Automotive and Mechanical Parts Packaging Guidelines and Designs

Responsible packaging can save you money and improve the safety and handling of your shipments. Follow these tips and design recommendations.
General Guidelines

- Pad all sharp edges, corners and burrs of parts such as sheet metal or bare metal.
- Pad or cover precision-machined areas of parts, such as threads and fittings.
- Protect all parts that are susceptible to damage due to dents, scratches and scuffing by using an appropriate amount of cushioning material and placing in a sturdy shipping container.
- Place documentation and shipping or routing labels on flat surfaces that will allow for maximum adhesion. Avoid placing labels around curved surfaces.
- Place all labels on the side with the largest surface area.
- Use FedEx tie-on tags, tire/crate labels or plastic airbill pouches instead of wire tags.

Automotive Parts Best Practices

- Ship engines, motors, transmissions and chassis parts via FedEx Express® services.
- Drain and empty parts filled with lubricant fluids before shipping or demonstrate that the shipment is leakproof under all orientations.
- Help reduce damages and ensure safe working conditions for handlers by adequately packaging all mechanical or automotive parts.

Shipping in Corrugated Boxes

When packaging parts, use adequate dunnage such as loosefill peanuts or other padding material to fill void spaces and prevent movement inside the box.

Wheels

Cushion the entire surface, and box chrome, painted and decorative wheels that are susceptible to damage as a result of scratches or scuffing. Wrap non-decorative wheels in adequately taped clear plastic liner.

Flexplates, Flywheels

Pack flexplates and flywheels with adequate dunnage such as loosefill peanuts to fill void spaces in double- or triple-wall corrugated boxes, depending on the weight of the part. Apply “heavy” stickers to boxes exceeding 75 lbs.

Car Doors, Hoods, Panels

Cushion and box all exposed metallic surfaces that are susceptible to damage as a result of scratches or dents.
Decorative Parts
Cushion and box all decorative parts such as grills that may be unusable as a result of scratches, dents, bending or scuffing.

Flexible Plastic Moldings
Cushion and box all flexible plastic moldings to prevent breakage or tearing.

Shocks, Coil Springs
Box cylindrical parts that can be packaged in tubes with adequate dunnage such as padding at the ends and loosefill peanuts to prevent puncturing through the end closures. Tag coil springs with a FedEx non-conveyable tie-on tag and adhere the shipping label to the tie-on tag if the item cannot be packaged in a tube or corrugated box.

Bumpers
Box bumpers that are susceptible to scratches or dents. Or wrap bumpers in adequately taped heavy-duty plastic bags and padding to protect any sharp or pointed corners.

Shipping With Secure Wrapping and Padding
When preparing irregular-shaped parts for shipment, tape cushioning material securely to help prevent removal during the handling process. We recommend placing the parts in a box in addition to the minimum requirements shown.

Moldings
Wrap non-decorative plastic moldings in adequately taped plastic film or bags, or cushion and box them.

Sway Bars, A-Arms
Wrap sway bars, A-arms and threaded rods in fiberboard or appropriate plastic film or bags and tape securely.

Exhaust System Parts, Leaf Springs
Pad and cover pointed and sharp edges with corrugated boards, adequate foam or air-cellular cushioning material such as Bubble Wrap® and tape securely.
Tires
Place the tire/crate label on the tread of the tire and apply the FedEx shipping label on top of the tire/crate label.

Shipping With a Forkliftable Base
Secure transmissions and other parts weighing more than 150 lbs. to a forkliftable base compatible for pallet-jack usage. Banding to a pallet or bracing inside a corrugated container helps prevent damage in handling. For information on shipping freight, see the “Packaging Freight Shipments” section.

Transmissions, Engines
Drain the transmission of all fluids and place it in a plastic bag with absorbent padding below to absorb any residual fluid. When using expendable packaging, securely band it to its pallet, or block or brace it inside its corrugated container. If you use a reusable container, secure the transmission to the base with strapping.

Dangerous Goods/Hazardous Materials Guidelines
Some of the most frequently shipped automotive and mechanical parts and accessories may be considered dangerous goods and hazardous materials. These include airbags, aerosols (some examples include paint and lubricants), batteries, engines and engine blocks with hazardous fuel, used fuel tanks, flammable paints, and touch-up paints.

Check with the manufacturer for the Material Safety Data Sheet (MSDS) for detailed information on the product. The shipper is responsible for correctly identifying, classifying, packaging, marking, labeling and completing documentation for dangerous goods and hazardous materials. The Department of Transportation (DOT)/Federal Aviation Administration (FAA) require shippers to have job-specific dangerous goods training prior to tendering dangerous goods to FedEx or another air carrier. Reference the 49 Code of Federal Regulations (49 CFR) 172.700 for complete details.

FedEx Express is required by law to report improperly declared or undeclared shipments of dangerous goods to the DOT. The shipper may be subject to fines and penalties under applicable law. Questions may be directed to the FedEx Dangerous Goods/Hazardous Materials Hotline, 1.800.GoFedEx 1.800.463.3339 (say “dangerous goods”).

Packaging Designs for Automotive Parts
At FedEx we know packaging, and we’re available to help you design automotive packaging that protects your parts. We may even help you save money with packaging that weighs less and is easier to make than your current designs.

Our FedEx package-design engineers develop packaging for parts every day. Most designs use cost-effective corrugated cushioning material and molded components to help prevent damage during transit. Best of all, each design passes FedEx test procedures and is available for you to use.

Our team offers consultation services, specifications and computer-aided design (CAD) drawings to assist your packaging producer with development of your mechanical and automotive packaging.
Here are just a few of our designs.

**Flat-Style Hood Design**

- Corrugated rear roll-up pad (275# BC flute)
- Roll-up slit-cut pad (275# C flute)
- Nose roll-up pad (275# BC flute)

With this design, you center the nose and rear roll-up pads and staple them to the inner flaps of the end-loaded full-overlap shipping container. Place the hood in the container followed by roll-up slit-cut pads. Close and tape.

Hood and cushioning are placed inside a 275# BC flute full-overlap corrugated shipping container before shipping.

**Grill-Style Hood Design**

- Corrugated rear roll-up pad (275# BC flute)
- Corrugated side rail (275# C flute)
- Plastic pads adhered to corrugated roll-up

This design incorporates side rails to elevate and suspend the hood. The air space created by the elevation helps protect the grill from external forces.

Before shipment, place the hood and cushioning inside a 275# BC flute full-telescope corrugated shipping container for protection and stability.

**Overbox-Style Hood Design**

- Molded inserts
- Corrugated outer container (275# BC flute)

This design uses molded pulp inserts on all four class A sides of the inner container to help provide cushioning.

Before shipment, place the hood and cushioning inside a 275# BC flute corrugated shipping container for support and protection.

**Trunk-Pack Design**

- Molded inserts
- Corrugated tube (275# BC flute)
- Corrugated roll-up (275# BC flute)

This design helps protect the trunk pack from external forces. Molded inserts are used to create air cells and brace the trunk lid.

Once the inserts are in place, place both the trunk lid and cushioning inside a 275# BC flute full-overlap corrugated shipping container for protection.
Door-Pack Design

Die-cut corrugated insert

Molded insert or equivalent corrugated roll-up

Scored corrugated pad (275# BC flute)

Die-cut full-overlap top-load corrugated outer container (275# BC flute)

This design combines the use of a scored pad, a die-cut corrugated insert and a molded insert to help provide cushioning and bracing of the door inside the outer shipping container.

Once roll-ups and pads are attached to the door, place both the door and cushioning inside a 275# BC flute corrugated shipping container for protection.

Windshield-Pack Design

Corrugated roll-up (275# C flute)

Corrugated scored pad (275# BC flute)

Corrugated wrap (275# C flute)

This design helps protect windshields from shock and/or torque during transit. The wrap converts a non-rigid part into a rigid surface so it can be cushioned and braced off of the corrugated wrap.

Before shipment, place the windshield and cushioning inside a full-overlap 275# BC flute corrugated shipping container.

Rim-Pack Design

Molded insert

2-mil plastic bag

Molded insert

Corrugated outer container (minimum 200# C flute)

This design protects the rim from dents, scratches and abrasions. The molded inserts are designed to fit multiple sizes.
Packaging Freight Shipments

Shipments that qualify as freight must be packaged accordingly. See the current FedEx Service Guide to determine if your shipment qualifies as freight.

You must package your freight shipments to allow for stacking of other packages on top of your shipment. Make sure your freight shipments are banded and stretchwrapped to the pallet, with the bands running in both directions. (Pallet loads secured with only stretch-wrap are not acceptable.)

Avoid corrugated pallets or wood pallets without bottom boards. You must secure all freight shipments weighing 151 lbs. or more on a forkliftable base, compatible for pallet-jack usage. The minimum specifications for a typical base for forklift or pallet-jack configuration are illustrated here.

For detailed information on preparing freight shipments, refer to *Packaging Guidelines for Shipping Freight* at fedex.com/us/services/packageshipment/preparing/.

**Minimum Freight Specifications, Typical Base, Forklift or Pallet-Jack Configuration**

- **Angleboard**
- **70-gauge stretchwrap**
- **Cartons stacked squarely**
- **No overlap of base**
- **Banding through voids**
- **27” minimum width, 3-1/2” minimum height for pallet jack entry**
- **Pieces up to 2,200 lbs.**

**Trim or Molding Pack Design**

Sonoco’s Sonopost® Technology

This rigid outer package design protects the pre-paint trim or moldings from scratches and bending.

Trim Sonopost to fit the part length. Insert the covered trim or molding into the corrugated outer container and tape both ends with minimum 2”-wide pressure-sensitive plastic tape.

*Call 1.800.377.2692 for information on Sonoco’s Sonopost Technology.*

**Fascia - (Bumper Cover) Pack Design**

Corrugated insert (275# C flute)

Corrugated tube or sleeve “hold down" (275# C flute)

Corrugated outer container (275# BC flute)

This design protects the fascia from scratches and abrasions. Additional poly-bag surface protection is optional.

Before shipping, place the fascia inside a 275# BC flute corrugated full-overlap shipping container. Then place inserts and the tube or sleeve into position.

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For detailed information on preparing freight shipments, refer to *Packaging Guidelines for Shipping Freight* at fedex.com/us/services/packageshipment/preparing/.
Sealing and Labeling Instructions

- When sealing corrugated outer containers, apply at least three strips of pressure-sensitive adhesive plastic tape that is at least 2” wide to both the top and bottom of the carton.
- Tape all seams or flaps using the H taping method.
- Place the shipping label on the top of the largest side.
- When shipping parts that cannot be packaged in corrugated outer containers, tag them appropriately.
- Tag wrapped and padded parts with a FedEx non-conveyable tie-on tag and adhere the shipping label to the tie-on tag.
- Request tie-on tags, cable ties or tire/crate labels at fedex.com or call 1.800.GoFedEx 1.800.463.3339. You may also contact your account executive for supplies.

Contacts and Resources

- How to Pack guidelines at fedex.com/us/services/packageshipment/preparing/.
- FedEx Packaging Services lab, packagingservices@fedex.com or 1.800.633.7019.
- FedEx Service Guide at fedex.com/us/services for additional handling surcharge information.

While we cannot ensure compliance with markings such as up arrows or “This End Up,” properly placing the shipping label increases your chance for the preferred orientation.