

F I B R E B O X A S S O C I A T I O N



CORRUGATED MODULAR SYSTEMS
for
Case-Ready Meats

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Why a modular system for case-ready meat?

It began with produce ...

In 2000 the Fibre Box Association (FBA), representing the corrugated packaging industry, developed and released a voluntary modular packaging system for produce, based on its analyses of emerging distribution trends impacting fruits and vegetables. It was named the Corrugated Common Footprint Standard. That standard has gained rapid acceptance, and display and non-display boxes made and marked according to the standard are being widely used. Cooperation with the European corrugated industry, as well as companies and associations based in Central and South America and in Asia, has led to that voluntary standard becoming global in scope.

... and moved to meat.

The corrugated industry, under the auspices of FBA, has again taken steps to address customer and retailer needs in another rapidly growing food marketing segment: case-ready meat and poultry (which will be referred to hereafter commonly as “meat” or “meats”).

The shift to a pre-packaged case-ready format has major implications on where and how meat is processed, distributed and marketed. These revolutionary changes carry over to transport packaging as well. With processing of consumer cuts and portions pushed upstream, a case-ready transport package arriving at retail now may contain from 2 – 20 retail-ready primary packages weighing 10 – 35 lbs. This is in contrast to past practice where the packaging for primal cuts totals as much as 80 lbs. or more. Trailers will no longer be weighted-out, but rather cubed-out. Thus the challenges faced by the transport package shift from containment to stacking strength, protection of the primary package and transportation efficiency.

Given corrugated’s strength-to-cost ratio and structural options, achieving product and primary package protection will not pose a serious challenge. Transportation efficiency is both a greater challenge and an opportunity. Case-ready distribution costs are significant with a potential for long hauls of low-density unit loads and trailers (now, frequently only 20,000 – 28,000 lbs.). By better utilizing transport packaging, unit load and trailer cube, more product could be shipped per trailer, at lower cost per package and per pound.

There is also a recognized need to build solid, stable mixed-unit loads of case-ready product (from multiple producers) at distribution centers. Compounding cube and mixed load opportunities is the fact that primary package sizes are also less than optimal from a cubic efficiency perspective. Thus the question arises: “Is transport package modularity a potential solution?”

The Corrugated Modular Systems for Case-Ready Meats establish a modular approach and parallel specifications for 5-Down and 6-Down transport container footprints and minimum inner box dimensions. Voluntary use of one of the Modular Systems will facilitate efficient loading, handling, shipment and storage of meat products in primary packages to be transported and marketed across North America.

Rationale

If common transport package footprints are accepted, improved trailer cube and transport efficiency could be realized in both full and mixed unit loads. Another significant benefit would also arise: the fixed footprint would allow primary package producers to develop cube-optimized solutions, with reduced risk and capital costs. In fact, redevelopment of primary trays would likely be encouraged and accelerated since an efficient modular approach would be preferred by most retailers, and meat processors would be far less likely to create unique and potentially conflicting footprints / tray sizes.

Benefits of a common, modular footprint for case-ready meat seem clear. What is less certain, at this time, is which pallet pattern (and thus transport package size) will be preferred by the industry. The most likely optimal patterns are “5-Down” and “6-Down” (5 or 6 containers per tier or layer on an industry standard 48” x 40” pallet). Currently, there appears to be interest in, and support for, both these footprints among retailers. Given the recent proliferation of case ready and the scope of the changes affecting both transport and primary packaging, it is difficult to predict which of the two footprints might eventually become the “preferred.” Thus we have provided for both options and, in essence, two parallel Modular Systems. It is our belief that market forces will determine whether one, or both become “preferred,” based on the value they provide. Until that time, it is envisioned that both footprints can and will circulate independently, and in parallel. The intent is that the 5 and 6-down containers will not be mixed on the same unit load. Since demand for modular transport packaging will likely be on a retailer-by-retailer basis for their individual systems, the likelihood of intermingling 5-Down / 6-Down packages within the same unit load is virtually nil.

Scope

These systems apply to corrugated containers used to ship case-ready meats from the processor to retail locations—directly or through distribution centers.

Each of these modular systems establishes industry compatibility and provides a common platform for ongoing design creativity to satisfy individual processor and retailer marketing/distribution needs.

Geographic Reach

FBA is a North American trade association with members located in the United States, Canada and Mexico. These FBA-sponsored modular systems are intended to provide the opportunity for greater efficiencies in packaging and transport of case-ready meat produced or sold within North American markets.

Impact on Interested Parties

Processors

- Creates the opportunity for efficient, recyclable packaging solutions.
- Allows package, pallet and trailer cube to be used more efficiently.
- Ensures product protection for existing and new packages through custom design.
- Offers a wide variety of box designs and material constructions.
- Lower-impact change than other solutions.
 - Many sources of supply.
 - Long-term history and relationships.

Retailers/Distributors

- Increases the speed at which mixed pallet loads of case-ready meat products can be built. Decreases distribution costs at the distribution center (DC) by improved mixed load building efficiencies.
- Decreases labor costs in the distribution center and the retail store by reducing handling and training requirements.
- Reduces distribution costs from DC to retail by permitting greater unit load and trailer cube efficiencies.
- Diminishes shrink and its cost by creating safe, stable mixed unit loads.

Primary Packaging Manufacturers

- Known, common internal dimensions of transport packaging with which their products will be used.
- Less risk in design and tool-up for primary package production. Fixed minimum inside dimensions ensure primary package fits across transport package styles and manufacturers.

Container Structural Requirements

Inside Dimensions:

Are set as minimums only and are intended to preclude and prevent any portion of the transport package (e.g., minor flaps, tabs, etc.) from incursion into the dimensionally specified internal footprint.

| | Minimum Length (in.) | Minimum Width (in.) | Depth (in.) |
|---------------------|----------------------|---------------------|--------------|
| 5-Down (CRM) | 22 3/4 | 14 3/4 | Unrestricted |
| 6-Down (CRM) | 22 3/4 | 12 5/16 | Unrestricted |

Outside Dimensions:

Are set as maximums only and are intended to preclude any part or portion of the transport or primary packages (as shipped) from extending outside the dimensionally specified external footprint.

| | Maximum Length (in.) | Maximum Width (in.) | Depth (in.) |
|---------------------|----------------------|---------------------|--------------|
| 5-Down (CRM) | 23 13/16 | 15 7/8 | Unrestricted |
| 6-Down (CRM) | 23 13/16 | 13 3/16 | Unrestricted |

Container Top:

The container top is not allowed to be more than 80% open, as positioned for storage and distribution.

Compression Strength:

The corrugated industry's modular systems do not include minimum compression strength values (a principal element of stacking strength). Container suppliers and their customers should determine adequate compression strength specifications. All containers made under the Corrugated Modular Systems for Case-Ready Meat, and certified as such, must be designed and produced to perform adequately throughout the entire distribution system.

Ergonomics:

Access or hand holes are optional.

Depths:

Variable depths are allowed to optimize shipping density and product protection. The container purchaser should specify container depths.

Nesting:

Each container must include appropriate geometry or features to prevent a container above (of identical compliant footprint) from nesting into a container below. Containers must not include any features that would preclude the stacking of complying Corrugated Modular Systems for Case-Ready Meat containers from different corrugated suppliers.

Other:

All other container features and performance attributes are a matter for commercial negotiation between the container manufacturer and the purchaser.

Container Strength and Performance

The Corrugated Modular Systems for Case-Ready Meat inform the corrugated manufacturer of its responsibility to incorporate container strength appropriate to the application and meat products being shipped. It does not, however, provide specific material specifications and/or compression/stacking strength value recommendations for the containers.

Compression/stacking and containment are functions of the weight of the container contents, fiber content of the corrugated and the distribution environment, in addition to container-design features not necessarily covered by these modular systems.

Strength requirements must be jointly evaluated between the purchaser and the corrugated supplier, recognizing that the containers may be shipped in mixed unit loads, potentially resulting in greater compression strength requirements than might be necessary when shipping homogenous unit loads.

Container Design Flexibility

The Corrugated Modular Systems for Case-Ready Meat allow for design flexibility.

The modular systems encourage container manufacturers to employ corrugated's inherent design flexibility to ensure that meat products are packed in containers that suit each product's needs. The modular systems are not intended to preclude innovation in the design and performance of the corrugated container. Design options include but are not limited to:

- Structural styles
- Varying depths
- Cooling/venting/opening features
- Graphics
- Interior and exterior colors
- Manual and/or machine setups

Container Markings

Containers meeting all the requirements of the Corrugated Modular Systems for Case-Ready Meat may be self-certified by the container manufacturer, and, if so certified, will display the appropriate marking as shown below. Artwork is available from FBA.



When using the certification marking, the manufacturer must comply with these guidelines:

- The certification marking must be printed on an outside surface of the container.
- The marking must be at least two inches in size.
- The marking must be of a contrasting color to the area surrounding the marking.
- The container manufacturer's name and location (plant or corporate) must also appear on the outside of the container.

All corrugated manufacturers may use the certification markings on complying containers, without obtaining permission from FBA.

Significance of the Marking

The Corrugated Modular Systems for Case-Ready Meat marking signifies that:

- The containers may be stacked (according to footprint) on any Grocery Manufacturers' Association (GMA), 48" x 40" pallet, without overhang.
- The containers may be stacked in stable mixed loads with other producers' goods that are also packaged in the same footprint containers, regardless of the origin of the package or products.
- The container has been designed so that nesting will be prevented, even with partially open-top containers in mixed loads.
- The manufacturer has employed good container design and manufacturing practices, to provide appropriate container strength and product protection.

Compliance and Enforcement

FBA will use reasonable efforts to educate all North American corrugated container manufacturers about the Corrugated Modular Systems for Case-Ready Meat and the importance of using a certification marking only on containers manufactured in accordance with these modular systems.

Anyone who sees containers with the certification marking that do not appear to comply with the Corrugated Modular Systems for Case-Ready Meat should notify the container manufacturer. An example of any container thought to be non-complying should also be sent to FBA.

- Use of the Corrugated Modular Systems for Case-Ready Meat is voluntary.
- Misuse of the Corrugated Modular Systems for Case-Ready Meat or the above-referenced marking requirements is prohibited.

FBA reserves the right to take all actions, including legal action, to maintain the integrity of the Corrugated Modular Systems for Case-Ready Meat.

Updates and Technical Specifications

The technical specifications for the Corrugated Modular Systems for Case-Ready Meat may be updated from time to time. The technical specifications, in their most current form, are available on the Fibre Box Association's Web site (www.fibrebox.org) or by contacting the Fibre Box Association at (847) 364-9600 (USA).

Glossary of Terms

5-Down: A container size that will allow up to 5 identical containers per layer to fit a GMA 40" x 48" pallet without overhang.

6-Down: A container size that will allow up to 6 identical containers per layer to fit a GMA 40" x 48" pallet without overhang.

Case Ready: Pre-cut and pre-packaged fresh meat, poultry or seafood product, ready for a retailer display case.

Columnar Stacking: Containers of the same footprint aligned vertically in a pallet stack without rotation in the horizontal plane in relation to each other.

Compression Strength (Dynamic): Vertical compressive strength of a container; property which relates to the ability of a container to support weight (static) stacked upon it.

"Cube": The degree of utilization of available space inside a container, within a pallet load's maximum dimensions or within a shipping vehicle.

Depth: The vertical dimension of a container as measured at a side along a line perpendicular to the bottom, up to the top horizontal plane of the container.

Footprint: The outermost length and width dimensions of the container.

Inside Dimensions (ID): The distances inside a container between the closest inner surfaces, as measured in all three directions.

Linear Measurement Units: mm = millimeters, cm = centimeters, in. = inches.

Mixed Loads: Different products packaged in the same footprint containers on the same unit load.

Modular: Standardization and compatibility of container size to create "building block"-type containers (e.g., 5-Down or 6-Down).

Modular System: A corrugated industry voluntary compatibility initiative that facilitates efficient stacking and transport of case-ready meat containers with the same footprint from differing producers.

Nesting: A situation in which one container or tray slips or tilts (wholly or partially) into the container or tray immediately below it. Nesting may be the result of container misalignment or lack of structure to support the container above. It can result in damaged goods and contribute to the instability of a pallet load of containers.

Outside Dimensions (O.D.): The distances outside a container between the outermost surfaces, as measured in all three directions.

Pallet: A portable platform for handling, storing or moving materials or packaging. The standard meat distribution pallet dimensions (length x width) are 48 in. x 40 in. (GMA Pallet).

Primary Packaging: The package that contains, and is in direct contact with, cuts of meat or poultry.

Receptacle: (see Stacking Receptacle)

Shrink: Reduction in quantity or value of saleable product due to spoilage, age, damage or other reasons.

Stacking Receptacle: The area of the bottom portion and / or wall of a container that is designed to accept the stacking tab of the container immediately below. Stacking receptacles are not included in these modular systems, but are permitted if so desired.

Stacking Strength: The maximum vertical load that a container can safely carry through its intended distribution system.

Stacking Tab: A portion of the container that protrudes above the top surface of the container and fits into the stacking receptacle of another container with a compatible footprint placed on top of it. Stacking tabs are not included in these modular systems, but are permitted so long as they comply with the provision in the Structural Requirements section (i.e., they may not encumber or restrict the ability of other complying containers to be stacked above, below or adjacent to the subject container; or cause overhang of the pallet).

Tab: (see Stacking Tab)

Transport Container: For the purposes of the definition of these modular systems, it is a container having not more than 80% of the top surface area open, including containers that are completely closed. Tear-out panels are optional.

Unit Load: The grouping of containers on a pallet, or occasionally on a slip sheet.

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