

Packaging Information and Recommended Handling of Fiber Spools, Spool Covers and Plastic Shipping Containers

Application Note

AN3037

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ISO 9001 REGISTERED

Scope

This document describes how spools of Corning® optical fiber are packaged, basic procedures that should be followed when transporting or handling Corning optical fiber and what documentation is generated for each shipment.

General

Optical fibers are inherently strong and flexible; however, as with all materials, proper handling is essential. The following guidelines should be observed when handling optical fibers in order to maintain excellent performance and to facilitate unwinding and use. The combination of shipping spool, spool cover and plastic shipping container, along with a proper packaging and handling procedure, protects the fiber during shipping and handling.

Contact Information

To obtain copies of posters, literature and/or additional services mentioned in this application note, contact your Corning representative as indicated on the last page.

Shipping Spool and Spool Cover

All fibers are parallel wound flange-to-flange under controlled tension on 9 1/4" (23.5 cm) plastic shipping spools. The nominal wind tension is sufficient to maintain wind integrity during shipment and storage.

For added protection during shipment and handling, each spool is encased in a clear plastic UV-inhibiting spool cover with molded carrying handle and dual locking clasp. Request Corning's Application Note for more details on the spool and spool cover.

Shipping Container

All spools of Corning optical fiber are packed in NSTA (National Standards for Transportation Agency) tested plastic shipping containers. The plastic boxes accommodate 8 single-wide or 4 double-wide spools per box. See figure 1 for details on Corning's plastic shipping container.

The logo consists of the word "CORNING" in white, uppercase, serif font, centered within a solid blue square background.

Package Recycling Program

All packaging material including the spool, spool cover, shipping container and pallets are the property of Corning Incorporated and should be returned to a pre-assigned location for recycling. This recycling service is offered to all customers, free of charge. Corning customers are encouraged to take full advantage of this program. More information is available in the document “Corning Incorporated Return Program.”

Wind and Payoff Problems

Proper handling and storage techniques should be followed to maintain fiber wind quality. Flange gaps and cascaded fibers are wind quality issues usually associated with improper handling techniques. Poor wind quality can lead to payoff problems and even fiber breakage during processing.

Recommended Handling Procedure

Pallet Unloading

- Remove the plastic stretch wrap from the pallet, being careful not to cut into the plastic boxes.
 - Note: If individual boxes are banded, be careful not to cut the plastic boxes when removing the banding material.
- To remove a box from the pallet, push up and to the side with two hands to break loose the lock pattern. The box will now slide easily across the box below.
- Unload the box from the pallet using safe handling/lifting procedures.

Unpacking shipping container

- Figure 1 “Plastic Shipping Containers, Opening and Storage” is an illustration of the recommended plastic shipping container handling procedure.
Since the top and bottom halves of the shipping container are identical, the top is indicated by a faint arrow on the “ship-to” label.
- Unlock the red swivel lock as indicated on the sliding latch.
- Slide the latch to the open position as indicated.
 - Note: Slight downward pressure on the plastic shipping container over the latch area makes the sliding latches easier to operate.
- Once all latches are in the open position, lift the box top straight off the bottom.
- Once the box is opened, remove spools and covers from the box using the cover handle. Spools with fiber should never be returned to the plastic shipping container without the spool cover. The cover protects the fiber from accidental indentations and abrasions. Disruptions to the wind pattern may cause problems during processing or, if severe enough, fiber breakage.
- It is **recommended** that the spool cover remain on the spool during storage, transport and general handling. It can be easily removed for processing and the UV inhibitor prevents yellowing in storage.

Spool Cover Removal

- Figure 2 “How To Handle Fiber Spools and Covers” is an illustration of the recommended spool removal and handling procedure. A poster of recommended procedures to handle the recycle optical fiber spools, covers and containers is available at the Corning Optical Fiber Information Center.
- Place the spool and cover in an upright position on a smooth, non-slip surface.
- Un-clasp and partially open the two cover halves, allowing the spool’s weight to rest on one side of the cover.
- Allow both halves to fully open so that the spool is completely cradled in one side of the cover.
- It is recommended that the spool be removed from the cover with the use of forefinger and thumb as illustrated in figure 2. The cover should not come in contact with the fiber.

- Placing the spool on a horizontal peg or mandrel is an **optional** method of supporting the spool during cover removal.
- **Never** lift the spool by grasping across the flanges. Grasping spools by the edges may cause flexing that in turn may cause the fiber to separate from the flange. During additional handling or processing, the fiber may fall into the gap at the flange becoming entangled and possibly breaking.

Storage Conditions

Fiber spools should be stored in an upright position supported vertically by the two outside flanges (Fig 2). It is **recommended** that the fiber spool be stored with the cover in place. Storing spools or dropping them horizontally on their sides, with or without their covers, may result in flange deflections, thus causing flange gaps and poor wind quality. The storage environment for Corning optical fiber while on the shipping spool should be -40°C to +45°C at 98% relative humidity. To maintain optimum wind quality over extended periods of time, Corning recommends a storage temperature of 20°C to 35°C. It is recommended that boxes not be stacked more than eight high. The box top and bottom are an identical piece, and can be nested and stacked for storage. It is recommended that the nesting stack height be a maximum of 5 feet.

Shipping and Storage Procedures

- All spools of fiber must be properly packaged before shipping – spools enclosed by spool covers and placed inside a plastic shipping container (box).
- It is recommended that all boxes be palletized prior to shipment and remain palletized throughout transport. Boxes must be firmly banded and/or stretch wrapped to the pallet. Breaking down of pallets prior to delivery is discouraged.
- Shipments must be handled with care. Mishandling of boxes can create poor wind quality. It is recommended that shipments be marked with 'Fragile' labels/indicators.
- Boxes must remain in proper orientation. Boxes must not be stored or transported upside down or on their sides. It is recommended that shipments be marked with 'This Side Up' labels/indicators.
- Boxes must be kept dry during transport and storage. It is recommended that shipments be marked with 'Keep Dry' labels/indicators.
- Boxes shall be stacked no more than 4 high on Corning plastic pallets and no more than 2 high on paper pallets.
- Pallets may not be stacked during transport and may only be stacked 2 high during storage.
- It is recommended that agents store the fiber at their warehouses on the original shipped pallets.
- Agents/freight forwarders/carriers are expected to comply with these procedures to the best of their ability.
- Corning will file claims against freight forwarders/carriers and not honor returns from agents who mishandle Corning fiber.

Documentation

The documentation generated for each order of optical fiber may include:

- An acknowledgment confirming the purchase order, that is mailed directly to the customer following order placement.
- A packing slip with reference to the purchase order number, that accompanies each shipment.
- An invoice for the order, mailed within 24 hours of shipment.
- A certificate of compliance, available upon request.
- Fiber Data Delivery (FDD) is available upon request. Contact a Corning representative for more information.
- Container, spool and spool cover recycling information accompanies each shipment.

Shipping Container Dimensions and Weights

<u>Length in (cm)</u>	<u>Width in (cm)</u>	<u>Height in (cm)</u>	<u>Max Weight (1) lb (kg)</u>
24 (61)	24 (61)	11 1/2 (29)	55 (25)

(1) Based on full container with eight 25.2 km reels of fiber or four 50.4 km reels.

Corning optical fiber is shipped palletized and film wrapped, with a maximum of 16 boxes per pallet.

Storage Trays

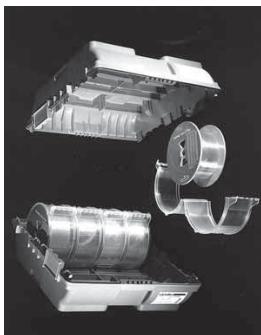
A fiber spool and cover storage shelf tray, made of blue high-impact blue plastic, is available for purchase.

The trays are designed to allow proper storage of fiber spools and covers in an upright position with easy access to all locations and can be purchased from:

Rimco Plastics Corp.
1439 Colonial Drive
Horseheads, New York 14845
Tel: (607) 739-3864

Plastic Shipping Containers, Opening and Storage

Figure 1



Shipping container with fiber spools and spool covers



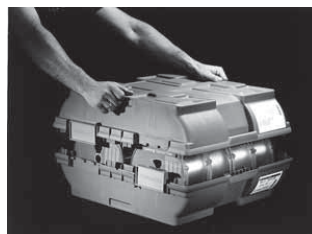
Shipping container swivel lock and sliding latch assembly



Unlock the red swivel lock as indicated on the sliding latch



Slide the latch to the open position as indicated



Once all sliding latches are in the open position, lift the box top straight off the bottom

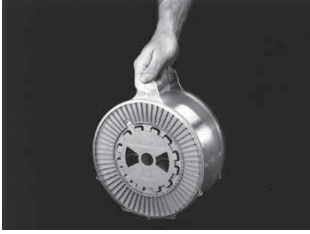


Plastic shipping containers can be stacked together for easy storage

How to Handle Fiber Spools and Covers

Figure 2

Unpacking



DO

Remove spool and cover from box by handle



DO

Unclasp spool cover



DO

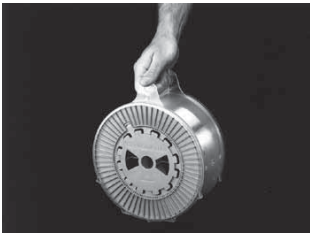
Remove spool using center hole



DON'T

Lift spool by the flanges

Transporting



DO

Transport spool by handle



DO

Transport using center holes



DO

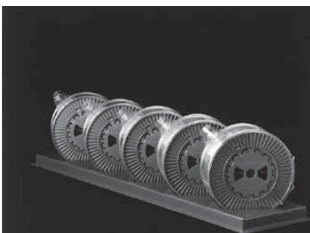
Transport in upright position



DON'T

Transport spool by the flanges

Storage



DO

Store in trays with covers



DO

Store covered in upright position



DON'T

Store horizontally

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