

PACKAGING GUIDELINES

OCEAN FREIGHT (OFR) | LESS THAN A CONTAINER LOAD (LCL)

DHL Global Forwarding – Excellence. Simply delivered.





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Get packaging right the first time

Goods that are not properly packaged can be easily damaged as well as inflict damage to other shipments during transportation.

These packaging guidelines will assist shippers' in selecting the appropriate packaging intended for protection of goods while they are in transit from point of origin until reaching their final destination.

These guidelines will also enable shippers' to choose alternative packaging materials to increase the sustainability of their Ocean Freight Less Than Container Load (LCL) shipments.

These guidelines have been created by DHL Global Forwarding as a recommendation based on our knowledge and experience.

Shippers' are responsible for choosing the packaging best suited for their goods, and ensure that the goods are packaged in a seaworthy condition for international transport.



Is it Secure & Stable and Sufficiently packed?

STACKABLE

Ensure your piece is packaged to enable it to be stacked or have items stacked upon it.



FORKABLE

Larger pieces will be handled by a forklift; the pieces must be loaded to a pallet or a fork-movable base to ensure safe and damage-free handling.



Interior Protective Packaging for one or more of the following functions:

1. Cushioning the contents from shock and vibration
2. Bracing or blocking contents in position to eliminate movement within the container
3. Filling any voids remaining in the container after placing contents within it
4. Protecting surfaces from abrasion, scratching, etc.
5. Protecting contents from corrosion
6. Protecting from ESD (electro-static discharge)
7. Protecting contents from temperature extremes

Note: Individual pieces weighing more than 70kg must be packaged in a fork-movable crate or securely loaded to a pallet. For pieces from 30 – 70kg we recommend using a pallet or crate, but if using a box it must be capable of supporting the full weight of the goods.



Regular pallet packing

INTERLOCKING/T-STACK

If the goods inside a box are rigid, interlocking stack result in increased pallet stability.

If the goods inside a box are not rigid, interlocking stack can actually reduce compression strength by as much as 50%, leaving goods susceptible to damage.

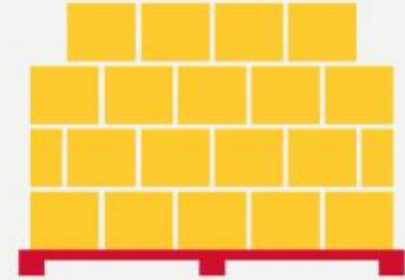
Stack boxes corner to corner and edge to edge, for better stacking strength.

COLUMN STACK

Column stacking boxes to a pallet is the best way to maintain their strength during transport and protect goods against compression.

Stack boxes in columns, corner-to-corner and edge-to-edge, for the greatest stacking strength. The pallet can then be stabilized and secured with banding or stretch-wrap.

T-Stack



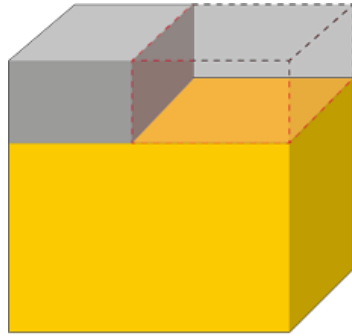
Column Stack



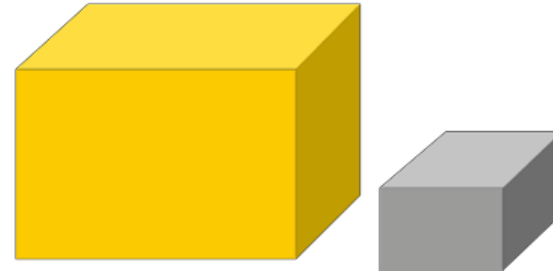


Did you know packing optimally can save you money?

Besides packaging correctly (safe, secure and within the new limitations), you can actually **avoid unnecessary charges** by packing your goods optimally.



Not optimally packed



Optimally packed



As you can see, an uneven surface on one side of a package makes stacking on top of it impossible. Which, unfortunately, will incur a **non-stackable pallet surcharge**.

By shipping awkward extra pieces as a separate shipment, that surcharge can be avoided.



Box it, Crate it, Palletize it



BOX IT

Lighter goods can be boxed. Caution should be taken over structurally weak, long, and narrow cardboard packaging (>120cm). Reinforce the packaging or opt for crating.



CRATE IT

Heavier, larger such as engines or industrial equipment should be crated. Fully enclose your cargo with quality hardwood and brace your crate diagonally to increase its strength. Ensure the wood is heat or chemically-treated prior to use.



PALLETIZE IT

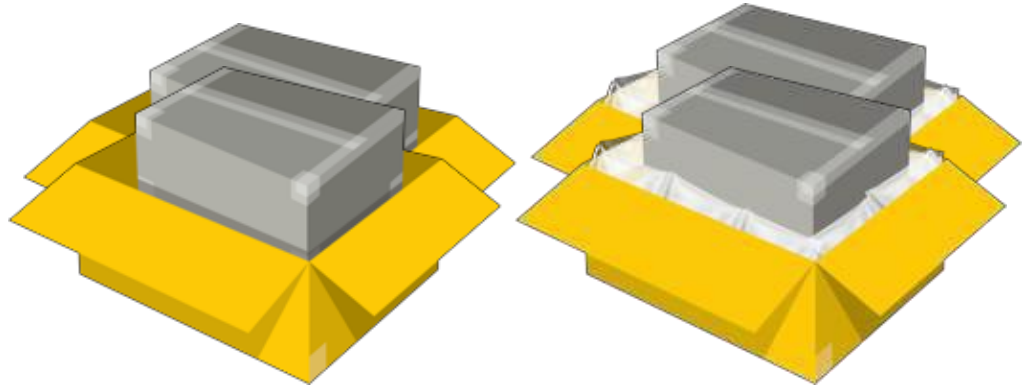
For bulk shipping or heavy boxed pieces, place the items on a pallet and secure them. Ensure a level and even surface on top of the pallet, and do not allow boxes to overhang the pallet's edge.



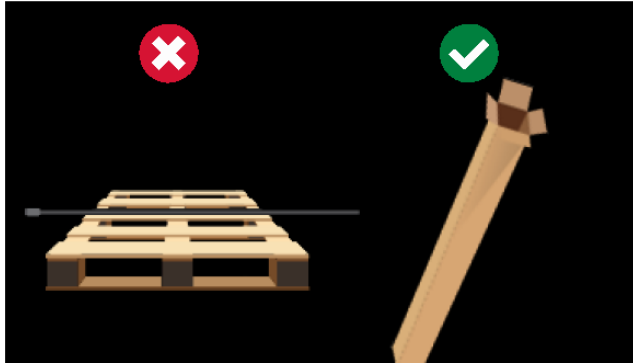
What about liquids?

When shipping items with liquid contents, the best thing you can do is place awkwardly shaped items like drums into **boxed shipments** and properly **leak-proofing** them.

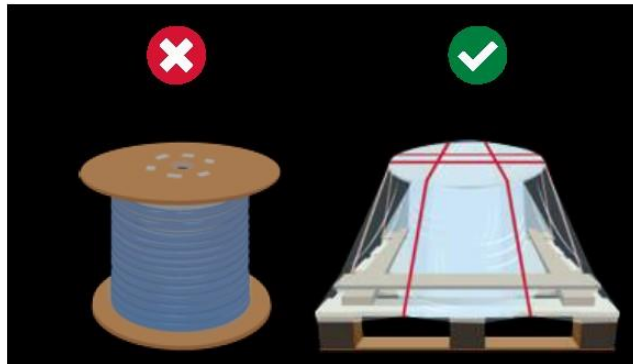
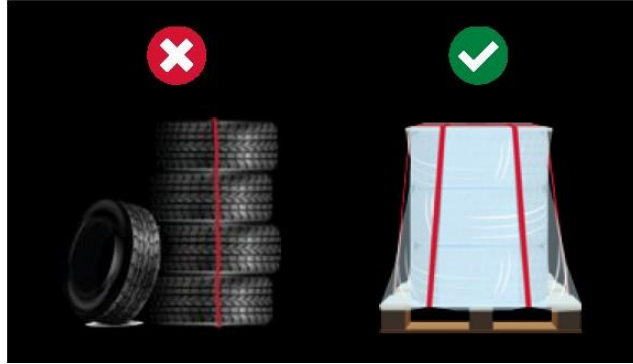
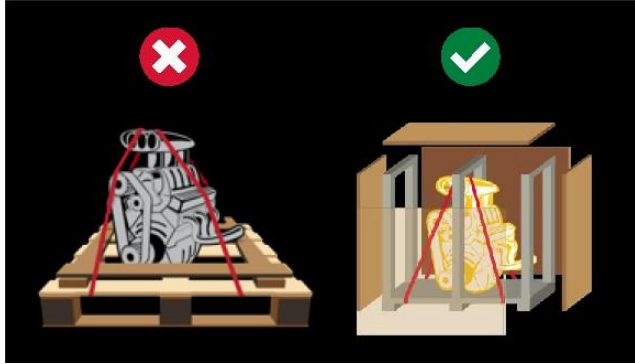
Be sure to use fillers or leak-proof containers, as well as plastic bags or double-walled boxes to ensure their safe carriage.



Need some ideas on how to pack AWKWARDLY SHAPED shipments?



Need some ideas on how to pack AWKWARDLY SHAPED shipments?





Essentials of sustainable packing

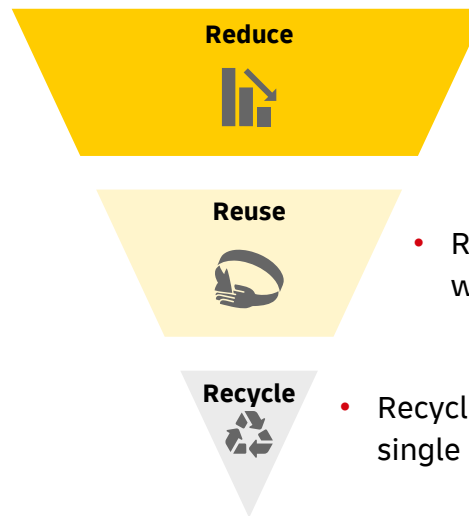
Packing right first time and selecting the right packing material increases the sustainability of LCL shipments

Get it right first time

- Lower environmental footprint by proper packaging right away than having to add packaging or completely re-pack at later stage due to damages



Follow 3 principles & use the right material



- Reduce package and/or use alternative material
- Reuse packaging to reduce waste
- Recycle packing (especially for single use plastic)

Source: DHL Global Forwarding GoGreen



Alternative & sustainable packaging solutions

To increase the sustainability of packaging the following alternative solutions can be used instead of standard pallet wraps and secondary packaging

Pallet Box & Wrap

- Reusable system
 - Lid and strap system
 - Reusable wrap system
 - Banding system
 - Pallet stacking frame
 - Reusable pallet box
- Reduced wrap
 - Pre-stretched film
 - Fiber film
- Recycled wrap
- Alternative material wrap
 - Bio-based wrap
 - Biodegradable wrap

Secondary packaging

- Customized boxes/box-on demand
- Alternative fill (than plastic)
 - Bio-based fill
 - Paper-based fill
 - Recycled plastic fill
 - Compostable fill
- Bio-based Adhesive–Water-activated

Not exhaustive

Alternative & sustainable packaging solutions: Reusable pallet box



Example: Pallet Stacking Frame



Pros → Pallet Stacking Frame

- Multiple use, long life, recyclable
- Easy to use
- Reduction in pallet wrap disposal
- Durable and cost effective

Example: Reusable Pallet Box



Pros → Reusable Pallet Box

- Recyclable and environmentally friendly
- Easily cleaned and moisture resistant
- Reduction in pallet wrap disposal
- Durable and cost effective

Alternative & sustainable packaging solutions:

Reusable pallet wrap



Reusable Wrap



Reusable systems use packing material which is designed to be reused for multiple times without impairment of its function, and can directly avoid the use of pallet wrap

➤ Reusable systems include Lid and Strap system, reusable pallet wrap system, and banding system

Example: Lid and Strap System



Example: Reusable wrap system



Example: Banding system



Alternative & sustainable packaging solutions:

Reduced pallet wrap



Reusable Wrap



Optimize/reduce the use of pallet wrap, e.g., using pre-stretched wrap which made of a strengthened type of linear low-density polyethylene-using up to 50% less film than standard films

- **Pre-stretched film** → the wrap has already been stretched in the production process, so it doesn't require as much film to get the required load tightness (uses % less film than standard films in general)
- **Fiber Film** → is a special stretch film with concentrated lines of polymer (fibers) squeeze out through the film.

Example: Lid and Strap System



Example: Fiber Film



Alternative & sustainable packaging solutions:

Recycled pallet wrap



Reusable Wrap



Made partly from post-consumer recycled material. Material that was used by consumers and returned as waste for recycling; different from post-industrial material which gets recycled in the factory as standard practice

Alternative Material Wrap



➤ **Bio-based wrap** → use plastic wrap that is (partly) made from biological resources e.g., sugar cane or maize starch



I'm green Plastic
Renewable source
Carbon reduction

➤ **Biodegradable wrap** → wrap made of substance capable or being decomposed by bacteria or other living organisms





Did you know? Circularity in the Logistics Industry

Good reasons for plastics in logistics...



- Product protection
- Light weight
- Low cost
- Easy to handle in logistics

But there is a downside to it...



- 2050: More plastic than fish in the oceans
- 32% of packaging “escapes” collection of any kind
- +20% plastic waste growth by 2030
- Only 14% are currently recycled globally



Secondary packaging (Overview)



- ✓ Secondary packaging material is essentially used for void fill and cushioning in boxes and crates
- ✓ Includes packaging components like bubble wrap, air cushions etc.
- ✓ Some of the main characteristics include impact reduction, weight etc.
- ✓ The recommended solutions includes: reduce by optimizing the process (multiuse, resize, smaller packaging etc.), use of alternative material (cardboard, recycled material, paper, bio-based, biodegradable, compostable)





Alternatives to secondary packaging – Solution overview

Not exhaustive

Optimized/Customized Boxes

- Avoid fill material by customizing box side to the actual size of the product being shipped
- Use “box on demand” systems to determine optimal box side
- Helps to reduce box inventories and shipping cost with right-sized boxes

Bio-based Fill

- Paper based fill material includes ruffle, edge protectors, paper bubble wrap, corrugated sheet
- Fill material made from biological resources e.g., sugar cane or maize starch

Recycled Fill

- Made from at least 50% post-consumer recycled materials (material was used by consumers and returned as waste for recycling)
- Suitable for light to medium weight products

Compostable Fill

- Materials made of a substance capable of disintegrating into natural elements in a compost environment, leaving no toxicity in the soil





Glossary

Bio-based	Substance made from biological resources, such as paper, cellulose and starches (e.g., maize), bagasse (from sugar cane) or mycelium (from mushrooms)
Biodegradable material	Substance capable of being decomposed by bacteria or other living organisms
Compostable material	Substance capable of disintegrating into natural elements in a compost environment, leaving no toxicity in the soil
LCL	Less than a Container Load
OFR	Ocean Freight
Post Consumer recycled material	Is defined as material that has reached the end of their effective life-cycle as a consumer product and is re-captured and re-manufactured into a new product
Recyclable	Substances that can be processed and used again
Recycled Content	Substances made from recycled material



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