



REUSABLE FLEXIBLE INTERMEDIATE BULK CONTAINERS

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Introduction

This publication provides information for helicopter operations specialists regarding reusable flexible intermediate bulk containers. It discusses inspection and repair criteria for reusable containers and recommendations on selection and purchase.

Background

A flexible intermediate bulk container (FIBC) is a large bag with loops at the top for overhead lifting. It stores or carries dry-flow material such as grain, sand, or flour. These lightweight, collapsible bags can replace wooden pallets. When properly filled they are stackable. FIBCs are not designed to carry sharp objects or objects with sharp edges, such as axes, saws, and spikes. These bulk containers do not replace cargo nets.

Most FIBCs are square containers with an open top and a plain, flat bottom. The bag's corners have lifting loops for use with a forklift or an overhead hook in combination with spreader bars (figure 1). For helicopter operations, use bulk bags with stevedore straps for single-point lifting. Bag manufacturers do not recommend lifting their bags by attaching all four corner loops to a single point. This increases stress on the loops and bag surfaces. Using stevedore straps helps equalize the vertical loads onto each corner loop when lifting with a hook (figure 2).



Figure 1—FIBC carried by a forklift.



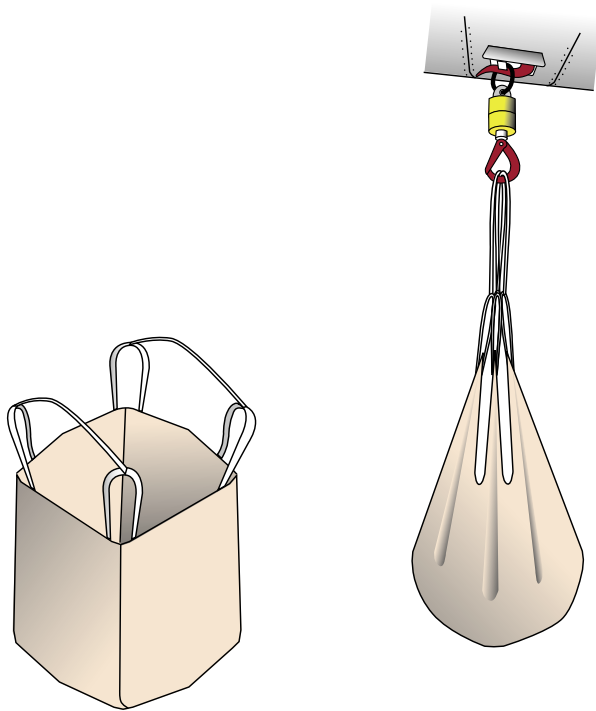


Figure 2—Stevedore straps.

The standard size bag is 35 inches wide by 35 inches deep by 40 inches tall (commonly known as 35 by 35 by 40). The dimensions vary slightly by FIBC manufacturer. Other sizes are available.

All manufacturers make single-trip bags for light duty. These are suitable for transporting cargo once and then are discarded. The standard carrying capacity is 1,500 to 2,000 pounds, with a safety factor of 5:1. These bags are made from a 5- or 6-ounce polypropylene yarn. Changing the bag size increases or decreases the weight capacity rating by 500 pounds. The cost is \$5 to \$20 each. Nonreusable containers are not recommended for helicopter operations.

Many manufacturers offer standard-duty bags. These bags have the same weight rating and safety factor as onetime-use bags but are made from 6-ounce fabric. The makers guarantee the bags for their firsttime use only. However, they say these bags can be reused for cargo transport at the customer's discretion with no manufacturer guarantee. The cost is \$7 to \$21 each.

Some manufacturers offer heavy-duty bags. The weight rating is 4,000 to 6,000 pounds with safety factors of 5:1 to 8:1. An 8- to 9-ounce polypropylene fabric is used for construction and has a one-use guarantee. Manufacturers intend for these FIBCs to be used multiple times in harsh environments. The number of uses depends on cargo type and load weight. For example, a 2-ton capacity bag used to carry 300 pounds of gear bags lasts longer than a bag carrying 4,000 pounds of gravel. The cost is \$14 each.

All bags have ultraviolet light inhibitors to slow degradation caused by sunlight. Heavy-duty bags have more inhibitors than other types. Keep these bags away from sunlight exposure when not in use.

Most companies produce bags with an optional inner coating used for transporting food products. This option is not required for helicopter operations. However, some companies offer the coating as a standard feature. This adds weight and cost to each bag, with no major benefit.

Note: Only heavy-duty bags are recommended for helicopter operations.

Inspection and Repair Criteria

Thoroughly inspect each FIBC before returning it to service. Check the bag to determine whether it is reusable. Look at the data label and the bag's surfaces for the word "reusable." Discard the bag after its initial use if it is not reusable. If the bag's weight rating is 2,000 pounds or less, it is a one-time use item.

Look for cuts or fraying in the bag's material. Inspect the stitching for damage or for unraveled areas. Inspect the loops for fraying near the top and where the loops are stitched to the bag. Check the bottom lining and bag seams for tears or material thinning. Look for areas where the material has become hardened, brittle, or discolored. These are signs of ultraviolet or corrosive chemical damage.

Some manufacturers sell sheets or rolls of polypropylene fabric with industrial-strength adhesive on one side for making repairs. Patch-

material rolls are 6 inches wide and 75 feet long. Rectangular patch sheets, 5 by 12 inches, also are available. Actual size varies by manufacturer.

Consider the following items when deciding whether to repair or discard the bag:

Repair if:

- Tears or holes are less than 1 inch in length or diameter.
- Tears or holes are at least 3 inches away from lifting straps.
- Fraying or thinning area is less than 1.5 inches square.

Discard if:

- Lifting straps have noticeable fraying or damage.
- Tears or holes are larger than 1 inch in length or diameter.
- Tears, holes, or fraying are within 3 inches of lifting straps.
- Severe discoloration patches from sunlight or chemical corrosion are evident.
- Hardened, brittle, or shedding fabric fibers are evident.
- Tears or holes are located at or near bottom corners.
- Patch material does not stick properly to the bag's surface.
- Three or more holes or tears are within 3 inches of each other.

Repair instructions are simple:

- Cut the patch to cover 1 1/2 inches beyond the tear or damage area.
- Clean the inside and outside surfaces around the damaged area.
- Apply one patch over the inner surface and another patch on the outer damaged surface. Two patches provide stronger reinforcement.

After following these inspection procedures, it is safe to reuse heavy-duty FIBCs.

Ordering and Availability

Follow these procedures when ordering FIBCs:

- Order only heavy-duty bags or bags made with 8- to 9-ounce material.
- Purchase bags with 4,000- to 5,000-pound weight rating when heavy-duty bags are unavailable.
- Request that the manufacturer print "reusable" on the bag's visible surfaces or data label.
- Order standard-size bags with optional stevedore straps. All manufacturers listed in this publication have optional stevedore straps.

Manufacturers' normal production reusable bags do not have "reusable" printed on them. Having "reusable" printed on the bags helps field operators distinguish reusable FIBCs from one-time-use bags.

Some FIBC manufacturers and suppliers are listed below.

Ameriglobe FIBC Solutions
153 South Long Street
Lafayette, LA 70506
Phone: 337-234-3211
866-AM-GLOBE
Fax: 337-232-5775
Web site: <http://ameriglobe-fibc.com>

B.A.G. Corporation
11510 Data Drive
Dallas, TX 75218
Phone: 800-331-9200
214-340-7060
Fax: 214-340-4598
Web site: <http://bagcorp.com>

Bulk Lift International
1013 Tamarac Drive
Carpentersville, IL 60110
Phone: 847-428-6059
Fax: 847-428-7180
Web site: <http://bulklift.com>

Bulk-Pack, Inc.
1025 North 9th Street
Monroe, LA 71201
Phone: 318-387-3260
Fax: 318-387-6362
Web site: <http://bulk-pack.com>

Bulk Sak, Inc.
103 Industrial Drive
Malvern, AR 72104
Phone: 501-332-8745
Fax: 501-332-8438
Web site: <http://bulksak.com>

Elway Industries, Inc.
4545 Pine Timbers, Suite 310
Houston, TX 77041
Phone: 713-690-9900
877-793-2800
Fax: 713-690-2022
Web site: <http://elwayinc.com>

Intertape Polymer Group
3647 Cortez Road West
Bradenton, FL 34210
Phone: 800-225-8622
Web site: <http://www.intertapepolymer.com>

Jumbocel Systems Inc.
16211 Air Center Boulevard
Houston, TX 77032
Phone: 866-USJUMBO
866-757-5575

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