



**THESE ARE THE PACKAGING REQUIREMENTS FOR ALL OF ELECTRO
MOTIVE DIESEL FACILITIES AND COMPLIANCE IS MANDATORY**

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ELECTRO MOTIVE DIESEL, Inc PACKAGING REQUIREMENTS

REVISED: February 1, 2010

This document is prepared by Electro Motive Diesel to guide the suppliers to properly package material used in our plants. These requirements are applicable for shipments to Electro Motive Diesel, Inc. their Warehouse Distribution (APL), and EMCanda Co. Direct all questions regarding these requirements to your **Electro-Motive Diesel, Inc or EMCanada Co.** representative or the writer.

Supplier conformance to these Packaging Standards is mandatory. It is the responsibility of the supplier to deliver material properly packaged free of corrosion, damage and in accordance with these packaging requirements. Failure to comply will result in the issuance of a **Quality Notice (QN)**. In addition the supplier will be held responsible to reimburse EMD for the associated costs to replace or correct the packaging material.

Notice of Liability and Caution

The information contained in this manual is distributed on an “as is” basis, without warranty. While every precaution has been taken in the preparation of this manual, the authors shall not have any liability to any person or entity with respect to any liability, loss, or damage caused or alleged to be caused directly or indirectly by the instructions contained in this manual. It remains the responsibility of the users of this manual to establish appropriate safety and health practices and to determine the applicability of all government agencies and the regulatory requirements in conjunction with its use.

These standards are subject to periodic review and users are cautioned to obtain the latest version.

This document supersedes all previous editions:
PACKAGING REQUIREMENTS, Issued July 2005.

Prepared by:

EMD Packaging & Material Handling
EMD Purchasing
EMD Environmental
EMD Ergonomics

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ELECTRO MOTIVE DIESEL, INC. PACKAGING REQUIREMENTS

Environmental Packaging Requirement: PALLETS

Unless otherwise specified the following packaging requirements are to be adhered to by all **Electro Motive Diesel, Inc.** suppliers. These packaging requirements support continuous improvement and safety. The requirements are based upon sound engineering principles, customer input and current packaging technology.

Background:

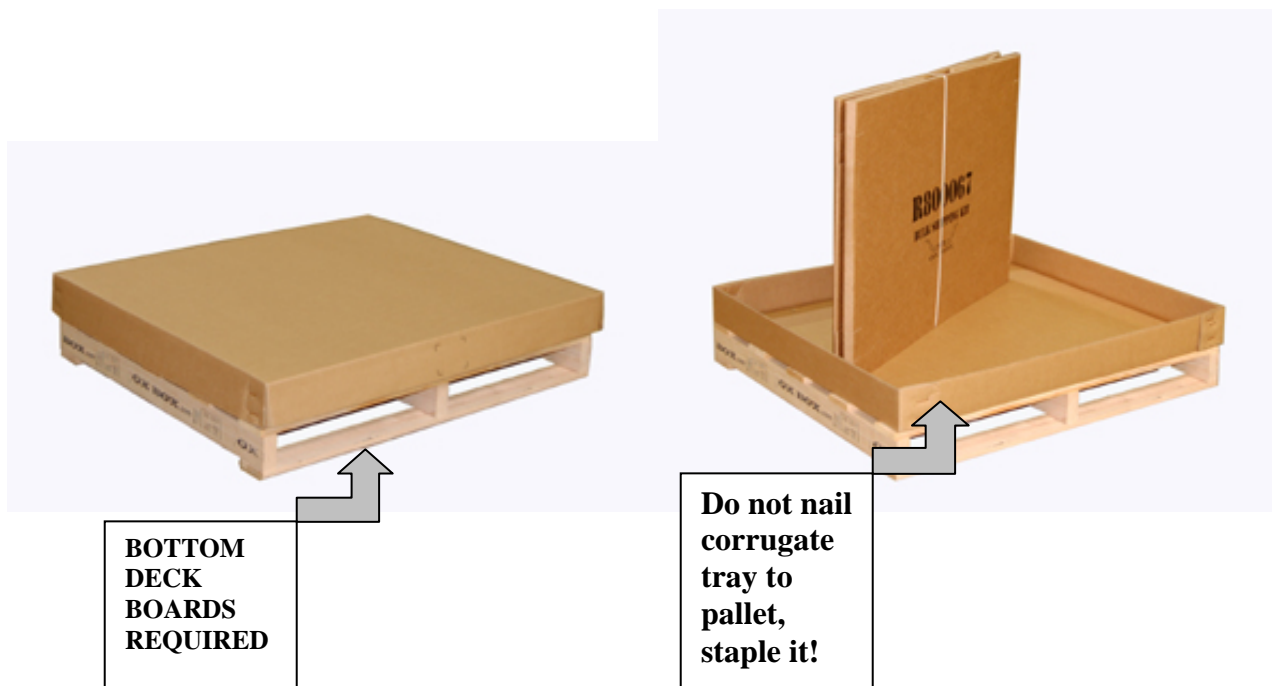
Managing the disposal or recycling of wood pallets continues to be a challenge for EMD. We reuse or recycle as many as possible (See Pages 15-20) for pallet sizes and other box specifications.

Where economically feasible, we encourage the use of returnable pallets constructed of steel or recycled plastics.

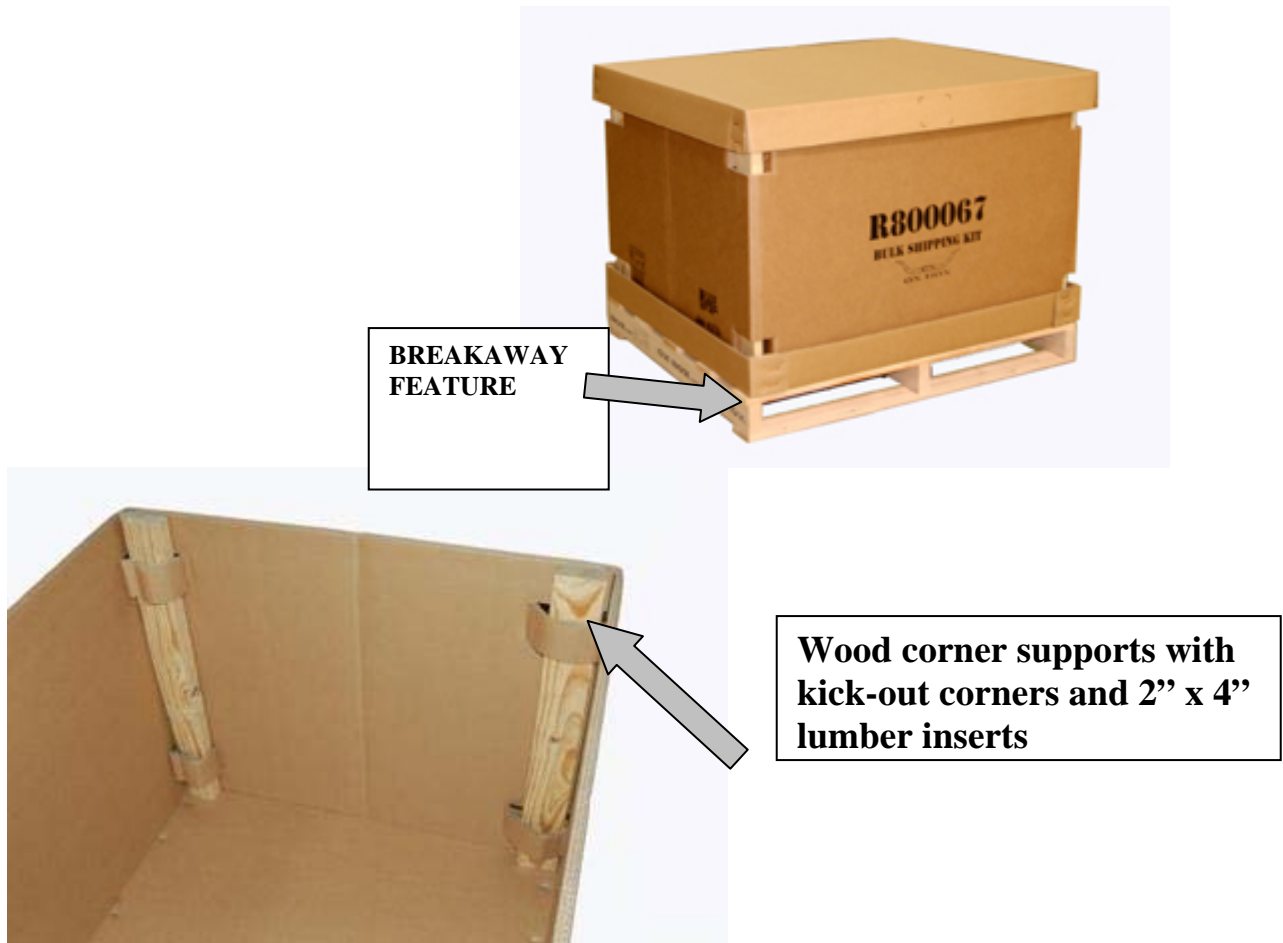
Environmental Packaging Requirement: BULK KIT BOXES by OXBOX

Wire bound crates are not allowed; use a suitable replacement, (see page 20).

For domestic shipments, you can use a bulk kit box (self contained), constructed with a “breakaway” feature to allow easy removal of the corrugate from the HT wood pallet. The breakaway feature requires stapling the corrugate to the HT pallet. The corrugate will separate easily from the HT pallet.



ELECTRO MOTIVE DIESEL, INC. PACKAGING REQUIREMENTS



Environmental Packaging Requirement: CORNER SUPPORTS

Background:

All corrugate cartons are recycled after use. Any contaminant such as wood that is fastened to the corrugate to add structural strength to the corrugate must be designed for easy removal.

Wood is not to be nailed, glued or stapled to the corners, walls or to the carton top or bottom.

- To add strength to a corrugate bulk kit box (see photo above) use 2 x 4 lumbers in the corners, this method is favored by EMD or inquire the corrugate supplier for recommendations. The use of "angle board" with a white clay coating and non-water-soluble adhesive as a corner support **is not allowed. When angle board is glued to corrugate it cannot be recycled.**

Environmental Packaging Requirements FOAM DUNNAGE & DISSIMILAR MATERIALS

Background:

The following CANNOT be used as expendable packaging:

Foam glued to corrugate or any other dissimilar materials bonded together.

- Expanded Polystyrene (EPS) - SPI Code #6 foam in sheets or loose such as foam peanuts are not allowed as a filler in the packaging.

The use of foam dunnage to protect parts from abrasion, part-to-part contact is not allowed. Currently, we have no economical solutions for recycling foam, which causes us to landfill the material. Replace the foam with the suggested alternatives shown below:

ALTERNATIVES:

Eliminate the foam or replace it with other easily recycled materials such as die-cut corrugate build-up inserts or molded Kraft Paper pulp.

- Metal parts placed in corrugate cartons can corrode unless the part is wrapped in VCI poly or VCI paper.
- The use of a wax coating applied to the corrugate **are not permitted**.
- Foam-in-place packaging **is not allowed**.

Environmental Packaging Requirement STRAPPING

Background:

While metal strapping continues to be acceptable, we recognize that non-metallic (plastic) strapping is available in various materials that can satisfy requirements of tensile strength, elongation and recovery. Additionally, non-metallic strapping is available in many colors from the strapping suppliers.

STRAPPING COLOR MUST BE STANDARDIZED USING THE FOLLOWING:

**STEEL - BLACK
POLYESTER - TRANSLUCENT GREEN
POLYPROPYLENE - TRANSLUCENT CLEAR**

We recommend polyester strapping due to its strength and recovery properties.

Elimination of the metal banding clip for a non-metallic plastic reduces cost and effectively allows recycling without the potential of transferring metal contamination (rust) to the part.

Environmental Packaging Requirement PALLET UNITIZING METHODS

Background:

Stretch wrap has been the acceptable method of securing cartons to a pallet.

Stretch film - Use clear film; the absence of color maximizes recycling potential. Use a LDPE (low-density Polyethylene) film they are the most common and highest in performance allowing maximum hold of a package to a pallet. **PVC film is not to be used.** Wrap the palletized unit with only the required amount of film, your stretch film supplier can assist you with the proper use of the equipment and material.

Environmental Packaging Requirements SPI PLASTIC RESIN CODES

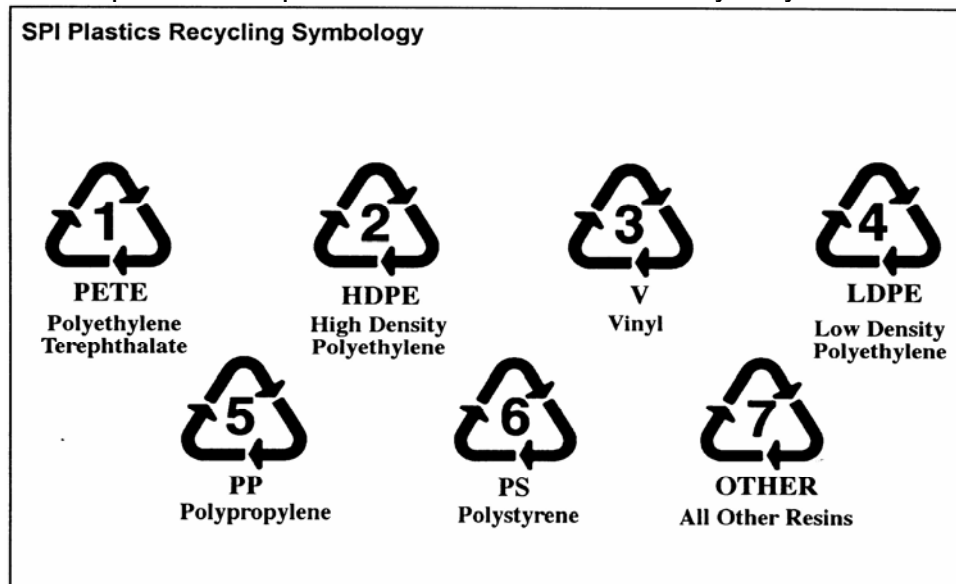
Background:

To facilitate recycling plastic packaging products its identity must be known. Electro Motive Diesel, Inc. now requires the marking of the SPI (Society of Plastic Industry) code on all plastic products. All vacuum-formed and injection-molded plastic packaging material must be identified by this code. The SPI code chart is shown below.

Plastic packaging components such as plugs, caps, and covers are to be marked with SPI codes.

NOTE: Plastic parts that will be assembled (attached) to our products should be identified with the proper SAE Code to facilitate recycling.

Mold the SPI code into the plastic part. The printed code identification will allow for effective recycling clear LDPE plastics are preferred and can be effectively recycled.



Environmental Packaging Requirement WASTEFUL, EXCESSIVE, OR NON-RECYCLABLE MATERIAL

Background:

Packaging will serve many needs; part protection, transportation effectiveness, synchronous manufacturing, ergonomic and environmental concerns to name a few. Excessive, “just-in-case” packaging is undesirable and costly for both the supplier and Electro Motive Diesel, Inc. The supplier is expected to identify and eliminate wasteful packaging practices on an ongoing basis. With reduction or elimination as the first priority, the hierarchy of waste elimination is:

REDUCE REUSE RECYCLE

PHYSICAL HANDLING OF MATERIAL IN PACKAGING – ERGONOMICS

Poor packaging and handling practices result in work related injuries. These injuries will increase cost and will have a negative effect on productivity, safety and quality. In order to reduce the costs associated with these losses, it is imperative that we improve the manual material handling of our packages. The following standards have been adopted from research guidelines and principles designed to reduce the risk factors associated with work related injuries.

PACKAGING DIMENSIONS

The guidelines below are based on manual material handling techniques which allow the package to be carried close to the body and will not require excessive bending or squatting.

Large boxes, bins or cartons used to hold several small parts restrict the height to 32 inches.

HANDHOLDS DESIGNED INTO CORRUGATED BOXES

Any box, which is greater than 35 lbs in weight, must have handholds constructed on two opposite sides of the box. With the handhold built into the box the acceptable gross weight of the boxes is 39 lbs. The weight of the package should be clearly written on the box, shown in letters sized 1.50 inches or it can be printed on a standard label (see page 15).

Handholds allow a person to easily lift a box and it reduces the mechanical stress placed on the hand while the carton is being carried; the handhold should have the minimum dimensions as shown below:

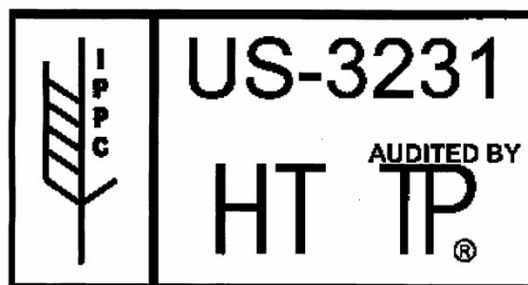
Length of Hand Hold;	4.5”
Curvature or Width of Edge	1.25” minimum

The handholds should be located slightly above the package’s center of gravity.
See your supplier of corrugate for information regarding placement of handholds.

PLYWOOD AND WOOD BOX REQUIREMENTS DOMESTIC AND EXPORT

A plank wood (un-surfaced) rough-sawn board lumber box poses a problem in the plants, the lumber easily breaks, and it is not accepted. Boxes constructed from OSB, Oriented Strand Board are not allowed as a packaging material. During handling and transport the blade of a fork truck can easily puncture the board and when this occurs the box strength is greatly reduced. The definition of a HT Certified box is: That which is built from heat treated lumber bearing the stamp HT. The HT lumber used to construct a wood product (box, pallet) is stamped HT by an accredited timber mill. The construction of HT wood products (box, pallet) can be done so only by a registered, certified wood box manufacturer in good standing. The manufacturer of the (box, pallet) has permission from an accredited US Government authority to place their stamp bearing their assigned identification number on all boxes, pallets they construct. (See example below).

HEAT TREAT REQUIREMENT OF WOOD PRODUCTS, ISPM #15 RULES



Effective September 15, 2005, all lumber exported from the United States and imported into the United States are required to have been heat-treated to comply with the ISPM-15 Rule. This includes wood boxes made from board lumber; pallets and interior wood used for blocking and bracing (dunnage on the inside of wood or corrugate boxes). Plywood boxes are excluded from this regulation however, the lumber attached (cleating or blocking and bracing lumber) attached to plywood is subject to this regulation. The stamp shown above must appear on the wood box on two opposing sides. The absence of this marking will cause the customs department within the country to quarantine the freight until proper documentation is provided by the shipper. The documentation the shipper must provide is proof that the wood materials used to construct the box are properly treated in accordance with the ISPM Standards. Noncompliance to this regulation and all requirements could result in confiscation of the shipment by a US or Foreign Government Customs Department.

PACKAGING FOR EXPORT CUSTOMERS MUST BE IN COMPLIANCE WITH THE ISPM, HT Standard. Shipments into APL Hodgkins, All wood boxes, pallets and blocking and bracing materials used in box must be made from ISPM HT Treated wood. In addition to these requirements bark is not allowed it must be removed with a rasp tool. Visit the websites below to obtain further information regarding the ISPM #15 rules. An additional resource for information regarding ISPM 15 Rulings is OXBOX, EMD supplier of wood boxes (see page 11 for their contact information).

For details regarding ISPM #15 Rules see:

<http://www.nwpc.ca/ExportTreatment/ExportTreatmentProg.htm> Refer to the following Canadian Food Inspection Agency website for more details:
www.inspection.gc.ca/english/plaveg/protect/dir/d-98-08e.shtml

EXPORT HT NAIL-LESS KIT BOX

For export shipments, you can use a HT nail-less kit box. For export shipments the box should be sized to cube a sea container 44" width ODS.



CORRUGATE LINER
VAPOR BARRIER BAG
POLY VCI

Export packaging requires these 3 packaging phases.



Bottom deck boards required

Industrial Packaging, by OXBOX - Compliant with EMD Packaging Requirements

Boxes

- wood (*HT - export compliant*)
 - o bulk plywood boxes
 - o bulk nail-less kit boxes sized to cube sea containers 44" width OD
- corrugated
 - o heavy-duty construction
 - o stock boxes
 - over 900 sizes in stock
 - available on-line
- wood & corrugated, bulk kit boxes **domestic use only**

- o self-contained design box (see pg .4) custom designed and stock sizes are available
- packaging supplies
 - o tape, labels, stretch film, edge protectors, strapping, poly bags
 - available on-line

Pallets

- wood (*HT - export compliant and EMD approved*)
- plastic structural foam, injection molded, Hi-Density Polyethylene
- corrugate plastic returnable packaging
- computer assisted pallet designs

Packaging Materials and Services

- VCI poly and paper
- Packaging and multiple parts kit preparation services
- return packaging systems and designs

OX BOX Contact information:

Stan Joray

Vice President

Email: sjoray@oxbox.com

OX BOX

1555 Wrightwood Court

Addison, IL 60101

(630) 620-1BOX

(630) 889-1BOX - Fax

www.oxbox.com

OXBOX provides wood and combination wood corrugate boxes to EMD. Suppliers can receive EMD pricing for boxes they wish to purchase. The factors which might affect the pricing the supplier will receive are the quantity of boxes ordered and shipping costs must be considered.

HAZARDOUS MATERIALS PACKAGING REQUIREMENTS:

Hazardous materials must be packaged in accordance with the appropriate Department of Transportation (DOT) Regulations using Performance Oriented Packaging or other packaging as stated in the regulation.

A supplier of a hazardous material must submit a Material Safety Data Sheet to purchasing. The EMD Hazardous Materials Control Committee will review the MSDS sheet and advise purchasing if its' use is allowed. This is required for all hazardous materials shipped to EMD LaGrange, APL Distribution or EMCanada facilities. The sending in of samples or bringing of unauthorized hazardous materials (without prior approval) into EMD or EMCanada is forbidden; compliance is mandatory.

EMD BASIC PACKAGING REQUIREMENTS

VCI CORROSION PROTECTION (VCI Paper/Film):

It is the supplier's responsibility to protect their manufactured steel parts (ferrous metals) from corrosion; use VCI paper, VCI poly film or a suitable rust preventative coating.

VCI paper is porous; it allows for easy volatilization and will achieve protection for the piece part rapidly. VCI film is slow in volatilization and works best for long-term protection when used in conjunction with VCI paper or VCI protective coating.

Rust preventative (RP) oils seal the metal surface from oxygen and moisture and protect the surface from dust, dirt and gases. The oil is a temporary rust preventative coating and will not give long-term protection to the part.

VCI Oils contain vapors that protect the exposed metal surfaces for longer periods of time and seal the metal from the outside environment

All VCI products and rust preventative coatings afford the best protection for steel parts when the material is free of dust, soap residue dirt and contaminants. It is imperative to wear gloves when handling clean steel parts prior to packaging. Listed below are approved EMD suppliers of VCI materials; papers, polyethylene films and coatings.

The supplier is responsible to adequately protect the part from all forms of damage. If requested EMD can assist the supplier to select or can recommend a packaging. Contact the writer or APL Packaging Coordinator for further information. The contact persons for APL are listed in the section APL Packaging (Page 21).

VCI Usage for parts susceptible to rust

Those parts susceptible to corrosion cannot be in direct contact with the wood box, skid or other wood products, there must be a VCI barrier between the product and the packaging.

- Inside the box use a case liner, it could be poly VCI or a foil vapor barrier bag. Wrap the parts in VCI paper and/or VCI poly.
- When directed to do so by EMD, parts may require additional long term preservation packaging. These parts may be subject to large variances in temperature and humidity and they will require a foil vapor barrier bag. Obtain information about the vapor barrier material and its' use from your VCI supplier or the writer.
- For a large irregular shaped part packaged in VCI poly or foil vapor barrier packaging, remove some of the inside air to enable the VCI to work quickly within its' protective packaging.
- Parts must never be placed into the packaging wet.
- While physically handling the parts wear gloves.
- The part must be clean, free from soap residue and other dirt contaminants.
- Before using a VCI or a petroleum oil coating first inquire to EMD Supplier Quality Engineer (SQE) who will forward the request to writer. Or, the supplier can directly inquire to the writer if certain oils or VCI coatings are permitted.
- Inquire to your VCI supplier the proper use of the VCI products or inquire to EMD the writer for a recommendation.
- It's the responsibility of the supplier to disclose to the VCI provider the processes by which the part will undergo. This is necessary so that the VCI provider can recommend the correct VCI product to use for the application.

The EMD suppliers for VCI below can give information and assist with the purchase of VCI materials as well as offer EMD pricing.

VCI Suppliers

ARMOR Protective Packaging®

AKA SKS Industries Inc.

951 Jones Street

Howell, Michigan 48843

Ph (800) 365-1117 (517) 546-1117

Fax (517) 546-6434

Email: info@armorvci.com

Website: www.armorvci.com, www.metalrescue.com

Contact Information

International Sales Manager

Product Manager:

Customer Service Manager:

Customer Service:

[Fernando Longinotti \(flonginotti@armorvci.com\)](mailto:flonginotti@armorvci.com)

[Wes Measel \(wmeasel@armorvci.com\)](mailto:wmeasel@armorvci.com)

[Wes Measel \(wmeasel@armorvci.com\)](mailto:wmeasel@armorvci.com)

[Julie Eastwood \(jeastwood@armorvci.com\)](mailto:jeastwood@armorvci.com)

[Lindsey Erickson \(lerickson@armorvci.com\)](mailto:lerickson@armorvci.com)

[Nicole Payne \(npayne@armorvci.com\)](mailto:npayne@armorvci.com)

Regional Sales Manager & local contact:

[Jerry Golebiewski \(jgolebiewski@armorvci.com\)](mailto:jgolebiewski@armorvci.com)

1-(630) 291-7410

Daubert Cromwell

Daubert Cromwell

Mike Bentley

Regional Sales Manager

815-341-3509

mbentley@daubertcromwell.com

Joy Bitter

Marketing Director

708-653-9669

mbitter@daubertcromwell.com

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President and CEO

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msimpson@daubertcromwell.com

Scott Kotvis

International Sales

630-258-5138

VCI2000

Buki Schwartzman

3175 Commercial Ave, Suite 100

Northbrook, IL 60062

Phone: 847-400-0479

Cell Phone: 847-840-1974

Fax: 775-535-3956

E-mail buki@vci2000.com

Internet : <http://www.vci2000.com>

QUAKER CHEMICAL

Quaker Chemical, is the EMD In-House, Chemical Manager, they provide us with cleaning, cutting fluids and recommend preservative products that are compatible with our manufacturing processes. They assist us to select those products that are environmentally safe (ECO friendly) and keep parts free of corrosion during and after the manufacturing process.

Quaker Chemical

Michael Podolak
EMD Representative on-site
1-708-387-5026

Michael.e.podolak@emdiesels.com

Quaker Chemical Headquarters

Daryl Adams
Product Manager Cleaners/Rust Preventatives
Quakerclean and Ferrocote products
610-832-4346
adamsd@quakerchem.com

Kathy Coughenour
Product Manger Metalworking
Quakercool Products
610-832-4324
coughenk@quakerchem.com

EMD PALLETS

The standard acceptable pallet size is 48" length, 40" wide", see pallet examples on pages 15 – 20.

PALLETS

There are numerous options to consider when designing a pallet, various species of woods, part size and weight. A pallet supplier can assist to determine the correct pallet through the use of a "computer pallet program" that automatically calculates the inputs (part size and weight) and it designs the correct pallet.

Suppliers are required to ship material to APL Hodgkins on ISPM Certified pallets. It's not required to use ISPM certified pallets for inbound shipments to Dock H.

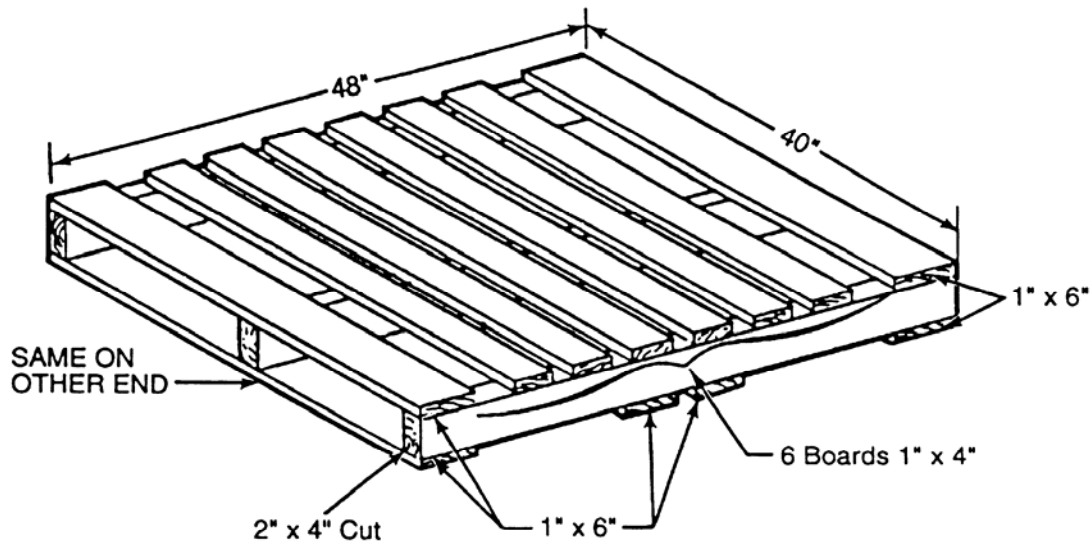
Pallets sized 40" W x 48" L is the standard accepted by EMD. Variations to the width are allowed, limitation: it must never be less than 36 inches. A shorter length will be considered for use only when pre-approved by the writer. Acceptance of this small sized pallet will be dependent upon use and storage conditions within EMD.

The MH6001 is the standard 3000# weight pallet, MH200 is a heavy duty, 6000# pallet and a winged pallet is designed to accommodate heavy loads, 3000#, the runner boards are positioned inward.

Many loads arrive at EMD with the banding loose and end deck boards broken, loose or missing. This is caused by smaller boxes being placed on the larger pallet. Correct this by placing the banding between other inward deck boards, now the banding is close to the packaging or material and this avoids breaking the end deck boards.

EMD BASIC PACKAGING REQUIREMENTS

MH-6001 STANDARD VENDOR PALLET



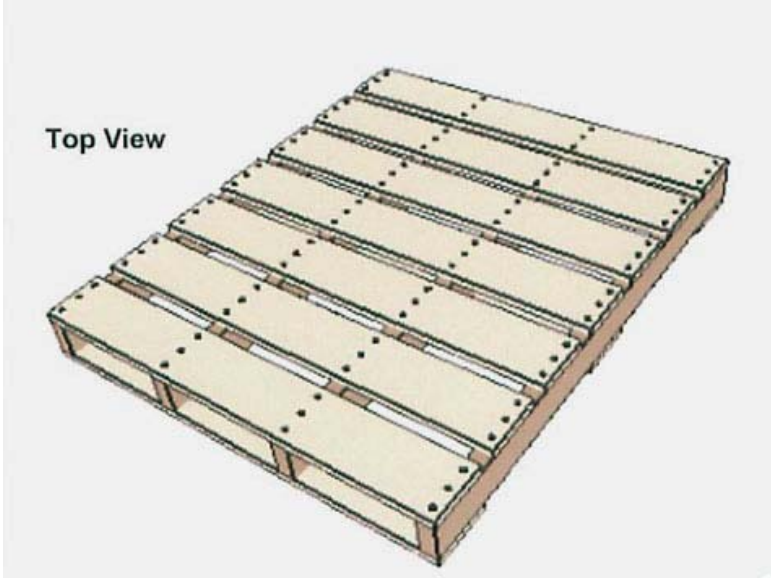
PALLET SPECIFICATIONS:

- 1 All lumber must be a species of hardwood (Ex. Oak, Ash, Hickory and Maple)
- 2 Load limit, 3000 lbs
- 3 Length and width $\pm 1/8$ " is allowed
- 4 Assemble pallet with hardened screw drive nails, (3-1/2" x .120", and screw head diameter. 1/4" \pm 1/64").
- 5 All 6" boards have (3) nails per joint; 4" boards have (2) nails per joint.

NOTE: **Material weight must be evenly distributed on the pallet.** The deck boards must not be used to support the weight of heavy material, that weight must be transferred onto the runner boards. Because of size and weight of material, a pallet may require an additional runner board in the design. Therefore the R709488 pallet must be used for loads needing the additional center support. If any pallet exceeds 60" in length, 4-way entry must be part of the design. Other choices, the R709488 can be used in place of the MH6001.

EMD BASIC PACKAGING REQUIREMENTS R709488 PALLET

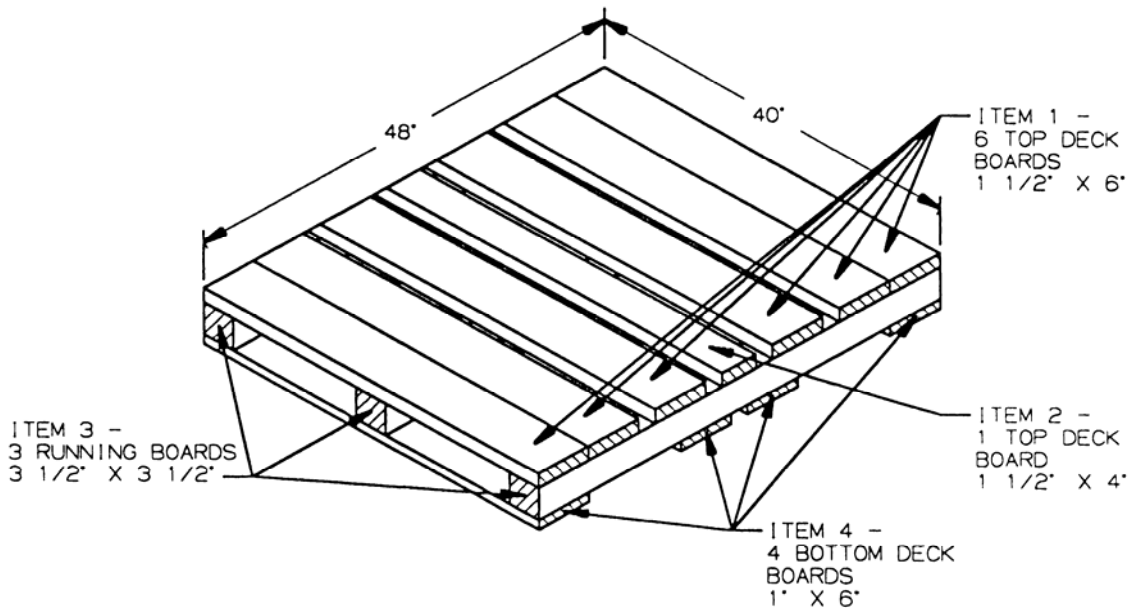
The 4 stringer pallet design, with a safe maximum load capacity of 15,000 lbs single stacked, will transport heavy loads casting, heads liners and pistons. Stacked 4 high the safe load capacity per pallet is 3400 lbs



Pallet ID: R709488 - Approved Vendor Pallet - ISPM 15 Compliant Classification: 48.00 x 40.00, Stringer-Class, Double-Face Non-Reversible, 2-Way, Multiple-Use, New Manufacture Pallet Treatments: ISPM-15 Compliance; Heat Treatment (HT)															
Side View 	Top View 	Bottom View 													
End View 															
Components		Materials													
Top Deck: Style: Deckboard Type: New Lumber <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Number</th> <th>Thickness</th> <th>Width</th> <th>Length</th> </tr> </thead> <tbody> <tr> <td>7</td> <td>0.688</td> <td>5.500</td> <td>40.00</td> </tr> </tbody> </table> Volume: 7.4 bd ft		Number	Thickness	Width	Length	7	0.688	5.500	40.00	Fasteners: Fastener ID: 2 x .099 SS Fastener Type: Helically Threaded Nail Fastener Length: 2.00 Thread Length: 1.25 Thread Diameter: 0.115 Wire Diameter: 0.099 Head Diameter: 0.250 Helixes: 5.4 Flutes: 4 Thread Angle: 69 MIBANT Angle: 36 FWI: 63 FSI: 55 Total Number: 120					
Number	Thickness	Width	Length												
7	0.688	5.500	40.00												
Bottom Deck: Style: Deckboard Type: New Lumber <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Number</th> <th>Thickness</th> <th>Width</th> <th>Length</th> </tr> </thead> <tbody> <tr> <td>3</td> <td>0.688</td> <td>5.500</td> <td>40.00</td> </tr> </tbody> </table> Volume: 3.2 bd ft		Number	Thickness	Width	Length	3	0.688	5.500	40.00	New Lumber: Lumber ID: KD HT Softwood <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Species Class</th> <th>Grade</th> </tr> </thead> <tbody> <tr> <td>SPF</td> <td>Utility &BTR</td> </tr> </tbody> </table> Moisture Content (at manufacture and assembly): Kiln Dry - 19% Total New Lumber Volume: 17.5 bd ft		Species Class	Grade	SPF	Utility &BTR
Number	Thickness	Width	Length												
3	0.688	5.500	40.00												
Species Class	Grade														
SPF	Utility &BTR														
Stringers: Type: New Lumber <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Number</th> <th>Width</th> <th>Height</th> <th>Length</th> </tr> </thead> <tbody> <tr> <td>4</td> <td>1.500</td> <td>3.500</td> <td>48.00</td> </tr> </tbody> </table> Volume: 7.0 bd ft		Number	Width	Height	Length	4	1.500	3.500	48.00						
Number	Width	Height	Length												
4	1.500	3.500	48.00												

EMD BASIC PACKAGING REQUIREMENTS

MH-200 HEAVY DUTY PALLET



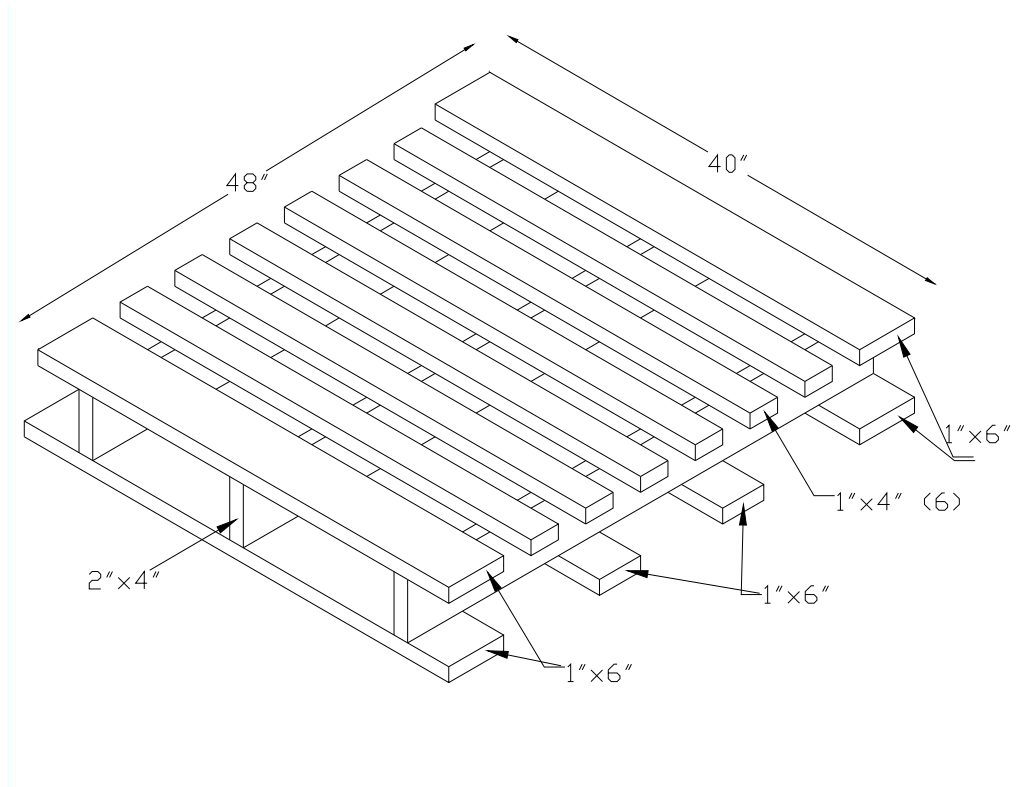
PALLET SPECIFICATIONS:

- 1 All lumber must be a species of hardwood (Ex. Oak, Ash, Hickory and Maple)
- 2 Load limit, 6000 lbs
- 3 Length and width $\pm 1/8"$ is allowed
- 4 Assemble pallet with hardened screw drive nails, (3-1/2" x .120", and screw head dia. 1/4" $\pm 1/64"$).
- 5 All 6" boards have (3) nails per joint; 4" boards have (2) nails per joint.

NOTE: Material weight must be evenly distributed on the pallet. The deck boards must not be used to support the weight of heavy material, that weight must be transferred onto the runner boards. Because of size and weight of material, it may require an additional runner board in the design of the pallet. If the pallet exceeds 60" in length, 4-way entry must be part of the design.

EMD BASIC PACKAGING REQUIREMENTS

WINGED PALLET



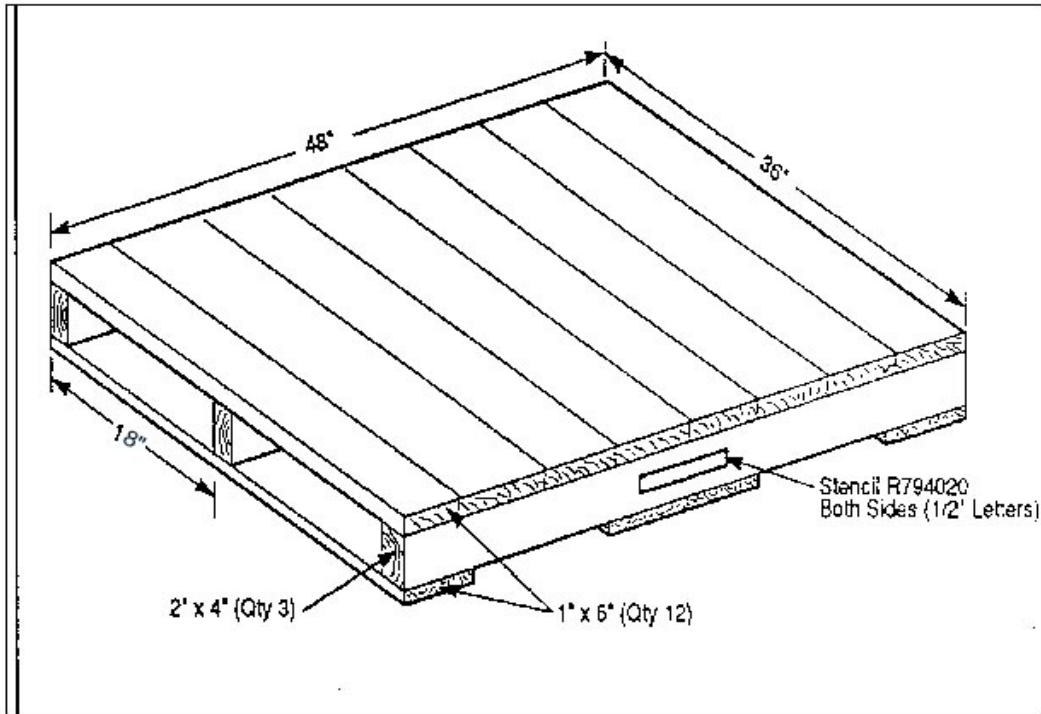
PALLET SPECIFICATIONS:

- 1 Top deck end boards are 1"x6". The other six (6) top deck boards are 1"x4".
- 2 All bottom deck boards are 1"x6".
- 3 Runners are a minimum 1 ½" x 3 ½" (may be cut rough).
- 4 Lumber must be a species of hardwood (Ex. Hickory, Oak, Maple, and Ash).
- 5 Must be assembled using screw nails.
- 6 Load limit is 3000 lbs.

NOTES: Winged pallets are designed to accommodate heavy loads (castings, forgings, etc.).

EMD BASIC PACKAGING REQUIREMENTS

APPROVED UNIVERSAL PALLET FOR EM CANADA COMPANY R794020



SPECIFICATIONS:

1. Solid top decks (8 pieces) and end boards are 1" x 6", (rough cut, random width preferred).
2. All bottom deck boards (4 pieces) are 1" x 6" (rough cut, random width preferred).
3. Runners are 2" x 4" (nominal).
4. **All lumber must be a species of hardwood (Ex. Oak, Ash, Hickory, and Maple).**
5. Must be assembled using 3" spiral nails.
6. R794020 must be stenciled in 1/2" high characters centered over each outside runner.

When a non-standard pallet must be used due to the size and characteristics of the material the supplier must utilize a pallet with construction similar to R794020. If the pallet exceeds 60" in length, 4-way entry must be part of the design. Material weight must be evenly distributed on the pallet. Contact the EMCanada Co. Material Handling/Packaging Representative at 519-452-5206 if more information is required. The Material Handling/Packaging Representative has Preferred Pallet Suppliers who will extend EMCanada Co. pricing onto their suppliers. Supplier contacts are available upon request. **Contact your EMCanada Co. or EMDiesel Representative at 519-452-5206.**

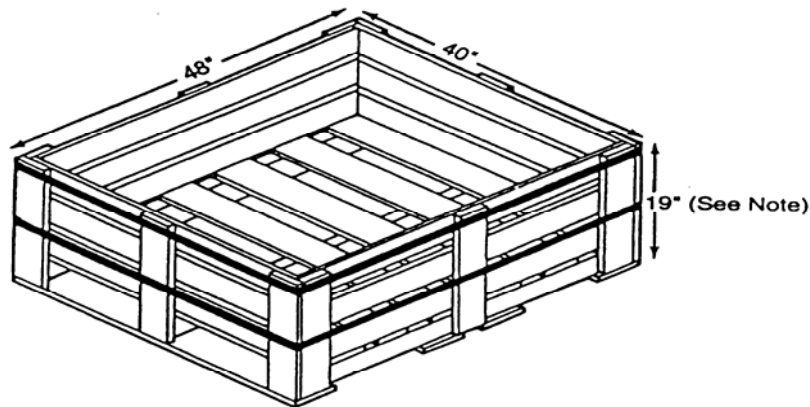
REUSABLE CONTAINERS (WOOD PLASTIC STEEL PALLETS) EMCanada Co.

All returnable containers must be clearly marked "**Returnable**". Prior authorization for their use must be obtained from the Material Handling Department at EMCanada Co. Shipment of returns back to suppliers can be arranged through the Shipping Department at 519-452-5206.

EMD BASIC PACKAGING REQUIREMENTS

When a wooden pallet has been specified or is required for reasons of strength or durability it must be 36" wide x 48" long. See attached drawing R794020. Specialty designed pallets may be available for parts which do not fit on this size of pallet. Contact the EMCanada Co. Material

WOOD BOX PALLET MH-6020 FOR CASTINGS, FORGINGS, BULK HEAVY MATERIAL



PALLET SPECIFICATIONS:

- 1 Top deck end boards are 1" x 6" (min. 5/8" x 5-1/2"). The six (6) other top deck boards are 1" x 4" (min. 1/2" x 3-1/2").
- 2 All bottom deck boards are 1-1/8" x 6" (min. 1-1/8" x 5-1/2") and must extend a maximum of 3/4" beyond runners at sides and ends.
- 3 Runners are a minimum 1-1/2" x 3-1/2" (may be rough cut).
- 4 All lumber must be a species of hardwood (Ex. Oak, Hickory, Maple, and Ash)
- 5 Must be assembled with screw nails.

BOX SPECIFICATIONS:

- 1 All boards for sides, ends and cleats are 1" x 4" (minimum 5/8" x 3-1/2").
- 2 Three (3) horizontal boards are required on sides and ends. Vertical boards must rest on extended bottom deck boards.
- 3 All lumber must be a species of hardwood (Ex. Oak, Ash, Hickory and Maple)
- 4 Vertical boards must be nailed to runners.
- 5 Tack nail at top of box while banding.
- 6 Strap horizontally at top and middle with two (2) 3/4" x .023 minimum flat steel strapping.

NOTE: Standard height of pallet box from floor is 19". The box sides may be increased to a height up to 25", if the load is of such dimension that it exceeds the height of the standard side. This prevents stacking a pallet box on top of a load. A higher side will require additional horizontal boards.

EMD BASIC PACKAGING REQUIREMENTS

APL WAREHOUSE DISTRIBUTION FOR EMD

BASIC GUIDELINES

Material received into Electro Motive Diesel Parts Center, APL Distribution Center, must be packaged ready to go into the APL inventory and it must adhere to all the applicable packaging requirements as mentioned above. EMD must service their customer in a quick, efficient and cost effective manner and the EMD supplier can assist by preparing the parts in their appropriate packaging ready for APL to Pick Pack and Ship!

No supplier logo (symbols, names or addresses) is to appear on the packaging, i.e., cartons, boxes, over-pack, labels, etc.

EMD is not expecting to be involved in the detail of individual parts packaging other than the directives in this packaging requirement's booklet. If a problem or question arises, call the APL Packaging Coordinator for assistance 708-387- 3976.

SERVICE PARTS SHIPMENTS

Parts packaged, stored in the warehouse at APL will ship to both export and domestic customers and the final destination is not known until the parts order is taken and processed. Therefore, careful and cost competitive packaging must be selected. That being said, all parts susceptible to corrosion or damage must receive packaging that will sustain protection for two years of storage.

Questions regarding packaging quantity per pack for individual packages and whether the packaging should be wood, corrugate or a combination of the two that is to be determined by the APL Packaging Coordinator (708) 387-3976. In addition look to the purchase order for additional packaging and customer requirements information.

Corrugated Packaging materials, a large percentage of the parts stored APL Distribution is packed in corrugate boxes. It's costly for EMD to carry an excess inventory of packaging material and ship it to the suppliers. In the future suppliers are asked to purchase their own packaging materials.

PARTS ASSEMBLY COMPONENT KITS

Multiple part numbers all packed in separate boxes when joined together become an assembly (example 3 boxes marked as 1 of 3, 2 of 3 and 3 of 3), place these in a bulk corrugate kit box similar to that as shown on pages 5 and 6. When the kit is received at APL it will be shipped to the customer in that bulk box as a complete part assembly kit.

LABEL PLACEMENT ON CORRUGATE BOXES SHIPPED TO APL PARTS DISTRIBUTION

Follow the guidelines as shown in the labeling section of these requirements.

EMD BASIC PACKAGING REQUIREMENTS CORRUGATE

The supplier to EMD of corrugate packaging is:

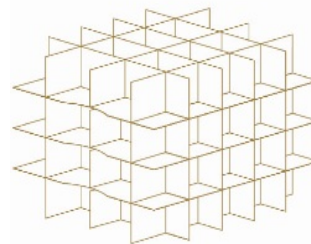
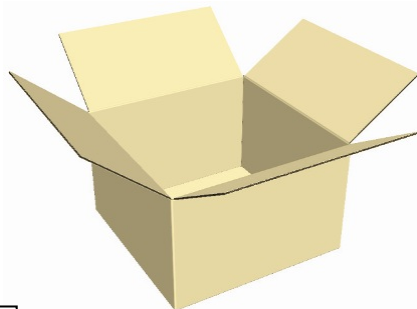
Batavia Container

400 Paramount Pkwy
Batavia IL 60510
Randy Wians
Account Development Manager
P- 630-879-2100
F- 630-879-2276
E- randyw@bcibox.com
Website address – www.Bataviacontainer.com

As information to the EMD suppliers, Batavia Container provides corrugate boxes to EMD. Suppliers will receive EMD pricing for boxes they wish to purchase. The factors which might affect the pricing the supplier will receive are the quantity of boxes ordered and shipping costs must be considered.

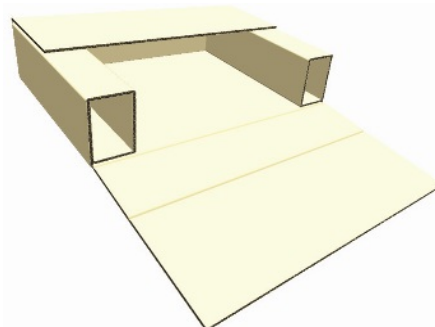
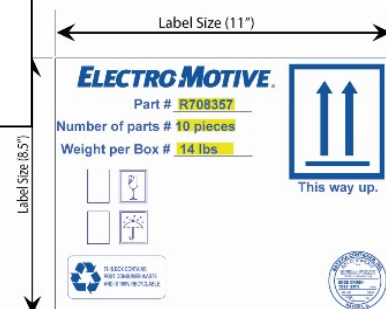
Batavia Container will supply:

- Standard cartons through custom die cuts, and printing on boxes up to 4 colors.
- Special coatings are available to protect parts from moisture, oil, solvents and more and when used the corrugated cannot be recycled. Request approval before applying a coating to corrugated board
- A custom and standard design concept is available.
- Engineers are available on site to assist with packaging designs and will create and guide you towards the best possible solution.
- Custom Kit box designs are available.
- Batavia Container will design cost effective packaging, we specialize in analyzing a best possible solution for a package.
- Below are some of Batavia's capabilities to support your needs.



Partitions.....
various sized
compartments

Printing can
be added to
the corrugate
box



INSTRUCTIONS FOR ATTACHING THE REQUIRED DOCUMENTS TO SHIPMENTS AND BAR CODE REQUIREMENTS

The required documents/labels are: Packing List, Address Label, Mix Load Label, Part Identification Label and Bill of Lading

INTRODUCTION:

These shipment markings are essential to Electro-Motive Diesel, Inc. they compliment our Receiving, Scheduling, and Accounts Payable Systems and are MANDATORY when making shipments to EMD. We expect vendors to be 100% compliant in how they prepare and present these documents to EMD. Electro-Motive Diesel, Inc. audit practices dictate that VENDORS ARE NOT PAID unless the "Invoice" and receiving document (Packing List) information match PERFECTLY.

SUMMARY: Definitions and explanations of the labeling and bar code requirements:

Packing list: Required for every shipment and the information as defined in the Packing List Label requirements (shown below) must be bar code readable.

Address Label: Must be visible and can be affixed to the outside of a box, containment device or to stretch film if it is used contain smaller boxes on a pallet.

Mix Load Label: Placed on a pallet or to the outside of a box with many smaller boxes having different part number stacked within. It's a "flag" for EMD; there are many different part numbers in the bulk box or on the pallet.

Part Identification Label: It's required on the outside of each individual packaged carton or box. It identifies the parts and quantities contained inside individual boxes

REQUIREMENTS:

Be certain that the shipments of mixed part numbers routed to different plants are separated according to their EMD Purchase Order Number. In addition, part number identification is required on each individual carton within the pallet or a bulk box. **At no time is it permitted to stack material on a pallet or in a bulk box in such a manner that part number identification and packing list is not visible. This must be done so that EMD will not be required to re-palletize the material before it can be received into the EMD warehouse.**

General Requirements:

1. Each shipment MUST have a packing list, placed in a Packing List envelope and affixed on the outside of a container that is marked "1 of X" of the shipment. All item/part number information must be legible and available on one side of a single sheet of the packing list. If a Master Label is used it must be included with the packing list. (When the packing slip does not have bar codes).
2. In a shipment of multiple packages the Packing List must be displayed on the top carton and a label that states the number of cartons, "1 of ___", and must easily be visible. In addition, each carton must be marked "1 of ___", "2 of ___", etc. (See example)

3. The BOL must specify the NUMBER and TYPE of containers in the shipment (box, pallet, reel, drum, etc.)
4. A specific shipment will not include multiple packing lists for the same material part number. We prefer to have a part number material listed only once on the packing slip with a total quantity for that shipment.
5. Each shipment must have a unique identifier (packing list), we prefer the unique identifier to be called "Packing List" and it must be assigned a number and it must be clearly marked on the invoice in the upper right hand corner.
6. The Bill of Lading will list all the packing lists that are part of the shipment.
7. An invoice is to reference only one packing list. See EMDiesels Website for further information.

Detail Requirements: (The item number related to example document)

Suppliers are required to apply Bar Code Symbol EAN 128 Labels. No data identifiers are to be used. Below are examples of 3 labels- Address Label, Mixed Load, and the part identification labels. Suppliers are required to attach these labels to each shipment of material.

For all labels that require bar code symbols the quantity shipped box can not contain more than 3 decimal places; do not use commas between the numbers and a decimal point is not needed for whole numbers.

Mixed Load Labels are required when more than one part is a on a (HU) / Pallet. This is to ensure we are aware of all parts in a container.

Address Label INSTRUCTIONS

Address Label 4X6 - An address label is required on each Handling Unit.

Ship To:
Address from PO.
Text Height =
approx 1"



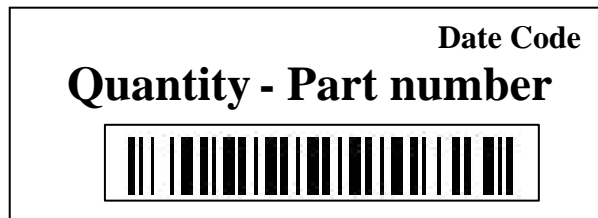
Mixed Load Label INSTRUCTIONS

Mixed Load Label 4X6 – This is used when more than one part is on a (HU) Handling Unit.

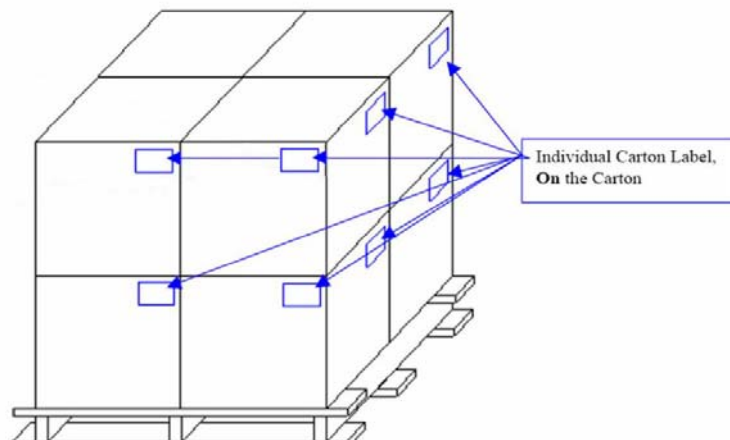


Part Identification Label Instructions

The supplier is to provide a part number identification label, of a generic design and it must have the following information: Part number, Quantity, manufacturing Date Code if it is not known the shipping or packaging date will be accepted. **Note: if the part is date sensitive then it is mandatory the expiration date be applied to the label!**



A carton, which is a complete container in itself, whether palletized or loose it, must have a Part Identification Label. The acquisition of the label is the responsibility of the supplier.



EMD BASIC PACKAGING REQUIREMENTS PACKING LIST INSTRUCTIONS

Packing List data requirements:

1. The unit of measure needs to be the same as the purchase order unit of measure
2. Vendor name and address
3. *Vendor Code
4. *Purchase Order Number
5. *Purchase Order Line Item
6. *The EMD material number, and where applicable the related serial number as specified by the Purchase Order
7. *Unit of measure
8. *Identify the unique packing slip number in the upper right hand corner of the document.
9. *BOL Number
10. Mode of shipment to EMD, including carrier and type of vehicle, as specified on the EMD purchase order
11. EMD Warehouse designation and delivery address as specified on the purchase order
12. Only the quantity shipped is to be shown. The quantity ordered and the quantity back ordered is NOT to be shown on the packing slip.
13. The description of the material as specified on the EMD Purchase Order.
14. EMD Customer Order, modification, and specification information as specified on the EMD Purchase Order.
 - Identifies the items that need to be bar coded. The bar code can be on the packing slip or on a master label as shown below.

Example Manufacturing
123 Requirements Lane
Chicago, IL

Packing List

SHIP TO
ELECTROMOTIVE DIESEL INC.
WHSE 529 DOCK P
6600 RIVER ROAD
HODGKINS IL 60525

SOLD TO
ELECTROMOTIVE DIESEL INC.
VENDOR CODE
303136

Order Comments

UNIQUE ID
BOL/SID # XYZ123456

Pack List Number:
198457

Customer PO
5500035803

SHIP DATE: 8/17/09

ROUTING: Shipping Point

Shipping instructions: CENTRAL

ORDER: 1231704 Accepts Backorders? REV/RMA REV NR

LINE NO.	QTY Shipped	Part Number	Customer Part No.	Description	UOM
00010	710	5987-807	40083872	O-RING, 5-1/4 ID	EA
<p>00010 710 40083872 EA</p>					
<p>HS CODE 4016.93.1010:TW</p>					

Vendor Code
6 Characters
Bar code req. = 128 approx .5"

Packing Slip # (Unique to shipment)
Up 16 characters
Bar code req. = 128 approx .5"

Purchase Order #
10 characters
Bar code req. = 128 approx .5"

BOL /SID #
4 -10 characters
Bar code req. = 128 approx .5"

Concatenated Field: PO Line Item|Quantity|Part Number|UOM
 Characters should match the characters from individual data element. This data is a string of data separated by a Half Pipe "|". No spaces between the data elements.
 Bar code req. = 128 approx .5"