NA Supplier Packaging Standards

<< Returnable Packaging >>

3-8-19

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Section 1: Goals & Objectives

Goal:

Outline the Returnable Packaging requirements for production parts shipped to DENSO North American Group Companies and to define the required communication timeline for packaging development and approval

Objective:

A. Ensure Safety

B. Guarantee Part Quality

C. Approved Packaging is available to support mass production

D. Packaging Standardization

E. Clearly Identified Returnable Packaging Cleaning Expectations

F. Identify Expendable Backup Packaging Requirements

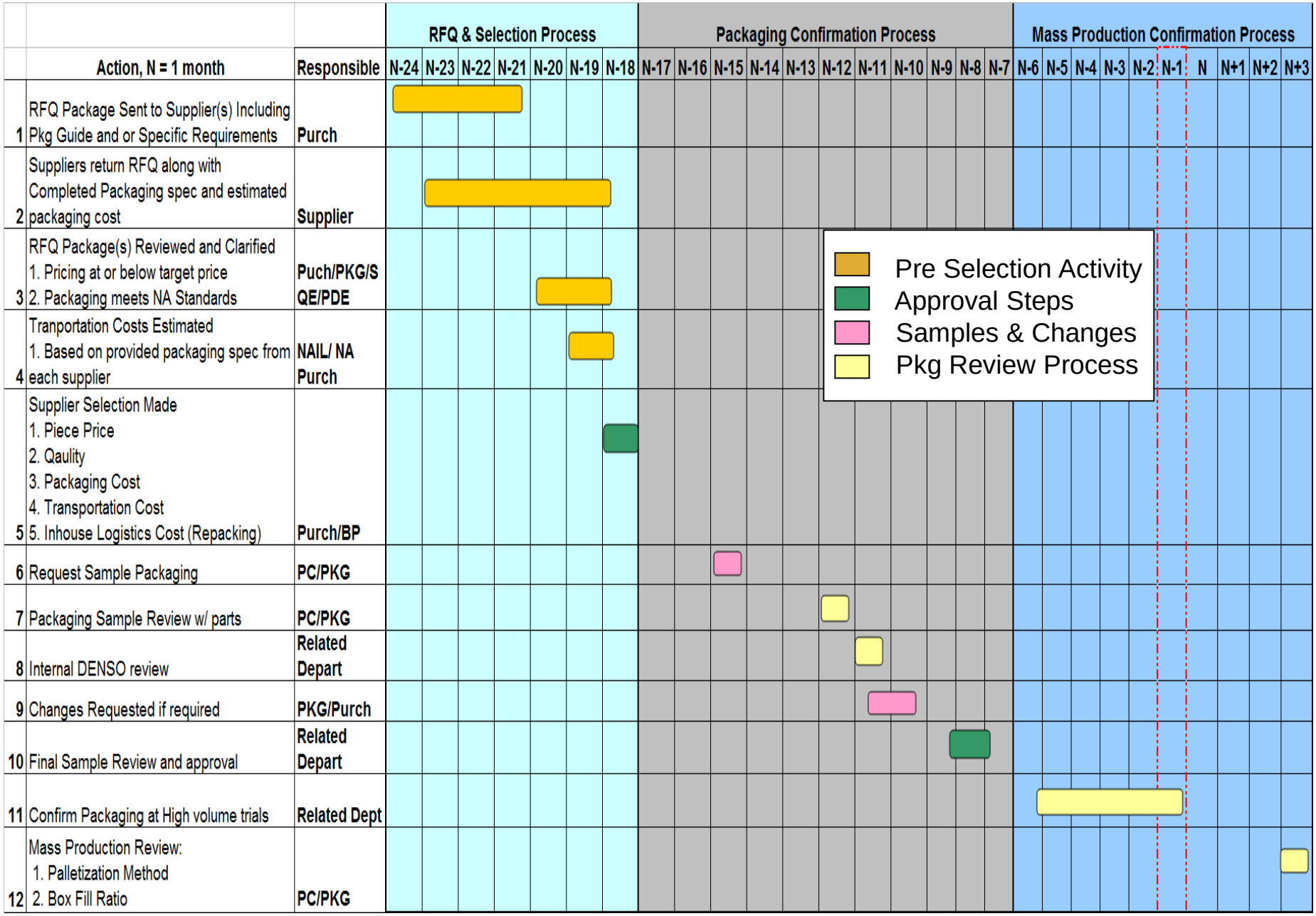
G. Minimize Packaging, Transportation and Logistics Costs

H. Minimize our Landfill bound waste

Note:

In addition to standard DENSO supplier packaging guidelines, each DENSO plant location may have its own unique requirements that must be followed. Supplier is responsible to check the appendix for specific DENSO plant requirements.

Section 2: Packaging Development and Quoting Timeline



Section 3: Supplier Responsibilities:

1. Submit Preliminary Packaging Specification and Preliminary Packaging Cost Estimates along with Purchasing-required RFQ paperwork.
2. Submit new specs for parts that have design changes, lot size changes, or any other packaging changes.
3. Establish a packaging communication contact within supplier's company through which DENSO plant staff will work.
4. DENSO depends upon the supplier to be the expert for the parts being supplied and to deliver a quality part to our manufacturing location(s).
5. Meet the standards contained within the DENSO North American Supplier Packaging Guide unless the specific DENSO plant location requests otherwise or a deviation is authorized by that plant.
6. Submit sample packaging and perform testing when necessary at supplier cost. Testing may include part evaluation and providing data after pack testing. Test shipments sent to DENSO are to be labeled to the attention of responsible associate.
7. Utilize approved packaging for mass production, including standard 45x48 pallet.
8. Utilize pallets and boxes that are strong enough to survive the normal delivery route, include full trailer height stacking of pallets.
9. DENSO plant Packaging or Production Control staff will approve the workability of the packaging (size, weight, etc); not part/packaging quality.
10. If expendable is used only as a back up to returnable packaging, it must be the same size, hold the same number of parts, and perform the same as the returnable packaging.
11. DENSO will not supply returnable packaging for a build ahead or large safety stock carrying at the supplier.
12. If returnable packaging arrives prior to shipment the supplier must repack into it for shipping
13. Notify DENSO of returnable packaging shortages and 24 hrs prior to shipping in expendable packaging.
14. DENSO encourages suppliers to look for packaging improvements including pack efficiency, cubing improvements, part orientation in pack, and cost savings. Submit improvements ideas to DENSO. They will be reviewed and feedback given to the supplier.

Section 3: Supplier Responsibilities continued:

15. Inspect and reject damaged returnable packaging. Contact Production Control personnel for repair if a damaged container or pallet is detected. Remove damaged unit immediately from the system.

16. Load production parts into clean undamaged containers ONLY.

17. Load packaging into transportation equipment in a manner that maintains part quality.

18. Designate a packaging contact to resolve packaging related issues.

19. Support packaging cycle counts upon request.

20. Provide packaging cost analysis to DENSO purchasing.

21. Submit new specification when:

    (1) Part has design change (ECI)

    (2) Package changes

    *(3) Lot size changes (use form FRM-003)

    (4) Upon request from Packaging Engineering

    (5) When new business is awarded

22. Orders must be shipped in mass production packaging once lot size is established, packaging received, and packaging specification approved. NPI shipments continue in expendable until mass lot size orders are required.

23. Supplier Owned Returnables: must be approved by DENSO Packaging Department; must meet AIAG standards; must be cleaned and maintained by the supplier; and must monitor / maintain system requirements.

24. Part orientation in tote should be simple, consistent, avoiding excessive reach, and not exceeding the tote nesting line.

25. Immediately update work instructions to reflect DENSO's approved spec for packaging, lot sizes and effective date. Distribute DENSO packaging specifications internally to respective departments.

26. As soon as DENSO conveys packaging requirements all shipments must be repacked into the correct container and lot size to reflect the effective date.

Section 4: Returnable Box Standards

1. Maximum Box Weight Allowed: ≤ 30 lbs / 13.6 kgs
2. Containers must be designed for manual handling.
3. Box Fill Requirement: >85% full by volume, Target = 100%
4. Box Identification:
   - Labels maybe used to identify DENSO Plant and Supplier
   - Hot Stamps maybe used to identify DENSO Plant and Supplier
   - Supplier owned boxes must be marked with supplier name and plant location
   - Some DENSO locations have container codes that may be require to be on the boxes also, check the specific plant requirements
5. Box Selection (if boxes size is not directed by DENSO):
   - Standard Size Injection molded box that cubes a 48 x 45 pallet should be the first option
   - Custom sizes must be approved by DENSO
   - Use of lids is discourage unless needed to insure part quality

Standard Box Sizes:	Oversized Boxes:
12 x 7 x 5	32 x 15 x H
12 x 15 x H*	45 x 16 x 9
24 x 15 x H	45 x 16 x 14
24 x 22 x H	45 x 16 x 20

*Height of box to be determined by part size for best fit

Standard Heights: 4,5,7,9,11,14 inches

Section 4: Returnable Box Standards (continued)

Kanban Card Holder Location:

- On adjacent side of the all boxes when card holder locations are present. If card holders are missing contact your DENSO PCE group for replacements.
- Most 4” and 5” tall standard boxes do not have card holder location on adjacent sides, card holders on opposite sides is allow
- Taping or sticking kanbans/labels onto returnable boxes is not allowed. The supplier will be required to remove them prior to using the tote again. Side-load cardholders are prohibited.
- Returnable packaging is designed for inside use only. Suppliers shall store containers in a manner which allows ease of inventories, maintains cleanliness, and protects containers from excessive environmental exposure. Supplier assumes cost of repair, replacement or cleaning if returnable containers are kept outside.

Standard Locations
Adjacent sides

Standard Locations
4” and 5” boxes

No taping or sticking
labels to boxes

Section 5: Returnable Dunnage Standards

1. DENSO plants may instruct the supplier on the style of dunnage to use. Material must be recyclable.
2. Dunnage must protect the parts during the normal storage and transit environment.
3. Dunnage must allow ease of removal of the parts to support production picking.
4. If not explicitly call out on part drawing, supplier is responsible to decide if rust preventive material(s) are needed and should inform DENSO at RFQ timing.
5. Individual parts should not be bagged or wrapped unless request by DENSO
6. Part nesting, if applicable, must be done in an orderly method that is maintained during shipping
7. Layering of parts is to be avoided if possible
8. If part is a visible/trim part on car:
   - Class A surface protection materials should be used on areas that may touch the parts

Standard Dunnage Styles May Include:

Bulk in a bag

Cell Packed

Custom Trays

Layer Packed

Section 6: Returnable Pallet & Lid Standards

Standard Pallet Requirements:

1. Standard Size: 48” x 45”
2. Pallets must be 4 way entry
3. Pallets should allow moving by pallet jack
4. Pallets must have a top lip to stop boxes from sliding off
5. Seatbelts for securing loads must be approved by the DENSO Plant
6. Flat bottom pallets should be used for heavy weight product for better weight transfer
7. Vac-tray style pallets must be designed to support the weight of the product.

Vacuum Formed Mirror Image
(Bottom and top are identical)

Structural Foam Pallet
(Footed Pallets)

Structural Foam Pallet
(Smooth Bottom for heavy weight)

Standard Lid Requirements:

1. Standard Size: 48” x 45”
2. Lids must lock and stop pallet above from sliding
3. Use the lid designed to match/interlock with the selected pallet
4. Lids should have a lip to stop box below from sliding out from under the lid

Section 7: Supplier Packaging Cleaning Expectations:

Standard Expectations:

1.Clean returnable containers. Include removing dirt, water, debris, residue, worn expendable dunnage, etc.. as required.

2. Routine checks should be made and regular cleaning must occur as needed to ensure part quality and cleanliness during the life of the container.

3. Repetitive contamination should be reported to DENSO for corrective action

Special Expectations:

Any special cleaning requirements will be communicated to during the RFQ process. May Include:

1. Air blow off to remove foreign matter from dunnage for trim(Class A Surface) parts prior to each use

2. Washing of dunnage between uses to remove oil, residue, shavings

Cleaning/Inspection Method Confirmation:

Some DENSO Plants may require the supplier to complete a cleaning/inspection method form to ensure that the supplier is meeting the minimum cleaning requirements. See appendix 1 for an example

Supplier Responsibility:

To inform DENSO at RFQ timing if the supplier believes that a cleaning should be required between each use.

Section 8: System Days Allocation

Standard Allocation methods:

1. DENSO will work with the supplier to determine the correct amount of returnable packaging needed to support standard shipping
2. The following items will be considered to calculate the amount of packaging needed:
    a. Peak Shipping Volume
    b. Order Lot Size
    c. Shipping Frequency
    d. Travel Time, back and forth
    e. DENSO desired inventory levels, empty and full
    f. Supplier standard inventory levels empty and full
    g. If special cleaning required, inventory for that process
    h. Expected shrinkage percentage during the life of a program

3. If the supplier requires more packaging for supplier internal requirements. The supplier will be required to purchase the packaging at the suppliers cost.

Goal is to minimizing DENSO and supplier packaging inventories and maximizing turns.

Special Requirements:

1. Any additional returnable packaging needed will be negotiated:
    a. DENSO required inventory banks
    b. If the supplier is batch running parts, (weekly, monthly, etc), DENSO will not supply returnable packaging for that part of your inventory. Supplier will be expected to repack into the returnables prior to shipping

Section 9: Backup Expendable Packaging Requirements

General Guidelines:

1. Backup expendable packaging should be used as the last option
2. Supplier should have expendable packaging quickly available incase of a shortage.
3. Supplier must communicate to DENSO Production Control and Packaging 24 hours prior to shipping in expendable packaging. (see plant specific requirements)
4. Expendable packaging should be used for a build-ahead or safety stock above DENSO requirements. DENSO will not provide returnable packaging for supplier internal requirements. Any supplier directed build-ahead or safety stock parts must be repacked into returnables prior to shipping to DENSO.
5. Review NA Expendable Packaging Requirements for more specific information and review the specific ship to plants Packaging Supplier Guide
6. Contact the plant Packaging/Production Control Group if you have questions

Supplier Responsibility:

1. Design and testing of expendable packaging to ensure part quality is maintained through the DENSO shipping network, the supplier is responsible for expendable packaging failure
2. Box must be the same size as the returnable box outside dimensions
3. Box must hold the same number of parts as the returnable box
4. Dunnage should be as similar as possible to approved returnable dunnage
5. For Class A/Trim Parts, plastic bagging/sheeting maybe required to keep the parts contamination free
6. Box Strength: Boxes must perform the same as the returnable boxes for stacking
7. Box Construction: No staples allowed in boxes or lids (Safety Concerns)
8. Box sizes: Boxes must cube same size pallet at returnable boxes

Section 10: Palletization Standards

Palletizing Requirements:

1. Palletize totes per the packaging specification – DO NOT exceed specified pallet height.
2. Boxes must always be secured to the pallet.
3. Boxes must cube a 45” x 48” pallet.
4. No overhanging boxes.
5. Maximum pallet height 52 inches to allow double-stacking on trailers.
6. Pallet/Packaging must be double-stackable during transit.
7. Stretch wrap or plastic banding must be used to secure the load to the pallet.
8. Stretch wrap must be secured to the pallet.
9. No non-transparent stretch wrap allowed.
10. Do not wrap two or more pallets together unless requested by DENSO

Banding Requirements:

1. Only one-half inch (½”) polypropylene or polyester banding is allowed.
2. No metal banding allowed, some exceptions are made for raw materials
3. Minimum of two bands always required.

Banding Calculation: (Band Strength/2) x (Number of Bands) = Max Pallet Weight

4. Banding should run parallel to large fork openings

Section 10: Palletization Standards Continued

Stretch Wrap Requirements:

1. Wrap used must be transparent
2. Wrap must prevent the load from sliding off of the pallet base
3. A minimum of two wraps at the base and the top of the pallet should be used
4. Wrap should overlap to secure all boxes from shifting

When to use Stretch Wrap vs Banding?

Stretch Wrap

1. Light to Medium weight pallets (0 to 750 lbs)
2. Pallets with many small to medium sizes boxes that could slide out of place
3. Secure uneven layers/loads

Banding

1. Medium to Heavy Weight pallet (751 & over)
2. Pallets with corrugated pallet bins or sleeves to contain the boxes.
3. Odd shaped items on pallets

Banding & Wrap

1. Air shipments
2. Heavy weight shipments of many small boxes that can not be secured by banding

DENSO Plant Preferred Ordering Methods:

Option 1: Full pallets of identical product (volume and shipment frequency must be considered)

Option 2: Full layer with mixing* allowed

Option 3: By individual box with mixing* allowed

Note: Not all NAGCs allow mixing, supplier is responsible to confirm with specific ship to locations

Section 10: Palletization Standards (continued)

Pallet Stacking Rules:

1. Returnable packaging should support stacking and shipping at full trailer height of 104 inches.
2. When using returnable packaging returnable top and bottom pallets are required.
3. Wooden pallets should not be stacked on top of returnable packaging unless requested by DENSO North American Integrated Logistics (NAIL) or the ship to plant location.
4. Returnable packaging should not be stacked on top of expendable packaging.
5. Do not wrap or band two or more pallets together unless requested by the ship to plant location.
6. Max weight/trailer stack = 2000 lbs unless requested by DENSO NAIL or the ship to plant location. (2000 lbs is only a guide for production shipped via NAIL routes)

Preferred Pallet Load Sizes	Stacking Height During Transit
45" x 48" x 26"	4 pallets high
45" x 48" x 34"	3 pallets high
45" x 48" x 52"	2 pallets high

Section 10: Palletization: Mix Loading Requirements

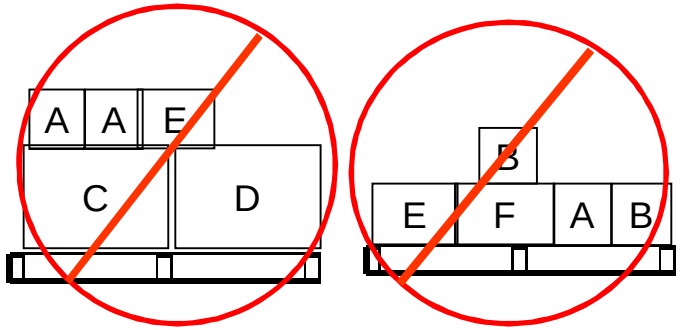
Mix Loading Pallet Rules:

1. Mixed parts on a pallet allowed if the product is on the same Delivery Order.
2. “Like” part numbers must be mixed on the same pallet.
3. Filler “Empty” boxes should be used to level off a layer to allow stacking.
4. When an “Empty” boxes is used, it must say “EMPTY” on it.
5. A Mixed Pallet Sheets (2) must be used when shipping a mixed pallet (See Forms -00X)

Example: Pallet Mix Loading

INCORRECT

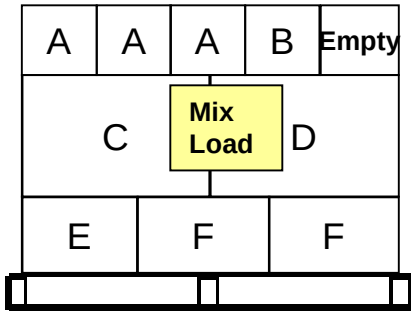
2 Pallet Mixed



•Like part numbers not together on same pallet
•Two pallets used instead of one
•Unstable stacking configuration
•No “Empty” boxes used to level layers

CORRECT

1 Pallets Mixed



• Like part numbers together
• Unitized on one mixed pallet
• Empty box uses to level top layer

Section 11: Labeling Requirements

Labeling Requirements:

1. DENSO required box kanban/label placed on the narrow end of the box.
2. Box kanban/label must be placed in a pouch or card holder, **do not tape or stick** the labels to the box.
3. When possible, box labels should face the outside of the pallet.
4. If pallet consists of “Mixed Part Numbers”, then 2 mixed pallet labels must be placed on adjacent sides of the pallet (see 2nd picture below).
5. If shipping via NAIL, then two “Skid Sheets” on adjacent sides of the pallet (see 3rd picture below).

Box Label in Card Holder

Mixed Pallet Sheets

Skid Sheets

Section 12: New Component Packaging Requirements

DENSO may choose to send the supplier specific packaging requirements to quote. The attached form maybe used to communicate those requirements

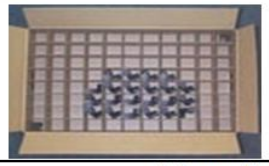
If the supplier does not feel that the requested packaging will protect the parts, then the supplier should contact the Packaging Contact for review

New Component Packaging Requirements

NAGC Name(Add your Company Name)

Component Name:	Washer		
DENSO Part # (s):	TN00011-0000		
Supplier Name(s):	UR Pean		
Part Weight (KGS)	0.005	Part Dimensions in MM:	30x30x5

1) Desired Dunnage Type → **Tray or Insert**

1. Bulk Packed	2. Cell Packed
 Plastic Bag may be required	 Partition Set Required
3. Tray or Insert	**4. Layer Packed**
 	

2) Specific Requirements

1. Specific Box quantity or multiple:	60
2. Estimated Peak Monthly Volume:	20000
3. Mass Production Start Date:	12/2/2009
4. Returnable DOH allowed at supplier	7
5. Special QA Requirements:	Must not sratch flat surface
6. Packaging Cleaning Requirements:	

3) Returnable or Expendable Container → **Expendable**

Expendable- Corrugated box, HSC, HSC w/FF or RSC

Returnable- Plastic or Metal container

Standard Requirements

1. Box must be greater that 80% Full by Volume	**3. Standard Pallet Size = 48x45x5, 50" with freight**
2. Max Box Weight = 30lbs, 13.6Kgs	**4. Pallets must be double stackable for shipping**

4) Desired Box Dimensions (LxWxH) → **24 x 15 x 5**

If Bulk Bin enter dimensions -

If other enter box dimensions -

5) Estimated Parts/Pallet and Pallet Weight	PCS	2880	LBS	1500

6) Other Special Requirements:

Approvals			
Completed by:	QA/QC	PE	TIE
Date:			

Section 13: Packaging Specification

- ## NA Standard Pkg Specification:

1. Must be completed by supplier and submitted to Purchasing along with Request for Quote Documents

1a. For TAC suppliers are to complete the packaging specification form in NAIL. This input should be completed 24 weeks prior to mass production start up. Once completed suppliers are to email TAC PCE to notify the spec is completed. TAC PCE will review and if OK will route internally for approvals.

2. Location to get latest copy of the NAGCs packaging Specification:
www.densocorp-na.com/suppliers/resources

- 3. Must meet the minimum packaging requirements as described in this Guide:

Summary:

A. Box:

1.Must cube a 45 x 48 pallet

2.Weight: ≤30 lbs/13.6kgs

3.Support Pallets Stacking up to 104” by pallet during transport

B. Dunnage:

1. Designed to protect parts during transportation

2. Allow for easy removal of parts for production

C. Pallet:

1. 4 Way Entry 45 x 48 pallet

2. Heat Treated Stamp required, if parts are crossing an International Border

NA Standard Pkg Specification (Preliminary Spec)

CO -LOGO	SUPPLIER PACKAGING SPECIFICATION	Fill Ratio	QS9000 DOCUMENT TNPC90.001.2	DATE SUBMITTED:	June 12, 2014
		A31		REVISION:	1

PART INFORMATION		SUPPLIER INFORMATION		SPECIFICATION DATA	
DENSO PART NUMBER:	AA123456-7890	SUPPLIER PART NUMBER:	SPN-12345-A	DENSO DIVISION SHIPPED TO:	DMTN Starter / Alternator
PART DESCRIPTION:	Automotive Widget	SUPPLIER NAME:	Auto Parts USA	PROPOSAL STATUS:	Final
(ORDERING) UNIT OF MEASURE:	EA	DENSO SUPPLIER CODE:	XY1	COMPLETED BY:	J. Doe

DIGITAL PHOTOS

INTERNAL DUNNAGE & PART

CONTAINER / RACK (show label location)

TYPICAL PALLET LOAD (AS SHIPPED)

Fill Ratio:

Fill Ranking	Less than 80% Reason Code		Verification Method
A = More then 80%	1= Over weight	5=Prod Requirment	1=Visual Check of Full Box
B= Less than 80%	2= QA Requirements	6= Supplier Request	2=by Similar Part
C= Not Checked	3= Volume	7= Others	3=By Math Data
	4=Cust Requirement	-= N/A	4=Other

DUNNAGE DESCRIPTION:	Poly Bag 18 x 18, 2mil	CONTAINER STYLE:	RSC	PALLET STYLE:	Wood, 4 way entry
DUNNAGE MATERIALS:	PE	CONTAINER MATERIALS:	C275	PALLET MATERIALS:	Hardwood & Wrap

PACKAGING DATA

PACKAGING TYPE	Expendable			UNITIZATION METHOD:	Stretchwrap

DIMENSION INFORMATION (in.)				WEIGHT INFORMATION (lbs.) (assume a full pallet regardless of typical order size)		QUANTITY INFORMATION (assume a full pallet regardless of typical order size)		Packaging Costs		
[OUTSIDE DIMENSIONS]	LENGTH	WIDTH	DEPTH					Item	Qty/Plt	Cost
PART SIZE	1	1	0.12	PART WEIGHT	0.01	PARTS/CONTAINER	1000	Box	36	$ 1.26
CONTAINER / RACK	24	15	7	CONT. w/ DUNNAGE (EMPTY)	1.7	CONTAINERS/LAYER	6	Dunange	36	$ 0.09
				CONTAINER WEIGHT (FULL)	11.7			Pallet	1	$ 9.34
PALLET BASE / CAP	48	45	4.5	PALLET BASE	28	LAYERS/PALLET	6	Wrap/Banding	1	$ 1.50
				PALLET CAP	5			Other 1	1	$ -
PALLET LOAD (AS SHIPPED)	48	45	46.5	PALLET LOAD (AS SHIPPED)	454	CONTAINERS/PALLET	36	Other 2	1	$ -
						PARTS/PALLET	36000	Cost/Pcs	$	0.0017

Yellow Areas to be completed by DENSO		DENSO APPROVALS:			
DIVISION SPECIFIC COMMENTS:		Enter department name on top line and approval signature on bottom section.			

PACKAGING CODE:		ORDER LOT:	1000	STACK HEIGHT:	2	EFFECTIVE:		AIAG INFORMATION:	

Revision 3: 6/2014

Specification Instructions

1. Supplier Packaging Specification to be submitted along with all other required RFQ documents
2. Packaging Cost fields must be completed at the time of RFQ.
3. No Blank fields allowed
4. DENSO will complete fields in yellow
5. Cells outlined in RED are self calculating. Do not type in these fields
6. No fractions allowed 8 1/2, use decimals 8.5
7. All information is in inches, pounds, and US Dollars
8. Like part numbers using the same packaging can be submitted on the “Preliminary” form.
9. Final Specifications must be completed for each part number
10. File Name to be “Supplier Name & DENSO Part Number.xls (ACME AA123456-7890.xls)
11. Comment boxes are indicated by a red triangle in the cell and contain a list of choices or pertinent information to complete that area –Place the cursor over the red triangle and a box will pop up for review
12. Digital Photos, computer drawings, or electronic sketches are acceptable
13. Photo files must be inserted into the document: Choose “Insert”, “Picture”, From File”
14. Do not copy/paste the photos into the document
15. Photo size must me less than 500Kbytes each (*.jpg format is recommended), total SPS must me be **2MB or less**
16. Enter part weight, & quantity DATA assuming a full (maximum height) pallet of each part being shipped, or up to 2000lbs/pallet
17. “Fill Ratio” field requires you to estimate the fullness of the box using the Criteria in the Comment box. Any spec with less than 85% full will be rejected
18. If you need to add additional information, please insert a text box at the bottom of the specification.
19. If you have any questions, please contact the packaging person for the plant(s) that you are shipping to (See Section 12)

Please call the Plant you will be shipping to Packaging and Purchasing Contacts for specific questions or instructions

Appendix 1: Packaging Cleaning Operation Standards

Example

SUPPLIER PACKAGING CLEANING STANDARD / LINE SIDE VISUAL AID

APPROVALS			
DMAT	DATE	SUPPLIER	DATE

DENSO PART NAME: Core

PART NUMBER(S): TN01234-5678

TOTE AND DUNNAGE GREEN DENSO TOTE

DOCUMENT PREPARED BY: John Smith

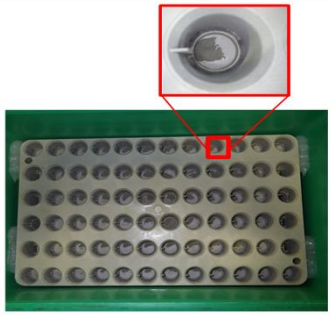
SUPPLIER MUST INSPECT THE PACKAGING (INCLUDING INTERNAL DUNNAGE IF USED) DUNNAGE BASED ON THE BELOW VISUALS

GOOD / DESIRED

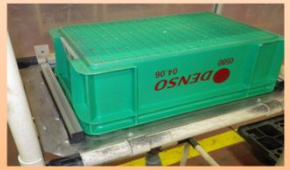
100% cleaning of all totes each time

MARGINAL / PASSABLE

NOTE: IF YOU HAVE PACKAGING THAT FITS WITH THIS CATEGORY, A PLAN MUST BE PUT TOGETHER TO GET THE PACKAGING CLEANED.



NO GOOD / REJECT

SUPPLIER INSPECTION CRITERIA	SUPPLIER CLEANING METHOD
-Before using tote on line, each and every tote must be cleaned of powder residue built up in dunnage cavity.	-Tote is flipped upside down and tapped and vacuumed to allow powder residue to be removed from tote (Must be completed on every tote before each use)  

Appendix 2: Additional requirements for TAC

1. TAC will purchase and retain ownership of returnable packaging unless otherwise specified. This includes packaging purchased by suppliers.
2. If the supplier would like more packaging at launch than TAC will purchase, the supplier may submit a written request to PCE. PCE will purchase the additional packaging and the supplier will be invoiced for the cost. TAC will retain ownership of this packaging.
3. TAC Production Control Logistics will review request for returnable packaging deviations and monitor allocation levels for returnable containers.
4. Packaging deviation approval must be received from PCL (24 hours prior to shipment) if required to use an expendable backup system.
5. Monitor production changes and notify TAC PCL of potential shortages before the situation becomes a crisis.
6. If returnable pallets are not available the use of wood pallets is acceptable. Cardboard lids is required in this situation.
7. Red tie bands are also allowed.

Appendix 3: TAC's Procedure for Returnable Packaging Deviations

1. In the event of a returnable packaging shortage, the suppler may be able to use expendable back-up packaging.
2. A monthly tracking sheet should only be requested when no empty returnable containers are available for shipping. If returnable packaging arrives prior to shipment, parts must be repacked.
3. A deviation will not be approved if inventory at the supplier are not acceptable.
If TAC is able to cut part of the order, the deviation will not be approved.
4. Before using the expendable packaging, the supplier must have prior approval from TAC PCL.
5. Requesting a deviation
    - Complete the monthly deviation tracking sheet.
    - Submit the form by e-mail to your TAC PCL contact (required 24 hrs. before shipping)
    - TAC Production Control Logistics (PCL) will review and issue an approval or rejection to the supplier.
6. TAC approval or rejection
    - TAC will approve or reject supplier request based on inventory investigation results.
    TAC PCL is approving the shipment in expendable packaging, not the cost.
    - Deviations received with less than 24 hours notice, * prior to shipping or, not filled out completely will be rejected.
    - Future tracking of the boxes/pallets may be requested.
7. For payment for expendable packaging the Packaging Deviation Summary form must be completed.
    - Invoices must be submitted on a monthly basis to TAC PCL.
    Reimbursement will be for material only.
    Submit invoices by e-mail to TAC PCL.
    - Invoices must be submitted within the first half of the month, following the month of use.
    (Example: Expendable packaging used in Jan. would be invoiced by Feb. 15th to TAC)
    - Invoices must include copies of the approved packaging deviations, as well as purchase order or invoice for expendable boxes.

Appendix 3: Completing TAC's Deviation Request

Supplier completes the following:

- Supplier: Supplier (company) name
- Supplier Contact Name: Name of person requesting deviation
- Request Date: When request is e-mailed to DENSO, 24 hours prior to shipping.
- Ship Date: Date product will be shipped from supplier.
- Part Number: DENSO part number
- Pkg. Code: Alpha-numeric code given by DENSO to all DENSO-owned returnable packaging. (Example: SPC-GT4I)
- Qty. (pcs) in Expendable: Number of pieces requested to ship in expendable packaging.

DENSO completes the following:

- Approve or Reject: If is acceptable, DENSO will approve. If not, DENSO will reject.
- TAC Response: TAC PCL will indicate the appropriate box if the product needs to be repacked when received by TAC.
- Comments: Include any pertinent items if necessary.
- TAC PCL Signature: Specialist responsible for the requested deviation.

Appendix 3: TAC's Monthly Deviation Tracking Sheet

Monthly Deviation Tracking Sheet

Supplier Info		Date	2-Jul	3-Jul	4-Jul	5-Jul	6-Jul	9-Jul	10-Jul	11-Jul	12-Jul	13-Jul	16-Jul	17-Jul	18-Jul	19-Jul	20-Jul	23-Jul	24-Jul	25-Jul	26-Jul	27-Jul	30-Jul	30-Jul		TOTAL	Cost:
Part #	PKG Code	Cost per box																									
																										0	0
																										0	0
																										0	0
																										0	0
																										0	0
																										0	0
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																										0	0
																										0	0
																										0	0
DMMI approval																											
DMMI Comments																											

DENSO ichigan
One Denso Road
Battle Creek, MI 49015

PACKAGING DEVIATION SUMMARY FORM

Deviation excel Tracking request must be attached to this form.
Include invoices of purchased cardboard, dunnage and pallets.
Please have invoice requests to DMMI by the 15th of each month.

SUPPLIER INFORMATION- REQUIRED

TOTAL PACKAGING MONTH

SUPPLIER

DENSO PO#

SUPPLIER CONTACT

SECTION I: Part Numbers

SUPPLIER TO FILL ON EACH BOX

DMMI Part Number	Packaging Code	# Boxes Requested to Ship	Cost Per Box (Include Dunnage)	Total Cost	# Wood Pallets Used	Cost Per Pallet	Total Cost	Total Cost of Pkg for Part
				$ -			$ -	$ -
				$ -			$ -	$ -
				$ -			$ -	$ -
				$ -			$ -	$ -
				$ -				$ -
				$ -			$ -	$ -
				$ -			$ -	$ -
				$ -			$ -	$ -
				$ -			$ -	$ -
				$ -			$ -	$ -
				$ -			$ -	$ -
				$ -			$ -	$ -
				$ -				
				$ -			$ -	$ -
GRAND TOTAL		0		$ -	0		$ -	$ -

SECTION II: Supplier Comments

Appendix 4: TAC's Packaging Replacement Guidelines

1. Totes

Damaged totes consist of any condition that may jeopardize product quality or safety. Examples:

- Torn Corners
- Cuts on sides over 4" long
- Missing handle inserts
- Missing corner reinforcements
- Severely creased or torn material that may lower the packaging stacking strength

2. Racks

Damaged racks consist of any condition that may jeopardize product quality or safety. Examples:

- Broken Casters
- Broken Shocks
- Broken Pins
- Physical Damage (welds, bent frames, etc)

Appendix 4 (continued): TAC's Packaging Replacement Guidelines

3. Bulk Containers

Damaged bulk containers consist of any condition that may jeopardize product quality or safety.

Examples:

- Broken Feet
- Broken Cross Pieces / Fork Supports
- Missing or Broken handles

Packaging Replacement:

- Cosmetic deficiencies are not grounds for dunnage replacement.
- Supplier assumes cost of replacing all packaging damaged by the supplier.
- Functional non-performance of dunnage will determine if it is to be removed from the system. Items qualifying for non-performance include:
- Plastic corrugate with a hole worn through exposing the bottom of the tote.
- Plastic corrugate assembly coming apart.
- Crosslink foam breaking down and flaking off.
- Crosslink foam separating from plastic corrugate.
- Crosslink foam not securely holding component in its intended position.

Appendix 4 (continued): TAC's Packaging Replacement Guidelines

Returning damaged packaging to TAC

A. Accumulate damaged totes until a full skid is obtained. It is acceptable to mix damaged packaging types on one pallet. The skid may not exceed 48" in height.

B. If totes, stretchwrap the totes on the pallet.

C. Complete the Damaged Supplier Packaging Form (see FORMS section) and attach to the pallet on four sides so the sign is clearly visible.

D. Return damaged packaging to DENSO on a regular shipment.

E. Notify PCL group when shipping damaged containers back by e-mail and include container and quantity.

Appendix 5: TAC's Misrouted, Obsolete, and Overstocked Supplier Packaging Guidelines

A. Segregate any packaging received from TAC that does not contain the correct supplier / packaging code. Examples of supplier / pkg. codes: PYP-GT3I, SPC-LS9L
B. Accumulate mis-routed totes and palletize on a standard TAC 48" x 45" returnable pallet.
C. It is acceptable to mix different packaging tote types on the pallet if necessary. Pallet cannot exceed 48 inches.
D. Complete the Misrouted Supplier Packaging form (see FORMS section / FRM-004) and attach to the pallet on four sides.
E. Contact PCL regarding return of misrouted packaging.
F. Return packaging to TAC on a regular shipment
G. Send communication to the deviation e-mail address: TAC_Deviation_Request@DENSO-diam.com
   - In title put if the packaging is misrouted, obsolete or overstock.
   - In the e-mail put the packaging type, code and quantity.

Appendix 6: TAC's Packaging and Lot Size Change Guidelines

Responsibility:

A. TAC Production Control Engineering (PCE):

- Investigate all proposals for lot size changes from internal departments and suppliers.
- Request updated packaging specifications be input into NAIL.
- Inform departments of packing or lot size change

B. TAC Material Control (MC) and Production Material Planner (PMP):

- Material Control will investigate current inventory.
- MC and / or PMP coordinate timing of change over with supplier, customer and internal departments, as applicable, and establish effective dates.
- MC or PMP to add effective date CIGMA P40 screen.

C. Supplier:

- Propose new lot size, if asked, by checking what will fit into the packaging.
- Update the packaging spec in NAIL and notify TAC PCE group.
- Coordinate with material control on the timing of the change over.
- Start shipping to meet new lot size or packaging on the established effective date.

Appendix 7: TAC's Supplier Service Part Packaging Guidelines

Unless otherwise specified supplier service part packaging must be expendable and must be packed in an appropriate size box to insure the quality of the part(s).

Responsibilities:

1. TAC Production Control Engineering (PCE):

- Provide supplier with TAC requirements.
- Review suppliers packaging specifications for component parts (as needed).

2. Supplier:

- Review and adhere to TAC requirements.
- Monitor packaging condition and ensure quality of pack before use.
- Investigate packaging improvements.
- Provide packaging cost analysis to TAC Purchasing, when requested.
- Suppliers are to follow DENSO Supplier Manual regarding expendable packaging.
- Submit sample packs and perform package testing when necessary.
- Parts must utilize at least 85% of the pack without exceeding 30 lbs.
- Utilize TAC standard wood pallets (48" x 45")