Shipping - Palletization and Ergonomic Guidelines for Suppliers.
Supplier Packaging Table of Contents

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1. Introduction

Purpose
To help suppliers understand the correct procedure for shipments of products to the EDC.
By following this procedure the suppliers will be able to:

✓ Improve receiving and storage efficiency.
✓ Minimize potential damage during transport.
✓ Minimize freight cost.
✓ Reduce ergonomic hazard.

Scope
This guideline applies to all Donaldson Europe - EDC suppliers shipping finished parts – EDC reserves the right to update this guideline when necessary.
2. General Requirements

- Donaldson Aftermarket products must comply to the EAFM Packaging & Labeling procedure: https://workgroup.donaldson.com/partners/glbdistr/default.aspx
  User name: dciext\Glbdistr
  Password: Gl1bd!str

- Products without specific packaging & labeling requirements must be packed to withstand logistical handling under “normal” conditions. Products must arrive free from contamination and damage. Besides protection, supplier packaging should enable easy handling and part removal.

- Each individual, multipack box must have an ID label.

- Packaging and labeling must be approved prior to the first shipment of production material.
2. General Requirements

- A standard packaging quantity and Pallet quantity must be established and adhered to for all product shipped. Suppliers shall not deviate from this standard box and pallet quantity without permission from Donaldson Purchasing.

- Use of non ISPM15 and press wood pallets is prohibited. Use of **corrugated boxes** is encouraged when possible.

- Each shipment must be accompanied with a delivery note.
3. Packaging Requirements

- Donaldson expects the packaging of goods from the suppliers to be durable enough for multiple handling, from arrival at EDC to parts arriving at end customers in saleable and undamaged condition. This requires satisfactory individual box and master packaging that will prevent product and box damage during shipping and handling. It is the sole responsibility of the part supplier to assure that the packaging material adequately protects the product and that all labeling requirements are met.

- The packaging must be safe and easy to handle in term of weight and size.
3. Packaging Requirements

- Each product should be packed in an individual box.

- Depend on the volume it is allowed to ship parts in master - or multi pack.

- For ergonomic reasons the max weight of master/multi pack is 10kg.

- Master/multi pack are expected to always have a consistent quantity from one shipment to the next.

- Acceptable master/multi pack quantities are:

<table>
<thead>
<tr>
<th>Master/Multi pack quantity</th>
<th>Max Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 pc</td>
<td>10kg</td>
</tr>
<tr>
<td>5 pc</td>
<td>10kg</td>
</tr>
<tr>
<td>6 pc</td>
<td>10kg</td>
</tr>
<tr>
<td>8 pc</td>
<td>10kg</td>
</tr>
<tr>
<td>10 pc</td>
<td>10kg</td>
</tr>
<tr>
<td>12 pc</td>
<td>10kg</td>
</tr>
</tbody>
</table>
3. Packaging Requirements

- Master pack – A box that contains more than one of the same product individually boxed.

- Multi pack – same product shrink wrapped together, in this case per 6pcs.
3. Packaging Requirements

- It is not allowed to ship parts in bulk pack, unless it has been approved from Donaldson purchasing and Logistics department!

GOOD – Filter bags individually packed in a plastic bag – 10pc in a box
4. Palletization

- Pallets must be ISPM-15 compliant, no presswood pallets allowed.

- Pallets must have a 4-way entry.

- Deck boards thickness not less than 13mm. The height between the bottom board and upper board not less than 91mm.
4. Palletization

- Recommended pallet sizes:

<table>
<thead>
<tr>
<th>Pallet sizes</th>
</tr>
</thead>
<tbody>
<tr>
<td>120x80cm</td>
</tr>
<tr>
<td>120x90cm</td>
</tr>
<tr>
<td>120x100cm</td>
</tr>
<tr>
<td>100x100cm</td>
</tr>
<tr>
<td>104x104cm</td>
</tr>
<tr>
<td>114x114cm</td>
</tr>
<tr>
<td>120x120cm</td>
</tr>
</tbody>
</table>

The use of a pallet that varies from these sizes must have prior approval from Donaldson Purchasing.

- Adhere to pallet height limitations. A pallet load height for air products cannot exceed a total height of 230cm (including the pallet). For ergonomic reasons there is a limitation of 180cm max. from floor surface till top of the last but one box.
4. Palletization

- For heavy products like liquid- and hydraulic filters the pallet- or pallet box load height cannot exceed 110cm. (including the pallet)

- Max pallet weight is 500kg.

- It is not allowed to split items over several pallets or pallet boxes when items are ordered per pallet quantities. This will significantly improve the receiving – and storage efficiency when items arrive at EDC.

- When no full pallets are ordered then a mixed load is allowed but don’t split the same item over different pallets or pallet boxes. Make sure you build a stable base layer for your pallets by placing the heaviest items on the bottom. This will prevent tipping and load shift.
4. Palletization

- **Column stacking aligned**, in most cases it increase the top to bottom compression strength for most palletized shipments. This way of stacking is recommended because of no compression loss!

- **Brick stacking**, even there is a compression loss between 40 and 60 percent, brick stacking is allowed but the carton content must be rigid, like fuel- and oil filters and no free space allowed between content and top of the box.
4. Palletization

- **Pyramid stacking**, avoid this way of stacking as much as possible, the top boxes are exposed to potential damage from possible other shipments because of no flat surface. If the top layer is unleveled a “DO NOT STACK” label must be applied on all 4 sides of the load.

- Pallets with overhanging boxes is **not accepted**. It can reduce a compression loss between 20 and 40 percent. Underhang is allowed if the best fit pallet size is selected. In this case stack the boxes on the outer pallet edges when possible, make sure the free space is well secured. This creates a stable level surface when double stack.
4. Palletization

- To identify a load of different items on pallets or pallet boxes a MIXED LOAD label must be used.

- To secure and to prevent shifting of the load use:
  - Plastic strapping
  - Shrink wrapping
  - Stretch wrapping

When using the strapping method use plastic edge protectors to prevent strapping from cutting into cartons and damaging contents.

Due to safety reasons metal strapping is not recommended. If this strapping material is the only solutions to secure the load then it must be approved from Donaldson Purchasing.
4. Palletization

The wrapping material must be covered to a minimum of 6cm below the pallet deck boards and it must be clear enough to allow scanning of label barcodes.

Corner-boards, layer-pads, foil sheets should be used when necessary or required to provide additional protection.

- Special airfreight shipments may require reinforced packaging protection due to potential rougher handling.
4. Palletization

The below images are common techniques for loading pallets into containers or trailers. For each technique there are benefits and disadvantages.

<table>
<thead>
<tr>
<th>Technique</th>
<th>Comment</th>
<th>Benefits</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>STRAIGHT</td>
<td>Pallets loaded in the direction of the pallet stringer</td>
<td>Quickest loading methods of pallets. Allows side by side loading with extra space between the pallets and trailer or container sidewalls.</td>
<td>Least protection against load shifting. Bad cube utilization than the 2 other techniques.</td>
</tr>
<tr>
<td>TURNED</td>
<td>4-Way pallets are required</td>
<td>Better cube utilization than straight technique. Better protection from load shifting than straight technique.</td>
<td>More labor than straight loading</td>
</tr>
<tr>
<td>PINWHEELED</td>
<td>Is a combination of loading pallets straight and turned</td>
<td>Best overall mix of cube utilization and stability Less labor than turning all the pallets Good for tall stacks of mixed cartons. (shape, weight, size)</td>
<td>When no standard pallets are used then it may not fit side-by-side in trailer or container</td>
</tr>
</tbody>
</table>

![Diagram of Straight, Turned, and Pinwheeled pallet loading techniques.](image-url)
5. Shipping Documents

- Suppliers must accompany a delivery note for each shipment. Attach the delivery note on the front end by using a plastic pouch.

- The delivery note must include at minimum the following information:

<table>
<thead>
<tr>
<th>Information on delivery note:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Supplier name</td>
</tr>
<tr>
<td>2. Supplier address + Phone number</td>
</tr>
<tr>
<td>3. Ship date</td>
</tr>
<tr>
<td>4. Donaldson Purchase order number</td>
</tr>
<tr>
<td>5. Donaldson Part number</td>
</tr>
<tr>
<td>6. Donaldson Part description</td>
</tr>
<tr>
<td>7. <strong>Shipped Quantity</strong> — The quantity on the delivery note must be in the same UOM as the quantity on the purchase order</td>
</tr>
</tbody>
</table>

- Any shipments with missing information on the delivery note will be quarantined until purchasing contact the supplier to get correct information.
6. Box and Shipping labels

- Each individual, master/multi pack box must have a identification label applied.
- No supplier name data allowed on boxes, pallets, pallet boxes!

- Label information requirements are:

<table>
<thead>
<tr>
<th>Label information</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Donaldson part number</td>
</tr>
<tr>
<td>2. Donaldson Part number in Barcode – code 128 or 39</td>
</tr>
<tr>
<td>3. Quantity</td>
</tr>
<tr>
<td>4. Quantity in Barcode – code 128 or 39</td>
</tr>
<tr>
<td>5. Manufacturing date – format dd/mm/yy</td>
</tr>
<tr>
<td>6. Country of origin</td>
</tr>
</tbody>
</table>

**Label individual box**

- Item: 2626234
- Qty : 1
- Made in Germany 7/03/12

**Label master/multi pack**

- Item: 2626234
- Qty : 6
- Made in Germany 7/03/12

Note: regarding the individual box label it is important that suppliers use this procedure for all Engine after market products! Link to procedure: https://workgroup.donaldson.com/partners/glbdistr/default.aspx
User name: dciext\Glbdistr Password: Gl1bd!str
6. Box and Shipping labels

- To standardize identification of material shipping into the EDC, it is required that the suppliers use a barcode shipping label, known as odette label.

Following information on the Odette label is required for EDC suppliers:
- Donaldson Part nr + Barcode
- Qty + barcode
- Don. Vendor nr
- Prod. date
- Weight/dim.