adhere to polypropylene and to corrugated or wood
- > Manual or automatically applied
- > Consider drying time for automation demands



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Adhesive Options		
Manual	Automated	Hand Held
		

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OptiLedge Packaging Considerations

- **Ideal product for OptiLedge is rigid and non-compressible**
- **If there is 'air in the box' this creates challenges**



OptiLedge Packaging Considerations

- **Overhang should not exceed 7.5 inches or 19 cm**



OptiLedge Packaging Considerations

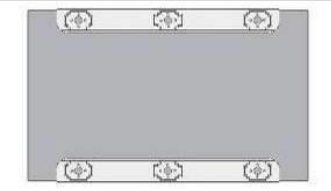
- There should never be underhang with the OptiLedge



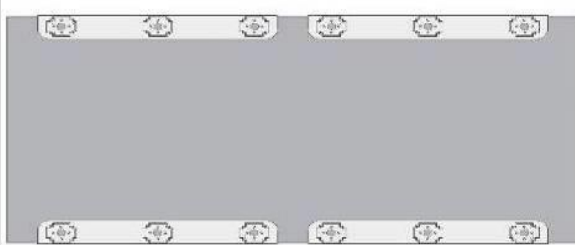


Building the Base Layer

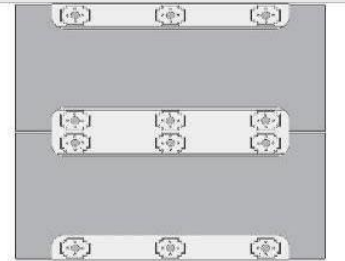
> There are many options for configuring the OptiLedge



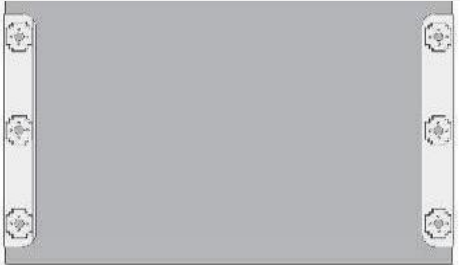
Single Pair - Length



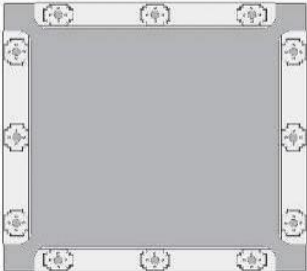
Double Pair - Length



Double Pair - Tandem



Single Pair- Width



Double Pair - Perimeter



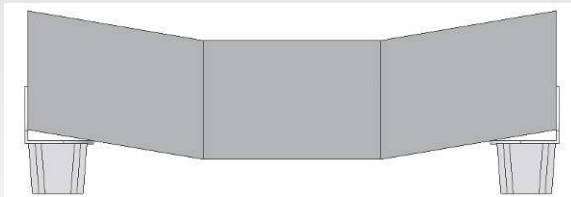
OptiLedge Packaging Considerations

- **OptiLedge must have full contact with the base and vertical flange**

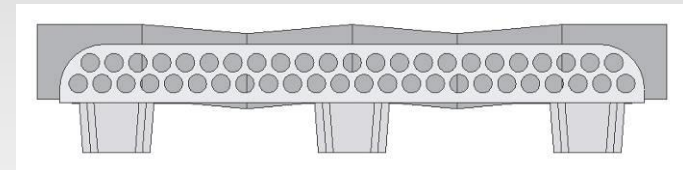


OptiLedge Packaging Considerations

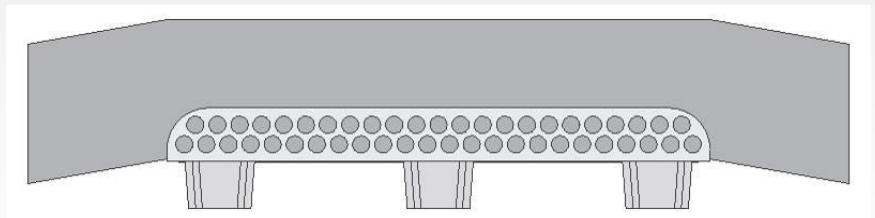
- Look for deformation and deflection of cargo between the feet of the OptiLedge
- Stack test and road test always recommended



Product Deformation



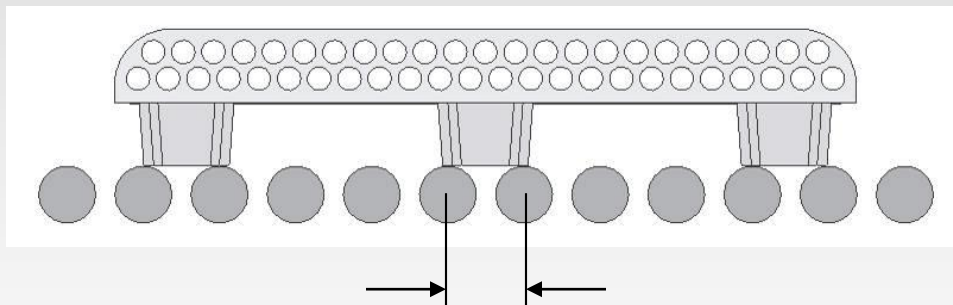
Product Deformation Between Feet



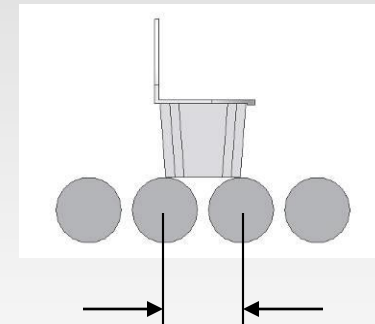
Product Deformation – Overhang

OptiLedge Materials Handling Considerations

- **OptiLedge is compatible with conveyors but the roller spacing is important**

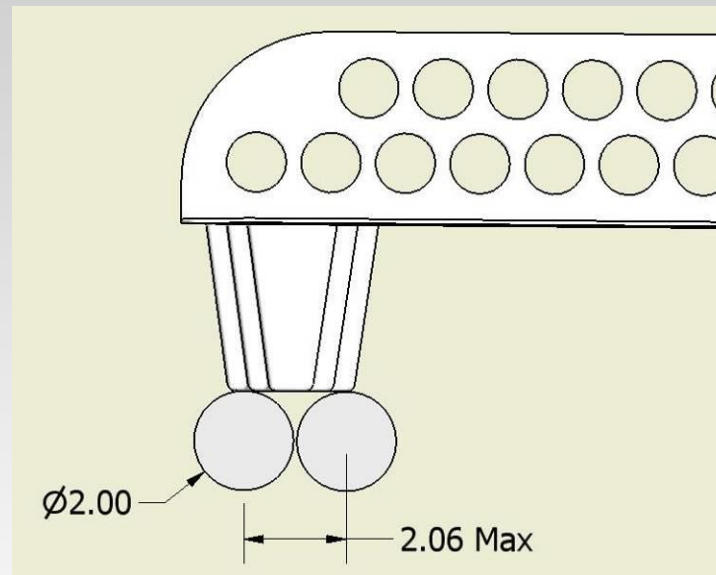


Center to Center Spacing



OptiLedge Materials Handling Considerations

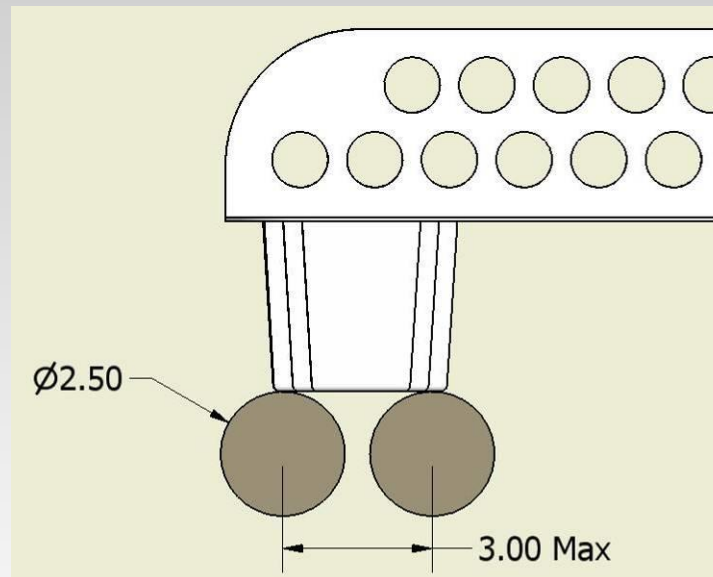
> HP85-760 Roller Conveyor Requirements



- Outer Foot is **2.241" Wide**
- Recommended Roller Centerline Maximum = **2 1/16"**
- Recommended Roller Size = **2" Diameter Max**

OptiLedge Materials Handling Considerations

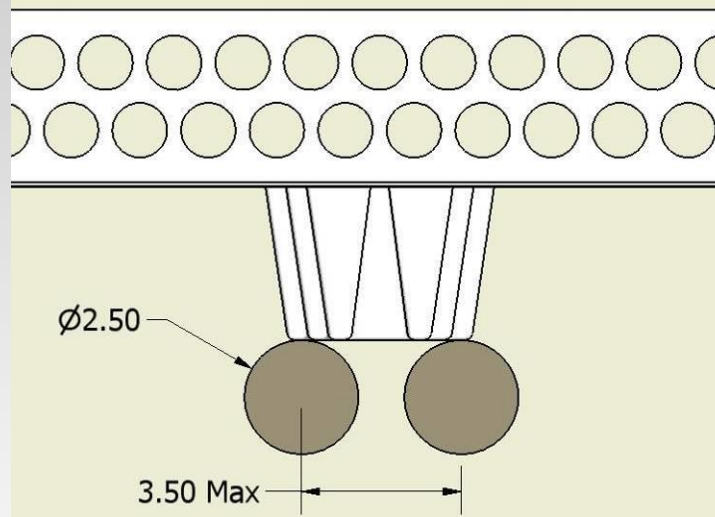
> HP85-991 Roller Conveyor Requirements



- Outer Foot is **3.22" Wide**
- Recommended Roller Centerline Maximum = **3"**
- Recommended Roller Size = **2.5" Diameter**

OptiLedge Materials Handling Requirements

> HP85-1200 Roller Conveyor Requirements



- Center Foot is **3.76" Wide**
- Recommended Roller Centerline Maximum = **3.5"**
- Recommended Roller Size = **2.5" Diameter or Larger**

OptiLedge Successes



- > Tool chests
- > Patio furniture
- > Dramatic savings in reduction of damage
- > Reviewing folding tables and other items

OptiLedge Successes



COSTCO

- > **Patio furniture**
- > **Gun safes**
- > **RTA furniture**
- > **Aggressively reviewing for other items**
- > **Very strong supporter of OptiLedge program**

OptiLedge[®]

OptiLedge Successes



- > **Tool Chests**
- > **Tray design**
- > **Resulted in significant damage reduction and labor savings**
- > **Actively looking at more products**

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OptiLedge Successes:



- > All RTA furniture targeted for OptiLedge
- > Reviewing other potential products
- > Best Buy strongly approves of OptiLedge program and it has generated \$ millions in savings

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OptiLedge Successes

- Approved platform
- Over six years of experience



Ship Lean. Save Green.

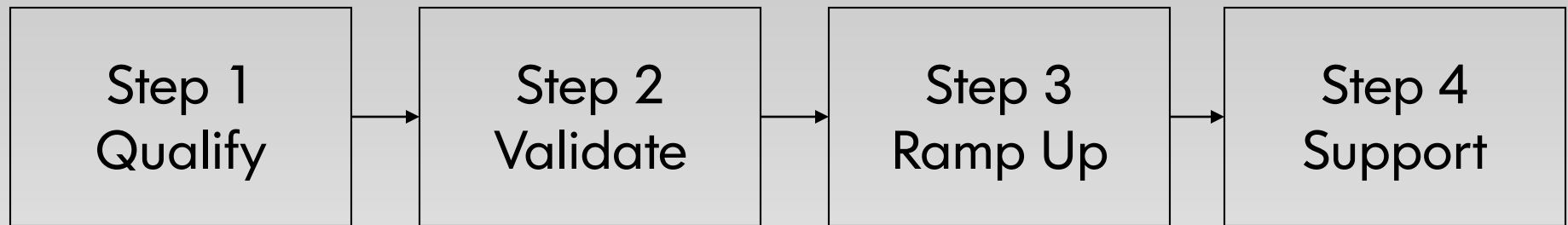
Tray Examples



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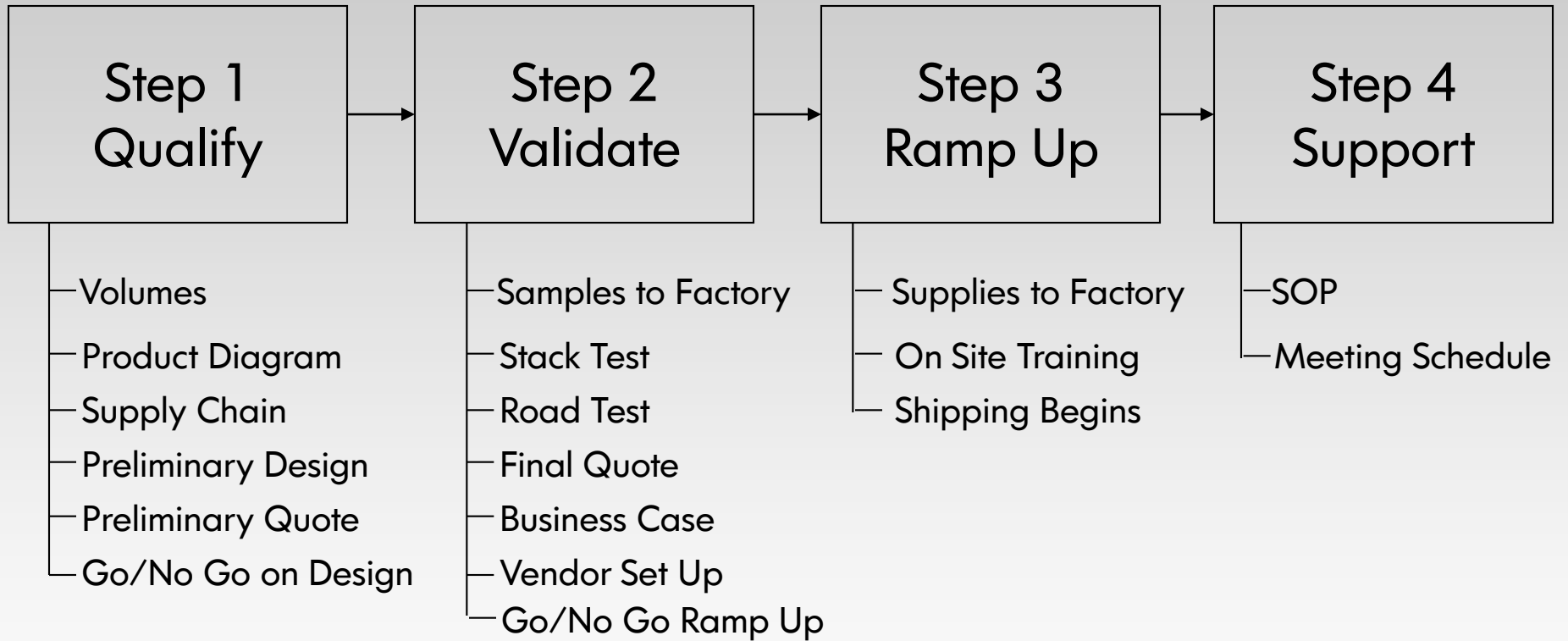
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Four Step Process: High Level





Four Step Process Detail



Example- 'Spec Sheet'

OptiLedge.
LEAN SHIPPING PLATFORMS

36" X 26" X 1/2" Wood Substrate

HP85-001

SKU or Model Number: Pro Locker	Customer: New Age Industrial	Page 1 of 3
Box outer dimensions: 36 X 26 X 90 inches	Total boxes per container: 36	Shipping container type: 40' GP
Unit load dimensions: 40 X 26 X 90 inches	Total unit loads per container: 36	Prepared by: OptiLedge Technical Team Date: 9-5-14
Loose cartons in container: None	Boxes per unit load: 1	

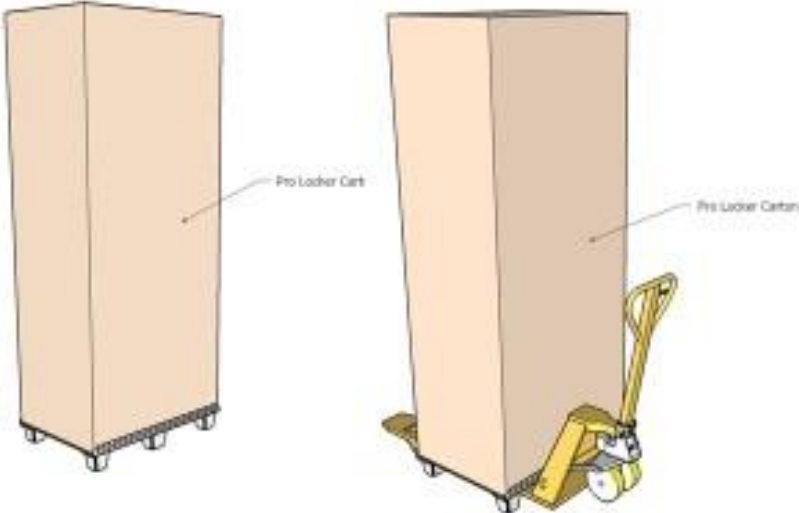
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Example Spec Sheet - Continued

OptiLedge.
LEAN SHIPPING PLATFORMS



SKU or Model Number: Pro Locker	Customer: New Age Industrial	Page 2 of 3
Box outer dimensions: 38 X 26 X 90 inches	Total boxes per container: 36	Shipping container type: 40' GP
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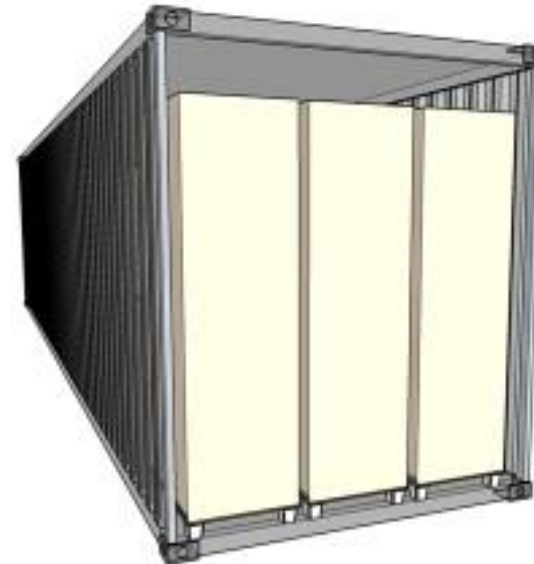
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Example Spec Sheet Continued

OptiLedge
LEAN SHIPPING PLATFORMS



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