



Doing Business With Harley-Davidson, Packaging

Original Equipment and Custom Vehicle Operations
Last Update: 2007

INTRODUCTION

This document details the minimum acceptable packaging requirements for purchased components used at Harley-Davidson's assembly and powertrain facilities. The principal objective of these requirements is to guarantee part quality, maximize production efficiency, and ensure safety while minimizing overall packaging and transportation costs.

There may be additional packaging requirements for the Harley-Davidson P&A Distribution Center. The majority of these requirements are addressed in this document. However, more detailed specifications are presented in the "Packaging and Labeling for Inbound Parts & Accessories" document on H-DSN.

Suppliers interested in more information regarding these requirements or seeking technical assistance should contact their Harley-Davidson purchasing representative who can direct them to the appropriate packaging resource.



TABLE OF CONTENTS

1. Packaging Part Quoting
2. Packaging Sketch Form
3. Packaging Design
4. Packaging Safety and Ergonomics
5. Returnable Packaging
6. Expendable Packaging
7. Pallets
8. Labeling and Identification
9. Hazardous Materials
10. International Suppliers
11. Terms and Definitions



PACKAGING PART QUOTING

It has been determined that clear communication of packaging information prior to suppliers' quoting process, would help close the gap between quoting and defining product delivery expectations.

The decision to use expendable or returnable packaging for incoming original equipment (OE) parts is a consideration of many factors such as safety, quality, and cost. To aid in the decision-making process, suppliers should quote the part cost using both expendable and returnable packaging, and record the container size and density assumptions made while quoting. A sample Request for Quote (RFQ) document is included below.

If the new part being quoted is similar to or a revision of an existing part, assumptions may be made that packaging for the new part will be of the same manner as the current part at the same H-D facility. If the new part is not similar to an existing OE part or if the supplier is new, the H-D Materials stakeholders will evaluate if returnable or expendable packaging will be the primary path.

Part quotes that involve a multiple tiered supply chain should quote the part cost with the assumption that H-D returnable packaging is used only for the finished part shipment freight on board (FOB) to the H-D plant.

**Note: Below is just an example of the form. Contact your purchasing representative to obtain an electronic copy of the RFQ.*



Doing Business With Harley-Davidson, Packaging
Original Equipment and Custom Vehicle Operations
Last Update: 2007

PACKAGING SKETCH FORM

The packaging sketch form is a tool used to communicate packaging plans between all internal and external stakeholders. The form is used to communicate the concept and/or final packaging plans, as well as the primary and backup packaging plans. An electronic copy of this form may be obtained from the packaging department, or by requesting it from your purchasing analyst.

The data in this form is completed by packaging personnel at Harley-Davidson, or at an OE supplier, or a combination of both. Electronic copies of the form are required for storage and retrieval. The following instructions correspond to the different section headings in gray. A completion matrix defining who is responsible for completing each section is shown below.



PACKAGING SKETCH FORM

<input checked="" type="checkbox"/> Concept	<input type="checkbox"/> Primary Pack
<input type="checkbox"/> Final	<input type="checkbox"/> Backup Pack

Supplier & Logistic Information					Part Information			
Supplier Name	Vender Code	Supplier Contact	E-Mail	Phone #	H-D Part Number	Part Weight (lbs)	Part Name	Supplier Cost P/Prt
FOB to H-D	Name	Address	City	State				
Carrier Type	In-Bound Frequency	Zip	Notes:					
General Information			Return Info		H-D Part Usage Information			
Model Year	Platform	Project	Reverse Logistics	Corrosion Prevent	Plant/Cell	Parts/Day	EAU	Hrs Inventory/Ctr
PKG Responsibility	Funding Responsibility		In-Plant Process	Point of Use Delivered	Part Name	Parts/Hour	ADU	Mir/Max
Dunnage Description			Part #	Part Qty	Part Name	#DIV/0!	0	
Paste Photo Here			Paste Photo Here			Paste Photo Here		
Packaging Part #	Description	Material Type	Returnable/Expend	Magin Part #	Container Pack Qty	OD in inches	Configuration #	
							Dimensions Inches	
				Empty Ctr Weight lbs	Total Dunnage Wgt	Loaded Container Wgt	Gross Weight	
						0	Ctrs per layer	
				Container Type	Return/Expend	PKG Gen Assy #	Layer per Pallet	
Notes:							Parts per Pallet	0
Approvals								
Name	Position	Signature	Date	Name	Position	Signature	Date	

Note -- container weight calc is taking only weight of date in cell K6.
Note -- Do not enter information in green colored cells. These contain formulas drawing on info entered in other cells.



Doing Business With Harley-Davidson, Packaging

Original Equipment and Custom Vehicle Operations

Last Update: 2007

Supplier & Logistic Information

- Tier 1 Supplier Name and contact information
- FOB shipping point to H-D Location & address – supplier may have several facilities in various geographical locations. Important to record for container reverse logistics, as well as value stream mapping requirements.
- Note type of transportation used – H-D Fleet, Local Man-Tran, or Common Carrier. This may change throughout parts' lifecycle, but this records current state.
- Use Notes field to record any other pertinent information.

Part Information

- Record part number and description that will use this packaging.
- Record supplier's packaging cost per part.
- If returnable, this cost will indicate additional supplier costs, such as pallets, stretch film and banding.
- If expendable, this cost can be used in the future for cost analysis of returnable systems.
- If backup, this cost is the agreed upon cost for reimbursing suppliers when returnable containers are not available.

General Information

- What is the model year of the project, the platform & project name, who has packaging design responsibility and what is the packaging funding source.

H-D Part Usage Information

- This information must be completed by an H-D Packaging engineer.
- Delivery to assembly would be determined by assembly engineer and plant materials group.
- Assembly engineer will determine container min/max and the point of use location(s).

Dunnage Description

- Record all Team Center packaging part numbers to be used and the component description.

Primary Container

- Record Team Center packaging part number, as well as the packaging assembly number
- Record outside dimensions in inches, empty container weight in pounds, loaded container weight in pounds, container type, and container pack quantity (CPQ).

Pallet/Order Multiple Information

- Team Center configuration number is recorded.
- Record pallet dimensions
- Gross Weight
- Number of containers per layer, layers per pallet, parts per configuration.



Doing Business With Harley-Davidson, Packaging

Original Equipment and Custom Vehicle Operations

Last Update: 2007

Approvals

- Each site and each assembly/manufacturing area will have unique requirements around who needs to review, approve, and sign-off.
- For new model projects, a launch team should be identified early in the process. The team may consist of the assembly and/or manufacturing engineer, material handling, purchasing, safety, Materials Velocity Center (MVC) lead, supplier, work group, etc.
- For Continuous Improvement (CI) projects, the plant packaging engineer will direct the approval process required.

Form Completion Responsibilities

Packaging Type	Form Section Name	Supplier Packaging Engineer	H-D Packaging Engineer	H-D Approval Team	Not Required
Expendable Primary	Supplier & Logistic Info	X			
	Part Info	X			
	General Info	X			
	Return Info				X
	H-D Part Usage Info		X		
	Dunnage Description	X			
	Primary Container	X			
	Pallet/Shipping Mult Info	X			
	Approval Signatures	X	X	If deviates from Standard Size	
Returnable Primary	Supplier & Logistic Info	X			
	Part Info	X			
	General Info		X		
	Return Info			X	
	H-D Part Usage Info		X	X	
	Dunnage Description	If Expendable	If Returnable		
	Primary Container		X		
	Pallet/Shipping Mult Info		X		
	Approval Signatures	X	X	X	
Backup Pack	Supplier & Logistic Info	same as primary			
	Part Info	same as primary			
	General Info	same as primary			
	Return Info				X
	H-D Part Usage Info	same as primary			
	Dunnage Description	X			
	Primary Container	X			
	Pallet/Shipping Mult Info	X			
	Approval Signatures	X	X	X	

Timing Requirements for Sketch Forms

- A document indicating the packaging concept, or initial plans for packaging of a new model part should be submitted to the H-D packaging engineer in the timeframe of the Design Intent Build (DIB). A small run of parts will be completed at the supplier, at which time packaging plans should be initiated. This would be the concept for the primary packaging of the part.
- The final packaging form must be completed in the timeframe of the First Production Event (FPE) build. Parts for FPE must be shipped to the H-D plant in the intended production packaging. This



Doing Business With Harley-Davidson, Packaging Original Equipment and Custom Vehicle Operations Last Update: 2007

may be a prototype container, but it should be of the design form, fit, and function of the intended final packaging.

- In the case of returnable packaging being the primary path, a documented backup expendable plan is required. Completion of the backup packaging sketch form must be completed six-weeks prior to launch.

**Note: The above timing refers to new part introduction methodology driven by the Product Development Center. For continuous improvement projects, the steps are the same, but timing is not driven by a formal build event.*



PACKAGING DESIGN

Harley-Davidson is responsible for the design, development, and implementation of returnable packaging. Suppliers are responsible for the design and procurement of expendable back-up packaging. The expendable back-up design is required to be completed prior to the production launch. Proper documentation of back-up packaging is required and must be completed by filling out the Packaging Sketch Form.

It is the responsibility of the supplier to design and develop expendable packaging. The expendable packaging design must provide adequate protection to ensure safe delivery of packaging and components to Harley-Davidson free of damage. It is important for the supplier to begin the packaging design process early in the part development cycle. Suppliers must contact the respective Harley-Davidson packaging engineer when designing the package to ensure that it meets each site's internal logistical and ergonomic requirements. Although Harley-Davidson assists in the packaging process, the supplier is directly responsible for the performance of the final expendable packaging design.

Multiple part numbers should not be packaged in the same container without authorization from the appropriate Harley-Davidson purchasing representative, and the appropriate Harley-Davidson packaging engineer. In addition, containers should not include parts for more than one Harley-Davidson facility or assembly line.



PACKAGING SAFETY AND ERGONOMICS

Safety and Ergonomics are a primary concern for Harley-Davidson in regards to the development of packaging. Suppliers must consider human interaction when designing packaging to ensure safety and prevent injuries both at Harley-Davidson and supplier facilities. Suppliers are highly encouraged to initiate ideas to improve the safety, quality, cost and efficiency of any existing product packaging. Consideration of the human tolerance to fatigue must be given priority when developing any packaging or material handling systems to prevent injuries and accidents.

Harley-Davidson requires all manually handled packages to be less than 40 pounds and of a physical size easily controlled. Anything between 35 and 40 pounds must be approved by Safety and Packaging prior to implementation. Packages over 40 pounds must be secured to a pallet so that they can be moved with a fork truck. Expendable boxes that exceed 22 inches in height, including pallet, will require a drop panel to allow access to the parts. The drop panel must create an opening of 50 percent of the container wall height and 80 percent of the container-wall-width dimension.

Ergonomic Job Measuring System (EJMS) studies can be completed by Harley-Davidson Safety for new special design packs or any pack that causes concern for the safety and well-being of the individuals that must utilize this packaging.

All containers and palletized loads must be stackable unless part configuration and weight requirements do not permit. In these cases, prior approval must be received from the appropriate Harley-Davidson purchasing representative. Packaging and pallets must be in good repair and working condition prior to shipment to Harley-Davidson.

Any deviations from these requirements must receive prior authorization from the appropriate Harley-Davidson purchasing representative.



RETURNABLE PACKAGING

Harley-Davidson is committed to utilizing returnable packaging whenever feasibly possible. Returnable packaging includes any facets of the component packaging including containers, pallets, and custom-made packaging. Returnable packaging is considered anything that is used to ship a part multiple times. Types of returnable containers may include but are not limited to; plastic totes, pallet boxes, wire mesh baskets, double or triple-wall corrugated containers, metal bins, and reusable drums or barrels. Returnable pallets may be produced from plastic, wood, or metal. Specialized returnable packaging includes dunnage, racks, carts, injection molded custom trays and vacuum-formed tray packs and sleeve packs that are produced specific for a particular component or application.

Transition from expendable to returnable packaging must prove to be economically feasible in all aspects including freight, tooling, and total cost per container. Capital funding for returnable packaging projects must be supported by a business case analysis.

Returnable Container Implementation

A Harley-Davidson packaging engineer will choose a standard size container which best fits the part application. Based upon any special needs or part requirements, a unique container with specialized dunnage may be required. The container concept will be designed, developed and reviewed with the appropriate internal and external stakeholders. Following concept approval, a sample container will be ordered (if specialized) for trial shipment into the assembly plant for final approval. Following final approval, container system quantities are determined and containers are allocated to the supplier.

Container System Quantities

The container system quantities are determined by defining the value stream of the component(s) being packaged. The goal of the value stream map is to define all internal and external process requirements and to minimize the quantity of returnable containers required to support delivery of parts to Harley-Davidson. Minimizing the quantity of returnable packaging in the system is a conscious effort to control total cost and promote lean manufacturing. Harley-Davidson provides returnable packaging for finished goods only. Suppliers must not use returnable packaging for their internal processes or multiple tiered supply chains.

Variables of a value stream map may include, but are not limited to the following:

- Days in inventory at the supplier
- Days in transit to and from supplier to H-D
- Days in inventory at H-D
- Days allocated for return/sorting

In addition to the total number of “Days” defined in the value stream, there are two additional variables required to calculate the total number of returnable containers. These two variables include the part’s average daily usage (ADU), and the container pack quantity (CPQ). Once this information is defined the following formula is used to calculate the system requirements.



Doing Business With Harley-Davidson, Packaging
Original Equipment and Custom Vehicle Operations
Last Update: 2007

(ADU/CPQ) * Total Value Stream Days

Returnable Container Standards

Many parts can be shipped in standard containers. Some examples include plastic tote containers, collapsible plastic bulk containers, etc. Please see below for complete listing.

STANDARD CONTAINERS

ASSEMBLY OPERATIONS (York, Kansas City, and Tomahawk)

CONTAINER NAME	-PKG Number	DESCRIPTION	Container Weights (Lbs.)	OD (in)			ID (in)			# Containers per layer	
				L	W	D	L	W	D	32" x 30" Pallet	48" x 45" Pallet
Bulk Bins											
A1	-PKG000526	Collapsible - 30 x 32 x 25	67	30.00	32.00	25.00	27.10	29.30	19.40	-	-
A2	-PKG000527	Collapsible - 30 x 32 x 34	86	30.00	32.00	34.00	27.10	29.30	28.40	-	-
A3	-PKG000528	Collapsible - 45 x 48 x 34	141	45.00	48.00	34.00	41.50	44.20	28.30	-	-
Hand Held Totes											
RSO	-PKG000522	Non-collapsible - 12 x 7.4 x 5	1.73	12.00	7.40	5.00	9.40	5.50	4.30	10	24
RC-1	-PKG000523	Collapsible - 15.5 x 11 x 7	3.9	15.50	11.00	7.00	13.90	9.70	6.25	4	12
RC-3	-PKG000524	Collapsible - 21.875 x 15.5 x 10.5	7.05	21.88	15.50	10.50	20.30	14.25	9.75	2	6
RC-5	-PKG000525	Collapsible - 21.875 x 15.5 x 14	8.4	21.88	15.50	14.00	20.10	14.25	13.20	2	6
Sleeve Packs											
Unipack	-	29 x 23 x (Variable Height)	-	29.00	23.00	-	-	-	-	-	-
Unipack	-	48 x 40 x (Variable Height)	-	48.00	40.00	-	-	-	-	-	-
Unipack	-	48 x 45 x (Variable Height)	-	48.00	45.00	-	-	-	-	-	-
Unipack	-	57x48 x (Variable Height)	-	57.00	48.00	-	-	-	-	-	-
PB Containers											
PB2	-PKG002334	PB2 Bin Container	0.3	7.00	4.00	2.90	6.00	3.40	1.60	-	-
PB3	-PKG002335	PB3 Bin Container	0.6	9.50	5.80	5.00	8.40	5.00	2.60	-	-
PB4	-PKG002336	PB4 Bin Container	1.3	12.80	8.10	6.00	7.10	3.10	3.10	-	-
PB5	-PKG002337	PB5 Bin Container	2.2	18.50	11.60	7.10	17.10	10.80	3.80	-	-
PB6	-PKG009349	PB6 Bin Container	2	15.00	12.00	7.50				-	-
Steel Racks											
48 x 30, 45, 60, 90	-	Steel Rack with Variable Heights	-	-	-	-	-	-	-	-	-
32 x 30, 45, 60, 90	-	Steel Rack with Variable Heights	-	-	-	-	-	-	-	-	-



Doing Business With Harley-Davidson, Packaging
Original Equipment and Custom Vehicle Operations
Last Update: 2007

POWERTRAIN OPERATIONS (Capitol Drive and Pilgrim Road)

CONTAINER NAME	-PKG Number	DESCRIPTION	Container Weights (Lbs.)	OD (in)			ID (in)			# Containers per layer	
				L	W	D	L	W	D	32" x 30" Pallet	48" x 32" Pallet
Bulk Bins											
A1	-PKG000526	Collapsible - 30 x 32 x 25	67	30.00	32.00	25.00	27.10	29.30	19.40	-	-
A2	-PKG000527	Collapsible - 30 x 32 x 34	86	30.00	32.00	34.00	27.10	29.30	28.40	-	-
A3	-PKG000528	Collapsible - 45 x 48 x 34	141	45.00	48.00	34.00	41.50	44.20	28.30	-	-
Pallets & Systems											
Single Sheet Thermoform 45x48	-PKG005228	Hampel/ Mirror Image (top & bottom)	-	48.00	45.00	8.25	48.00	45.00	2.25	-	-
Single Sheet Thermoform 32x48	-PKG005103	Mirror Image	-	48.00	32.00	8.50	47.50	31.50	2.25	-	-
30x36 Seat Belt Base	-PKG005564	Seat belt w/4 way entry Pallet base	11.5	37.00	31.00	6.80	36.20	30.20	5.40	-	-
30x36 Seat Belt Lid	-PKG005565	Seat belt lid	10.5	38.00	32.00	3.30	-	-	-	-	-
30x32 MBX Pallet Base	-PKG005094	Black plastic pallet base	-	31.63	25.63	6.38	-	-	-	-	-
30x32 MBX Pallet Top	-	Black plastic pallet Top	-	-	-	-	-	-	-	-	-
32x34 Thermoform Pallet	-PKG007043	Mirror image	13	34.00	32.00	6.20	33.17	31.15	5.20	-	-
Hand Held Totes											
NSO1207-5	-PKG005127	3/8 Nesting Lug	1.10	12.00	7.40	5.00	9.40	5.50	4.50	8	12
NSO1215-5	-PKG005085	3/8 Nesting Lug	1.81	15.00	12.00	5.00	13.00	9.40	4.40	4	6
NSO1215-7	-PKG002333	3/8 Nesting Lug	2.20	15.00	12.00	7.50	13.00	9.40	6.80	4	6
NSO1215-9	-PKG000070	3/8 Nesting Lug	2.50	15.00	12.00	9.50	13.00	9.40	8.80	4	6
NSO1615-7	-PKG000087	3/8 Nesting Lug	2.90	16.00	15.00	7.50	13.00	13.00	6.88	4	6
NSO1615-9	-PKG008596	3/8 Nesting Lug	3.30	16.00	15.00	9.50	13.00	13.00	8.80	4	6
NSO2415-5	-PKG002330	3/8 Nesting Lug	3.00	24.00	15.00	5.00	21.40	13.00	4.50	2	3
NSO2415-7	-PKG005578	3/8 Nesting Lug	3.60	24.00	15.00	7.50	21.40	13.00	6.80	2	3
NSO2415-9	-PKG002332	3/8 Nesting Lug	4.40	24.00	15.00	9.50	21.40	13.00	8.80	2	3
NSO2415-11.5	-PKG008302	3/8 Nesting Lug	4.40	24.00	15.00	11.50	21.40	13.00	10.90	2	3
SO3215-7	-PKG007075	3/8 Nesting Lug	5.60	32.00	15.00	7.50	29.40	13.00	6.90	2	3
Steel Racks											
48 x 30, 32, 45, 60, 90	-	Steel Rack with Variable Heights	-	-	-	-	-	-	-	-	-
32 x 30, 45, 60, 90	-	Steel Rack with Variable Heights	-	-	-	-	-	-	-	-	-
Flipak											
FP03	-PKG005075	Nesting Feature	2.1	11.80	9.80	7.70	10.10	7.80	6.50	6	9

**Note: There are no plant specific colors for returnable containers*

Specialized Containers & Dunnage

Parts may require a unique or specialized packaging design to be developed due to part characteristics such as geometry, fragility, cosmetic surfaces, etc. Identification of containers and dunnage will have -PKG numbers assigned to each component. -PKG numbers are Harley-Davidson controlled packaging part numbers that are used to define the part's packaging bill of materials.

Back-up Packaging Requirements

Production parts that are designated to be shipped in returnable containers may not be shipped in expendable containers without prior authorization from the appropriate Harley-Davidson purchasing representative. Suppliers will be responsible for the cost of any expendable packaging used as replacement unless the appropriate Harley-Davidson purchasing representative waives them of that financial responsibility.



Doing Business With Harley-Davidson, Packaging

Original Equipment and Custom Vehicle Operations

Last Update: 2007

Suppliers will establish and maintain a disposable back-up package to be used in the event that returnable packaging is not available. This disposable packaging will contain the same part quantity as the returnable pack and occupy a footprint no greater than that of the returnable pack on any dimension. Any exceptions must be approved by the Harley-Davidson packaging engineer at the using plant, prior to shipment. Suppliers will assume the responsibility for these parts arriving undamaged to their final Harley-Davidson destination. With Harley-Davidson purchasing approval, suppliers may add a surcharge to cover the additional expense for this packaging in accordance with the costs they previously provided on the Packaging Quote Form provided that they are not responsible for the returnable packaging shortage.

Volume Rate Increases

As production volumes change, the level of packaging in the system may need to be adjusted to reflect those volume changes. Similarly, as the targeted on-hand inventory levels change, so must the quantity of returnable packaging in the system. It is the responsibility of Harley-Davidson to make these calculations. Once the model planning forecast is defined, additional packaging requirements are calculated and budgeted appropriately. Any incremental packaging required to support additional volumes will be shipped to the suppliers prior to the increased requirements in the schedule. If the appropriate packaging is not provided to the supplier prior to the volume change, the supplier will be required to ship in the approved designated back-up packaging. However, proper notification and authorization is required prior to shipping in the expendable back-up packaging.

Maintenance

Both the supplier and Harley-Davidson are responsible for maintaining the cleanliness and integrity of returnable packaging. Suppliers are responsible for ensuring product is shipped in clean undamaged packaging.

Both the supplier and Harley-Davidson are responsible for monitoring and reporting packaging damage. All damaged packaging will be identified for removal from the system. It is the supplier's responsibility to notify Harley-Davidson of any damaged containers received within 24 hours of receipt. The supplier may not scrap packaging without prior approval from the appropriate Harley-Davidson purchasing representative.

Harley-Davidson is responsible for expenses incurred for the repair or replacement of returnable packaging caused by normal wear and tear. The cost of repairs which are required due to accidents or misuse will be the responsibility of the party causing the damage. All containers that are repaired must meet the original container specifications.

Items that are to be checked when inspecting returnable containers (including but not limited to):

- Cracks in the corner joints
- Missing or broken access gate hinges
- Extensive damage to the container base
- Broken off pieces



Doing Business With Harley-Davidson, Packaging

Original Equipment and Custom Vehicle Operations
Last Update: 2007

- Pierces or cuts
- Bowing sidewalls

Obsolete Packaging

Harley-Davidson is responsible for the disposition of all obsolete returnable packaging materials. Suppliers who have any obsolete dunnage or containers at their facility should contact their appropriate purchasing representative. Disposition of Harley-Davidson assets is strictly prohibited without prior authorization.



EXPENDABLE PACKAGING

Although Harley-Davidson utilizes an increasing amount of returnable packaging, a great deal of expendable packaging continues to be used. When designing an expendable container that will be the primary pack for the production part an expendable standard box size should be utilized. When designing a back-up expendable pack it is necessary to use the same footprint as the returnable container and maintain the same quantity per container.

Preferred methods used for securing containers should minimize the need for cutting the container to gain access to parts. If tape is used to secure the lid of a container, paper-packaging tape that can be torn is preferred. Staples and glues are not acceptable methods of closure for container tops, but may be contained elsewhere in the body of the container. Sealing tape must be a minimum of two inches wide and have a tensile strength of 45 pounds per square inch width. Polyester film reinforced with glass, or rayon fiber combined with a laminate of paper is not acceptable.

All expendable packaging material must be legally and economically disposable at all Harley-Davidson locations regardless of the initial location using the packaging materials. Harley-Davidson highly recommends the use of recyclable packaging materials.

Expendable Dunnage

For parts that are non-cosmetic bulk packing is acceptable, no internal dunnage is required. For cosmetic or fragile parts the use of expendable dunnage should be used sparingly to protect the quality of production parts. Bagging, wrapping, masking and taping parts should be minimized to ease the process of removing parts from the packaging. Work with a Harley-Davidson packaging engineer to approve the packaging proposal prior to implementation.



Doing Business With Harley-Davidson, Packaging

Original Equipment and Custom Vehicle Operations

Last Update: 2007

Expendable Standard Box Sizes

The following table contains nine standard box sizes for OE parts being delivered to H-D assembly and/or manufacturing facilities. These box sizes cube out H-D's standard pallet dimensions:

LENGTH Outside Dimension (in inches)	WIDTH Outside Dimension (in inches)	HEIGHT Outside Dimension (in inches)
6	6	6
12	7	5
12	15	5
12	15	9
24	15	7
24	15	15
24	22	11
32	30	25
45	48	25

Factors in Choosing Box Size

- Part Dimensions – best fit box to part.
- Part Weight – ergonomic limit for hand-held boxes is 40 pounds.
- Part Quality – partition cells, wrap, and/or cushion material required.
- Number of parts – formula to estimate the target number of parts per container is:

$$\text{EAU} \div 720 = \text{parts per box}^*$$

**Note: 720 derived from 240 production days per year and nets approximately 1/3 daily inventory per box. This formula does not work for cross-platform projects. Use 960 as the factor when quoting parts delivered to Pilgrim Road. CVO factor is 240.*



PALLETS

Harley-Davidson requires all suppliers to ship in on standard size pallets. Below are the specifications that need to be met to ship product to Harley-Davidson.

Disposable Pallet Materials

Wood, metal and plastics are acceptable materials as long as the pallet meets the criteria in this specification. Expendable corrugated pallets are not acceptable unless approved by a Harley-Davidson packaging engineer. Harley-Davidson does not provide expendable pallets for supplier shipments.

Environmental Issues

All international wood packaging shipments, including pallets must comply with USDA treatment and labeling standards. These standards can be obtained at:

http://www.aphis.usda.gov/import_export/plants/plant_imports/wood_packaging_materials.shtml

Returnable Pallet Materials

Reusable transport pallets are provided at the discretion of Harley-Davidson. A Harley-Davidson packaging engineer will determine if and when to use returnable pallet programs.

Pallet Dimensions (Length & Width)

York	48"x 45" or 32"x 30"
Kansas City	48"x 45" or 32"x 30"
Tomahawk	48"x 45" or 32"x 30"
Pilgrim Road*	48"x 32" or 32"x 30"
Capital Drive*	48"x 32" or 32"x 30"

**Contact the H-D packaging engineer for approval to use the 45"x48" pallet*

Loaded Pallet Height

The overall load height must not exceed the following limits:

<u>Pallet Dimensions:</u>			
Length	32	inches	
Width (b)	30	inches	
Height (hcg)	37.5	inches	MAX Stack height

<u>Pallet Dimensions:</u>			
Length	48	inches	
Width (b)	32	inches	
Height (hcg)	40	inches	MAX Stack height

<u>Pallet Dimensions:</u>			
---------------------------	--	--	--



Doing Business With Harley-Davidson, Packaging

Original Equipment and Custom Vehicle Operations

Last Update: 2007

Length	48	inches	
Width (b)	45	inches	
Height (hcg)	50	inches	MAX Stack height

Pallet Capacity

The loaded gross weight of a pallet load must not exceed 1200 lbs. unless otherwise approved by Harley-Davidson.

All pallets shipments need to withstand being double stacked during transportation. Shipments need to be double stacked in trailers to maximize cube space and efficiency of transportation vehicles.

Pallet Style and Type

All pallets must be four-way entry notched stringer pallets. They must be flush (no winged) reversible or nonreversible stringer pallets. For safety considerations block style pallets are generally not accepted. Pallet construction must meet the standards defined by the National Wooden Pallet/Container Association.

1800 North Kent Street Suite 911

Arlington, VA 22209-2104

(703) 527-7667

www.nwpc.com – General Website

<http://www.nwpc.com/IndustryStandardsSpecifications/Standards.htm> - Standards Website

Pallet Loading

No overhang of boxes is allowed. Under-hang is only allowed as long as 90% of the surface is utilized.

All packages must be secured to prevent the load from shifting during transit. Nonmetallic (plastic) strapping is required on all shipments. Metal strapping/banding is not acceptable. Stretch film may be required to ensure the load does not shift during transit and should be used in addition to nonmetallic strapping.



LABELING AND IDENTIFICATION

This section provides links for specific labeling requirements for inbound shipments to Harley-Davidson's powertrain and MVC facilities.

B-10 Labels

<http://www.h-dsn.com/genbus/PublicDocServlet?docID=69&docExt=pdf>

B-12 Labels (*Applies only to Capitol Drive, Pilgrim Road, and Tomahawk facilities*)

<http://www.h-dsn.com/genbus/PublicDocServlet?docID=81&docExt=pdf>

Sequencing & Kitting Labels

<https://www.h-dsn.com/genbus/PublicDocServlet?docID=152&docExt=pdf>

New Parts Cage Labels

<http://h-dsn.com/genbus/PublicDocServlet?docID=147&docExt=pdf>



Doing Business With Harley-Davidson, Packaging
Original Equipment and Custom Vehicle Operations
Last Update: 2007

HAZARDOUS MATERIALS

Hazardous Materials

All suppliers and/or shippers are responsible to comply with all applicable international, national, federal, provincial, state or local laws and regulations for packaging hazardous materials (*packing, marking, labeling, describing and certifying*).

U.S. Federal regulations including [Hazardous Materials Regulations \(Title 49 CFR Parts 100-185\)](http://www.hazmat.dot.gov/regs/rules.htm) can be obtained at: <http://www.hazmat.dot.gov/regs/rules.htm>



Doing Business With Harley-Davidson, Packaging
Original Equipment and Custom Vehicle Operations
Last Update: 2007

INTERNATIONAL SUPPLIERS

General Packaging Requirements:

International suppliers must comply with all packaging requirements defined or referred to within this document unless noted below.

Returnable Packaging Materials

The majority of international source parts are packaged in expendable packaging. Requests for an analysis of returnable vs. expendable packaging can be initiated by contacting your Harley-Davidson purchasing representative. The Harley-Davidson purchasing representative and the packaging engineering group will investigate the opportunity.

Environmental Requirements:

All international wood packaging shipments, including pallets must comply with USDA treatment and labeling standards. These standards can be obtained at:

http://www.aphis.usda.gov/import_export/plants/plant_imports/wood_packaging_materials.shtml



TERMS AND DEFINITIONS

AIAG (Automotive Industry Action Group) – A North American based association focused on continuously improving business processes and practices in the automotive supply chain.

Back-up Packaging – Temporary or expendable packaging which is utilized when primary packaging is not available.

Banding – Material that is used to secure a load to a shipping platform or pallet.

Block Style Pallet – A type of pallet with blocks between the pallet decks or beneath the top deck.

Box Over-hang – The portion of the unit load that exceeds the width or length dimension of the pallet.

Box Under-hang – The portion of the unit load that is less than the width or length dimension of the pallet.

Common Carrier – An organization that transports goods and offers its services to the general public.

Design Intent Build (DIB) – Pre-launch build event

Dunnage – Any material used to secure and/or protect product during shipment.

Ergonomic Job Measurement System (EJMS) - The analysis of complex physical relationships between people, machines, job demands and work methods.

Expendable Packaging – Disposable or limited use (Not Returnable)

First Production Event (FPE) – Pre-production build event

Four Way Entry Pallet – A pallet configuration which permits the insertion and removal of handling equipment from all four sides of the pallet.

Freight On Board (FOB) – A term used in shipping to refer to the place where the buyer becomes responsible for the shipment and the shipping charges.

H-D Fleet – Harley-Davidson owned and operated truck fleet

Material Velocity Center (MVC) – Harley-Davidson OE Distribution Center

Man-Tran – Fleet of small trucks making local pick-up and deliveries to York.



Doing Business With Harley-Davidson, Packaging Original Equipment and Custom Vehicle Operations Last Update: 2007

Notched Stringer – A stringer that has openings cut out for insertion and removal of pallet handling equipment.

Original Equipment (OE) – A component used in the manufacturing of a production item

Packaging Sketch Form – Documentation of a part's packaging bill of material

Primary Packaging – The designated container for shipping.

Returnable Packaging – Container and/or dunnage that is used to ship multiple times.

Reversible Pallet – A pallet that is structurally symmetrical and can be used in either orientation (also known as mirror image pallet).

Stretch Film – A polymer film that is used to secure loads by stretching.

Stringer – A continuous longitudinal member that supports the deck boards on a pallet.

Team Center – A product life cycle management database

USDA – United States Department of Agriculture

Value Stream Mapping – A lean technique used to analyze the flow of materials and information required to bring a product or service to a consumer.