

GENERAL GUIDANCE AND CRITERIA FOR INBOUND PACKAGING DESIGN AND VALIDATION

RECORD OF CHANGES

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CORPORATE STANDARD

File No. 19-0

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1.0 SCOPE

This document provides general guidance for the design, selection, and validation of packaging used for the shipment of nonbulk products or materials into or between Snap-on facilities. The originating location (supplier or facility) is responsible for the overall quality of material, item protection, validation, and compliance with applicable laws and regulations.

2.0 GENERAL REQUIREMENTS

1. Packaging methods, materials, and instructions are to be documented and made available to Snap-on for review and/or approval.
2. Do not overload packaging.
3. Plastic bags used to package parts inside totes, boxes, and/or bulk containers shall be marked with the part number, quantity, and lot number (if applicable) in plain text and bar code unless otherwise specified.
4. Packaging designs must minimize waste and be easily recyclable. Returnable/reusable packaging solutions are strongly encouraged and must be coordinated with Snap-on.
5. Loose fill dunnage such as peanuts, foam pellets, shredded paper, etc., is prohibited.
6. Clamshell packaging is prohibited.
7. Products likely to be damaged from drop heights below 36 inches (.9 m) are to be sufficiently cushioned.
 - Packaging designs are to be tested, documented, and approved by Snap-on.
8. Products susceptible to corrosion shall be treated with an anti-corrosion preservative or volatile corrosion inhibitor (VCI) spray, emitter, or wrap. Care shall be taken such that the corrosion prevention method does not adversely affect the finish, other surfaces, or impair product features.
9. Wherever possible limit the gross weight to less than 70 lbs. (32 kg) for manually-handled container. If needed divide shipments into multiple cartons of equal size, weight, and quantity.
10. Packaging designs for products over 70 lbs (932 kg) must include provisions for mechanical handling or be easily palletized.
11. Packaging designs must include the safety and convenience of the end use customer and may not require any special tools to separate product from the packaging.
12. Incorporate handles or hand holes for heavy and bulky packaged products.

Package Weight or Size	Lifting Safety Symbol	Box Handles/Hand Holes Required	Description
0 - 24 LBS (0 - 11 KG) <u>AND</u> ONE DIMENSIONS GREATER THAN 20" (500 mm)	NONE	TWO	Standard Package - 1 Person Lift Handling can be improved and fatigue reduced with convenient locations to firmly grasp the package.
25 - 35 LBS (12 - 16 KG) <u>OR</u> ONE DIMENSIONS GREATER THAN 30" (760 mm)	 25 - 35 lbs. (12 - 16 kg)	TWO	Heavy or Awkward Package – 1 Person Lift Applied when the package is in the range of 25-35 lbs. (12-16 kg) OR one dimension is greater than 30" (760 mm). The package should have two handles or hand holes to make it easier for lifting/carrying.
26 - 70 LBS (16 - 32 KG) <u>OR</u> TWO DIMENSIONS GREATER THAN 30" (760 mm) <u>OR</u> ONE DIMENSION GREATER THAN 42"	 36 - 70 lbs. (16 - 32 kg)	FOUR	Large Heavy Package – 2 Person Lift Applied when the package is in the range of 36-70 lbs. (16-32 kg) OR two dimensions are greater than 30" (760 mm) OR one dimension is greater than 42" (1060 mm). The package should have four handles or hand holes to make it easier for two persons to lift and carry.

13. Packaging must be capable of supporting a load equivalent of identical product stacked to a height of 12 feet (3.66 meters) or 6 lbs./cu.ft. (96 kg/m³), whichever is greater.
 - For corrugated outer shipping containers, the calculated load shall be multiplied by a safety factor of 3 to determine ultimate package strength.
 - For non-corrugated, rigid outer containers (wood, plastic, steel, etc.), use a safety factor of 2 to determine ultimate package strength.
14. Unless otherwise justified and approved by Snap-on, shipping carton selection shall be from the standard sizes listed.
 - The originator remains responsible for interior dunnage/insert designs necessary for part protection and package strength.
 - Choose a carton size that best fits the product without excessive void space, e.g., < 2" (50 mm) in any direction.
15. For nonstandard cartons, select cartons with the following characteristics:
 - Single wall cartons: C-flute, 275# burst test, or
 - Double wall cartons: CB-flute, 350#-600# burst test, or
 - Triple wall cartons: AAC-flute, 900# -1300# puncture test.

Testing and Validation:

1. Package designs are to be validated using simulated and/or real-life conditions.
 - Unless specifically excused by Snap-on, validation testing is required for all new packaging design, and
 - Items undergoing packaging validation testing shall also be re-verified on a regular basis not exceeding 1-year intervals.

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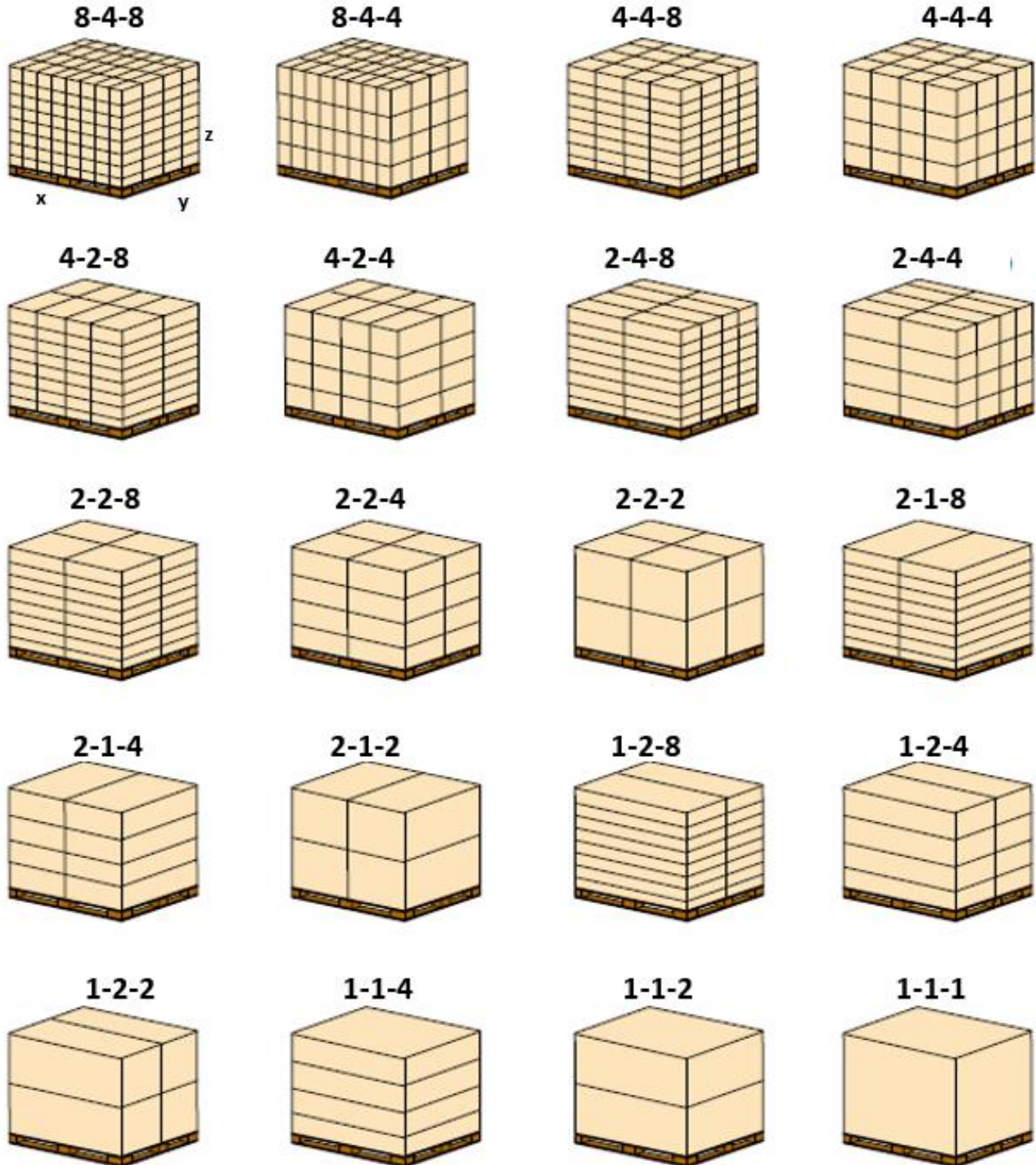
2. Testing documentation and validation results are required and must be available upon request.
 - Use of standard industry test report formats is expected
3. Use certified ASTM or ISTA packaging test labs.
4. Test evaluation:
 - The packaging must be safe to handle and the product is contained and functional as originally intended.
 - The packaging appearance is acceptable with little or no signs of degradation that would preclude the sale of the product.
5. When conveying samples for packaging tests, ensure that products and packaging are not predisposed to any transit damage from origin to the test facility.
 - Recommend that extra packaging be sent to the test facility to repack items anew prior to testing.

Standard Carton Sizes

box #	pallet pattern			box size - inside dims			box classification				box size - outside dims		
	rows	columns	layers	l (id)	w (id)	h (id)	Style	Variety	Grade	Caliper	L (od)	W (od)	H (od)
8-4-8	8	4	8	9 5/16	5 9/16	5 1/4	RSC	SW	275	0.175	9 7/8	5 15/16	6
8-4-4	8	4	4	9 5/16	5 9/16	11 1/4	RSC	SW	275	0.175	9 7/8	5 15/16	12
4-4-8	4	4	8	11 5/16	9 1/2	5 1/4	RSC	SW	275	0.175	11 13/16	9 7/8	6
4-4-4	4	4	4	11 5/16	9 1/2	11 1/4	RSC	SW	275	0.175	11 13/16	9 7/8	12
4-2-8	4	2	8	18 3/4	11 1/4	4 3/4	RSC	DW	350	0.282	19 11/16	11 13/16	6
4-2-4	4	2	4	18 3/4	11 1/4	10 3/4	RSC	DW	350	0.282	19 11/16	11 13/16	12
2-4-8	2	4	8	22 3/4	9 1/2	4 3/4	RSC	DW	350	0.282	23 5/8	9 7/8	6
2-4-4	2	4	4	22 3/4	9 1/2	10 3/4	RSC	DW	350	0.282	23 5/8	9 7/8	12
2-2-8	2	2	8	22 3/4	19 1/8	4 3/4	RSC	DW	600	0.307	23 5/8	19 11/16	6 5/8
2-2-4	2	2	4	22 3/4	19 1/8	10 3/4	RSC	DW	600	0.307	23 5/8	19 11/16	12
2-2-2	2	2	2	22 3/4	19 1/8	22 3/4	RSC	DW	350	0.282	23 5/8	19 11/16	24
2-1-8	2	1	8	38 1/2	23	4 3/4	RSC	DW	600	0.307	39 3/8	23 5/8	6 5/8
2-1-4	2	1	4	38 1/2	23	10 3/4	RSC	DW	600	0.307	39 3/8	23 5/8	12
2-1-2	2	1	2	38 1/2	23	22 3/4	RSC	DW	350	0.282	39 3/8	23 5/8	24
1-2-8	1	2	8	46 3/8	19 1/8	4 3/4	RSC	DW	600	0.307	47 1/4	19 11/16	6 5/8
1-2-4	1	2	4	46 3/8	19 1/8	10 3/4	RSC	DW	600	0.307	47 1/4	19 11/16	12
1-2-2	1	2	2	46 3/8	19 1/8	22 3/4	RSC	DW	350	0.282	47 1/4	19 11/16	24
1-1-4	1	1	4	45 3/4	38 3/8	10	RSC	TW	900	0.506	47 1/4	39 3/8	11 1/4
1-1-2	1	1	2	45 3/4	38 3/8	22	RSC	TW	900	0.506	47 1/4	39 3/8	23 1/4
1-1-1	1	1	1	45 3/4	38 3/8	46	RSC	TW	900	0.506	47 1/4	39 3/8	47 1/4

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Standard Pallet Patterns:





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		Packaging Data Sheet					
Supplier Information							
Co. Name					Contact		
Address					phone		
BP number					email		
Part Information							
Part number	<i>Snap-on</i>				<i>supplier</i>		
Description						qty/mo	
Dimensions	<i>largest (in)</i>	<i>2nd largest(in)</i>		<i>smallest (in)</i>		weight	<i>(lbs)</i>
	<i>(mm)</i>	0	<i>(mm)</i>	0	<i>(mm)</i>		0
<input type="checkbox"/> Hazardous Material? <i>identification no.</i> _____ <i>proper shipping name</i> _____							
Packaging Information - unit package							
<input type="checkbox"/>	expendable	<input type="checkbox"/>	reusable	gross weight		qty/pack	
<input type="checkbox"/>	dunnage	<i>material</i>				include picture or sketch	
<input type="checkbox"/>	bag	<i>material</i>					
<input type="checkbox"/>	carton	<i>material</i>					
<input type="checkbox"/>	box	<i>material</i>					
<input type="checkbox"/>	other	<i>material</i>					
<input type="checkbox"/>	closure	<i>material</i>					
Packaging Information - intermediate package							
<input type="checkbox"/>	expendable	<input type="checkbox"/>	reusable	gross weight		qty/pack	
<input type="checkbox"/>	dunnage	<i>material</i>				include picture or sketch	
<input type="checkbox"/>	carton	<i>material</i>					
<input type="checkbox"/>	box	<i>material</i>					
<input type="checkbox"/>	other	<i>material</i>					
<input type="checkbox"/>	closure	<i>material</i>					
Packaging Information - shipping container							
<input type="checkbox"/>	expendable	<input type="checkbox"/>	reusable	gross weight		qty/pack	
<input type="checkbox"/>	box	<i>material</i>				include picture or sketch	
<input type="checkbox"/>	other	<i>material</i>					
<input type="checkbox"/>	closure	<i>material</i>					
<input type="checkbox"/>							
Pallet load							
<input type="checkbox"/>	wood	<input type="checkbox"/>	1200x1000mm		cntr/layer	include picture or sketch	
<input type="checkbox"/>	plastic	<input type="checkbox"/>	1000x1200mm		layers/plt		
<input type="checkbox"/>	48"x40"	<input type="checkbox"/>	other _____	0	cntr/plt		
<input type="checkbox"/>					parts/plt		
Package Testing							
<input type="checkbox"/>	ASTM	method		date		result	
<input type="checkbox"/>	ISTA	method		date		result	
<input type="checkbox"/>	other	method		date		result	
<input type="checkbox"/>	none						

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Notes, Instructions, & Definitions:

box - a rigid container generally made from corrugated fiberboard, having closed faces and completely enclosing the contents. Such fiberboard boxes must comply with all the requirements of the federal motor carrier rules.

carton - a folding container generally made from paperboard for merchandising consumer quantities of products (for example, shelf packages or prime packages).

consumer package - a primary container (which may be enclosed in a secondary container) designed to contain, store, and protect from the point of manufacture to the point of use by the consumer.

container - a nonspecific term for a closable receptacle or package such as a bag, barrel, basket, box, can, carton, crate, cylinder, drum, envelope, hamper, pail, tube, etc.

dunnage - materials not constituting a part of the container, frequently used for filling space or otherwise to protect and secure the contents.

exterior pack - a container, bundle, or assembly that is sufficient by reason of material, design, and construction to protect its contents during shipment or storage.

expendable - packaging is intended to be used once then discarded. May not be suitable for reissue of the product because of a return or exchange.

gross weight - combined weight of the product and all of its packaging.

industrial package - a package used for the transportation or storage of commodities, the contents of which are not meant for retail sale without being repackaged.

intermediate package - a wrap, box, bundle, or other container that holds two or more unit packages of identical items (also called a secondary package) that is in turn enclosed by an outer shipping container.

pack - the final configuration of material with necessary protection afforded for the distribution system.

primary package - a container in direct contact with and enclosing the product along with any required protective material(s). It may be used as a shipping container and may convey information about the contents.

secondary package - a container enclosing one or more primary packages along with any required protective material(s). It may be used as a shipping container and may convey information about the contents.

reusable - packaging that may be used multiple times during normal distribution and handling conditions.

shipping container - a strong container that is used in commerce for packing, storing, protecting, and shipping commodities.

unit package - the first container applied to a single item, or set of items comprising a completed package identified by a single item number (also called a primary package or primary container).

Weights & measures - round inch measurements to nearest two decimal places (xxx.XX), millimeter measurements round to nearest whole number, weights round to one decimal place (xx.X).

Use a separate form for each part number even if the packaging is identical to another.

3.0 REFERENCE

The following standards offer additional guidance beyond the criteria stated herein.

1. Snap-on Standards:
 - a. CS19.0.1 - Handling & Identification Marking of Packages
 - b. CS19.0.2 - Package Labeling & Identification for Inbound & Interplant Shipments
 - c. CS19.0.3 - General Requirements for Box & Pallet Loading
 - d. CS19.0.4 – General Requirements for Wood Pallets
 - e. CS19.0.5 - General Specification for Corrugated Boxes
2. American Society for Testing and Materials (ASTM) (www.astm.org):
 - D996 Standard Terminology of Packaging and Distribution Environments
 - D1974 Standard Practice for Methods of Closing, Sealing, and Reinforcing Fiberboard Boxes
 - D3951 Standard Practice for Commercial Packaging
 - D4169 Standard Practice for Performance Testing of Shipping Containers and Systems
 - D5118 Standard Practice for Fabrication of Fiberboard Shipping Boxes
 - D5168 Standard Practice for Fabrication and Closure of Triple Wall Corrugated Fiberboard Containers
 - D6198 Standard Guide for Transport Packaging Design



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3. The Fibre Box Association (FBA), Fibre Box Handbook (www.fibrebox.org).
4. The International Safe Transit Association (ISTA), Guidelines for Selecting and Using ISTA Test Procedures and Projects (www.ista.org).
5. Mil-Std-2073, Department of Defense; Standard Practice for Military Packaging (available online).

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