

# Fisher™ Packaging and Shipment Methods

## Standard Packaging

Standard shipping methods vary from cardboard box containers to packaging on wood pallets covered with a cardboard box, to all wood crate packaging for shipments without special requirements. These methods are intended to allow the most product protection for the time periods specified.

### Domestic Shipment—Immediate Use

For domestic shipments a cardboard box may be used to contain the unit or components to be shipped, or for larger units, cardboard may be used to cover a wood pallet that has been utilized to secure the unit. All-wood crates are used to ship very large items.

Domestic shipments for immediate use are intended for product that will be installed or used within a relatively short amount of time. The package will protect the item for up to one year if the package is stored in an enclosed, heated warehouse; protection will last up to one month if the item is stored in an open shed (a roof and three walls) or outside, if covered with a secure, waterproof tarp. This packaging method will not protect units that will be stored outside, uncovered.

### Export Shipment—Immediate Use

Standard packaging for exports may also include the use of cardboard to protect the unit or component as described for domestic shipments, and depending on size, may be packaged in an all-wood crate or box.

The export package will protect the item for the same time periods as for the domestic packaging method — up to one year if the package is stored in an enclosed heated warehouse; protection will last up to one month if the item is stored in an open shed or outside, if covered with a secure, waterproof tarp. This packaging method will not protect units that will be stored outside, uncovered.

## Long Term or Extended Storage Shipment Methods

Automobile manufacturers, the military, and petroleum companies have used vapor corrosion inhibiting (VpCI) materials to mothball equipment or ship items that will be exposed to corrosive atmospheres for long periods. These products allow chemistry that is formulated into the packaging materials to volatilize and cover the packaged product with a micro layer of rust inhibiting compounds.

Emerson uses a series of rust preventive products, provided by Cortec® Corporation, for shipping products requiring long term storage that are more effective for product protection. Cortec's vast network of representatives provide worldwide distribution. Because the chemistry incorporated in the multiple material packaging process volatilizes to completely coat the product in a protective layer, it is much more effective than trying to keep the entire package airtight. A small amount of air exchange will not deplete the effectiveness of these products.

The long term or extended storage package will protect the item for up to one year with outdoor, covered storage, up to two years when stored in an unheated warehouse, or up to five years in a heated warehouse. This packaging method will not protect units that will be stored outside, uncovered.

Cortec packaging materials help to assure a rust-free condition of products that require long-term storage protection shipped both domestically and overseas. If you have any other questions concerning this packaging method, please contact your [Emerson sales office](#) or Local Business Partner.

With Cortec packaging material desiccant is not required and not used by Emerson. Typical desiccant material is only good until it absorbs all the moisture it can hold, and then offers no other protection. This saturation of the desiccant can happen very quickly in a poorly sealed or damaged container.

Desiccant can also cause corrosion to form when in the saturated condition if the packaged item is placed into a warm environment. The saturated desiccant material will begin to “give up” the moisture it has absorbed, and will create a humidity chamber inside the package enclosure, causing rust to form on unpainted surfaces.

## Cortec Specifications

Cortec products utilize the newest generation of VpCI technology, which will protect vulnerable metal surfaces from corrosion for up to 5 years when packaged and stored according to Emerson long term storage specifications. These specifications will include VpCI 369D on all unpainted surfaces, VpCI 132 pads inside of the enclosed space and VpCI 126 film totally enclosing the parts.

Packaging standards that utilize Cortec film will provide a higher level of protection in the harsh climates and vulnerable elements than the typical tarpaper/desiccant/vapor barrier bag solution that had previously been used.

Cortec packaging products use only safe chemicals with low toxicity levels. All of the Cortec products are recyclable and environmentally compatible packaging. Contact your [Emerson sales office](#) or Local Business Partner for more information.

## Vapor Permeability Test per MIL-B-121

Permeability testing was conducted on the Cortec VpCI-126 4 mil polyethylene sheeting as compared to typical tarpaper. Testing concluded that neither material was permeable when tested per MIL-B-121, paragraph 4.5.5.

The panel in figures 1 and 2 was packaged in typical tarpaper with a plain polyethylene sheet covering, and then glued tarpaper was installed over the entire crate.

The panel in figures 3 and 4 was protected with Cortec VpCI-126 low-density poly sheeting only.

Both panels were grit blasted to a “white metal” condition prior to this testing, and no rust inhibitor was applied to either of the panel surfaces. Mini-skids were constructed to mirror what is normally done for completed valve assemblies. The loaded skids were then placed into a salt exposure cabinet that was prepared per ASTM B-117.

Results of testing showed the panel in figures 3 and 4 was better protected by the VpCI-126 poly than the panel in the typical tarpaper-covered and glued container in figures 1 and 2.

Figure 1. Typical Tarpaper Packaging



Figure 1 packaging method utilized tarpaper under the panel and the container uprights covered with tarpaper with seams glued. The panel was covered with VpCI paper and plain plastic sheeting (not VpCI plastic). Heavy rust is visible on the upper right side of the panel.

Figure 2. Typical Tarpaper Packaging (Reverse side)



In figure 2, square headed nails were removed from the panels and the panels were turned over. With the old tarpaper method, the same side that was heavily rusted in figure 1 now exhibits heavy rusting on the under side (left side) of the panel. Rusting has begun on the opposite side as well.

Figure 3. Cortec VpCI-126 Packaging



Figure 3 packaging method utilized Cortec VpCI-126 polyethylene under and over the test panel. The panel was sandwiched between the two VpCI impregnated polyethylene layers. Frame lumber was nailed to hold the sheeting in place. The container was built with uprights, but no barrier material was used over the skid framework sides, ends, or top. The panel is virtually rust-free.

Figure 4. Cortec VpCI-126 Packaging (Reverse side)



In figure 4, some minor rust is visible on the underside of the panel protected with Cortec VpCI-126 poly, but the largest area of this rust appears to be from a thumbprint or fingerprint.

Neither Emerson, Emerson Automation Solutions, nor any of their affiliated entities assumes responsibility for the selection, use or maintenance of any product. Responsibility for proper selection, use, and maintenance of any product remains solely with the purchaser and end user.

Fisher is a mark owned by one of the companies in the Emerson Automation Solutions business unit of Emerson Electric Co. Emerson Automation Solutions, Emerson, and the Emerson logo are trademarks and service marks of Emerson Electric Co. All other marks are the property of their respective owners.

The contents of this publication are presented for informational purposes only, and while every effort has been made to ensure their accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or services described herein or their use or applicability. All sales are governed by our terms and conditions, which are available upon request. We reserve the right to modify or improve the designs or specifications of such products at any time without notice.

Emerson Automation Solutions  
Marshalltown, Iowa 50158 USA  
Sorocaba, 18087 Brazil  
Cernay, 68700 France  
Dubai, United Arab Emirates  
Singapore 128461 Singapore

[www.Fisher.com](http://www.Fisher.com)

