Performance 5

-5.1 Type آزمون
All FIBC types shall be subjected to the tests as follows:
a) cyclic top lift;
b) compression/stacking test.
At least three نمونه آزمون s of each FIBC type shall be submitted for آزمون leading to certification. The
نمونه آزمون s shall tested as follows:
نمونه آزمون 1: cyclic top lift test using the FIBC having the shortest vertical dimension;
نمونه آزمون 2: cyclic top lift test using the FIBC having the greatest vertical dimension;
نمونه آزمون 3: compression test using the FIBC having the greatest vertical dimension.
To comply with this standard the three نمونه آزمون s shall withstand the tests.
When the FIBC type has only one fixed vertical dimension, only نمونه آزمون s 1 and 3 need be submitted, and tested to withstand the tests.
One tested نمونه shall be durably identified and retained for reference in any later complaint or arbitration.

The tests shall be carried out in a آزمایشگاه, working under the operational provisions of EN 45001, EN 45002 and EN 45003.

Preparation of FIBC for test 5.2

5.2.1 Filling

For both the top lift and compression/stacking test, the FIBC shall be filled to the level specified in accordance with 4.3 by the manufacturer/supplier with a tolerance of 0 % and +5 % of that height. The FIBC shall be filled with either:

a) a ماده, e.g. plastics granules, having the following mechanical properties:
bulk density, 500 kg/m3
to 900 kg/m3;
mesh size, 3 mm to 12 mm;
angle of repose, 30° to 35°;
or:

b) the actual contents to be carried, when these are known, and where their use will not itself be a hazard.

NOTE When option b) is chosen, the FIBC type is certified in relation to that specific product only.

2.2 Conditioning.5

The filled FIBC shall be conditioned before آزمون at ambient دما and relative humidity. However, in the event of dispute, آزمون shall be carried out after conditioning under standard conditions of (23 ± 2) °C and (50 ± 5) % relative humidity.

Test requirements 5.3

5.3.1 Cyclic top lift test(s)

Cyclic top lift test(s) shall be carried out in accordance with annex B and the following criteria shall apply:

a) no breakage of any lifting devices to the extent that any of the lifting devices ceases to support its بار; and

b) when tested with an inner liner, no protrusion of the latter beyond the outer surface of the FIBC, except through the closure(s), where this is a design feature; and

c) no loss of contents; and

d) no deterioration of the body which renders the FIBC unsafe for transport or storage.

NOTE A slight discharge during the test, e.g. from closures or stitch holes, should not be considered to be a failure of the FIBC, provided that no further leakage occurs after the FIBC has been raised clear of the ground.

5.3.2 Compression/stacking test

The compression/stack test shall be carried out in accordance with annex C and the following criteria shall apply:

a) no loss of contents; and

b) no deterioration of the body which renders the FIBC unsafe for transport or storage.

NOTE A slight discharge during the test, e.g. from closures or stitch holes, should not be considered to be a failure of the FIBC, provided that no further leakage occurs after the FIBC has been raised clear of the ground.

Annex A
(normative)
test مقاومت UV

A.1 General

مادهa s often undergo rapid photochemical degradation under the influence of sunlight, unless they have been stabilized in

durable fashion. An accelerated ageing that simulates ageing caused by sunlight may be brought about by irradiation with
s of the FIBC, e.g. fabric, webbing, rope, sewing thread, glues, areماده bearing بار s cut from theنمونه light of a UV type.
subjected for a certain period of time to irradiation from a light source of the UV type with specified spectral distribution. A
number of factors of uncertainty are inherent in the procedure, so comparisons should be available between the method
used and exposures in the environment in which the product is to be used.
NOTE 1 Certain types of UV stabilizing additives are rapidly leached out, especially in an alkaline
environment, which should be taken into consideration in applicable situations.
NOTE 2 The performance of UV stabilizing additives may be affected by colour and the type of pigment used. Therefore,
each combination of UV stabilizing additive and pigment should be tested separately.
A.2 Principle
s are alternately exposed to UV light alone and to condensation alone in a repetitive cycle.نمونه آزمون
A.3 دستگاه
The apparatus should be in accordance with ASTM G154-98 [1] using a UV-B lamp.
A.4 روش اجرا
to a fluorescent UV lamp for at least 200 h using a test cycle of 8 h at 60 °C with UV radiation alternating نمونه آزمون Expose a
with 4 h at 50 °C with condensation.
and elongation at break in accordance with ISO 5081 using نیرو for breaking نمونه آزمون After exposure is complete, test the
the conditioning requirements as described in 5.2.2. Compare the values with results
s that have been stored under dark and cool conditions.نمونه آزمون performed on simultaneously cut
A.5 Expression of results
s tested before and after exposure to the UV radiation.نمونه آزمون in Newton’s on نیرو Express the results for breaking

Annex B
(normative)
Cyclic top lift test

B.1 Principle

plate positioned on top of the contents. فشار The filled FIBC is suspended by its lifting devices with a flat
This is done in one of two alternative ways:
plate is restrained either from above or below. The FIBC is suspended from a frame to فشار a) the
plate; or فشار of the مقاومت is applied progressively against the نیرو which an upward
is applied نیرو b) the FIBC is suspended from a frame fixed at the time of test then a downward
plate. فشار progressively to the
is recorded and the FIBC is observed for نیرو ing, and dwell cycle. Theبار ing, unبار The filled FIBC is subjected to a repeated
breakage of any lifting device, other damage, or leakage of contents.

B.2 دستگاه

plate shall be flat except that flanges may be fitted to its underside to prevent lateral فشار B.2.1 The
displacement. The plate shall be of such a size that it covers between 60 % and 80 % of the surface area of the contents.
B.2.2 The suspension frame shall be such that, during the test, the filled FIBC can be suspended clear of
the ground with its lifting devices positioned as recommended by the manufacturer. For FIBCs designed for four point lifting,
the suspension frame shall have the cross section shown in Figure B.1. For FIBCs
designed for single point lifting, the suspension frame shall have the cross section shown in Figure B.2. For FIBCs designed
for two point lifting, the suspension frame shall have the cross section shown in Figure B.1 or B.2.
upward or downward) shall be:) نیرو B.2.3 The means of applying the
;بار a) capable of at least the required test
b) capable of a rate of (70 ± 20) kN/min;

نیرو. c) fitted with a means of registering the applied
plate (and any restraint used for the latter) shall be capable of فشار B.2.4 The suspension frame, the
s applied during the test with minimal deformation.نیرو resisting the
is applied. نیرو for use when an upward دستگاه B.2.5
of the appropriate type illustrated in one of Figures B.3 to B.9 shall be used for FIBCs دستگاه B.2.5.1
as in B.1 a). نیرو using top or base restraint and an upward آزمون being subjected to top lift
Figure B.3 Perspective view of an FIBC with four lifting devices using top restraint.
Figure B.4 Elevation of an FIBC with two lifting devices using top restraint.
Figure B.5 Elevation of an FIBC with the lifting devices formed by extensions of the body and using top restraint.

Figure B.6 Elevation of a single-point lift FIBC with base restraint using one member restraining the plate. فشار
plate. فشار Figure B.7 Similar to Figure B.6 but with two members restraining the
Figure B.8 Elevation of an FIBC with two lifting devices using base restraint and one member restraining the plate. فشار
plate. فشار Figure B.9 As Figure B.8 but with two members restraining the
B.2.5.2 Use of the apparatus illustrated in Figures B.6 to B.9 with base restraint involves connections passing through the body of the FIBC and its test contents. Rods are a suitable method of making such connections. Considerable care shall be taken:
a) with woven fabrics that the threads shall be separated rather than be cut to permit passage of a rod;
b) to ensure that any rod passes through the base no closer than 20 mm to any base seams or joins. When, as with an FIBC having a seam or join running across the centre of the base, a single rod would

need to pass within 20 mm of a seam or join then two rods should be used as shown in Figures B.7 and B.9.

NOTE It is recommended that:
a) a conical adaptor be screwed to the top of any restraining rod and removed once the FIBC is in position for test;
b) nuts be used to connect the rod(s) to the فشار plate and to a restraint.
B.2.6 دستگاه for use when a downward نیرو is used.
دستگاه آزمون of the type illustrated in Figure B.10 shall be used for FIBCs being subjected to top lift using a downward نیرو as in B.1 b).

B.3 روش اجرا
B.3.1 Select, fill and condition each FIBC for cyclic top lift آزمون in accordance with 5.1, 5.2 and 5.3.
NOTE Any top panel not designed to contribute to the overall strength of the FIBC may be removed to allow the entry of the test apparatus. The area removed should be the minimum commensurate with efficient operation of the test apparatus.
B.3.2 Select any appropriate size of فشار plate in accordance with B.2.1 and position it above the contents. This size shall be sufficiently small, and the positioning such, so that there will be no contact between the edge of the plate and the ماده of the FIBC during the test.

B.3.3 Apply upwards or downwards نیرو as appropriate. Increase the نیرو at the rate of (70 ± 20) kN/minute until the total نیرو equivalent to the specified test بار is registered. Remove the نیرو applied.
Allow a dwell period of not more than 30 seconds before repeating the cycle. Repeat the test cycle until the specified number of cycles has been completed. Carry out a further test cycle to the appropriate بار

specified for the final test cycle.
Use the appropriate cycle from the following:
بار of 6 x SWL and a final cycle at a test بار Heavy-duty reusable FIBC types: 70 cycles at a test of 8 x SWL.
بار of 4 x SWL and a final cycle at a test بار Standard duty reusable FIBC types: 70 cycles at a test of 6 x SWL.
بار of 2 x SWL and a final cycle at a test بار Single-trip FIBC types: 30 cycles at a test of 5 x SWL.
ing may be applied until failure of the FIBC, to provide additional information.بار NOTE After this test is complete, further at failure should, together with other relevant test observations be recorded in a test report. There بار When this is done, the to be noted in the certificate or ,بار at failure, if it is greater than the specified test بار is no requirement, however, for the reflected in the marking of the FIBC.

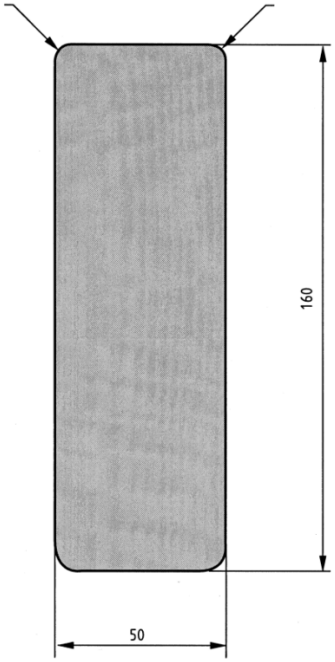


Figure B.1 — Cross section of suspension frame, Top lift test, FIBCs for four and. two point lifting

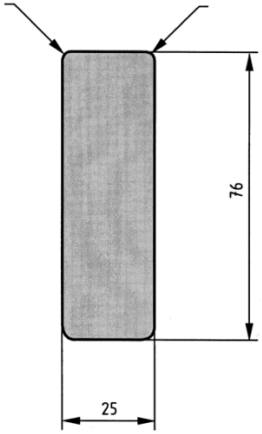
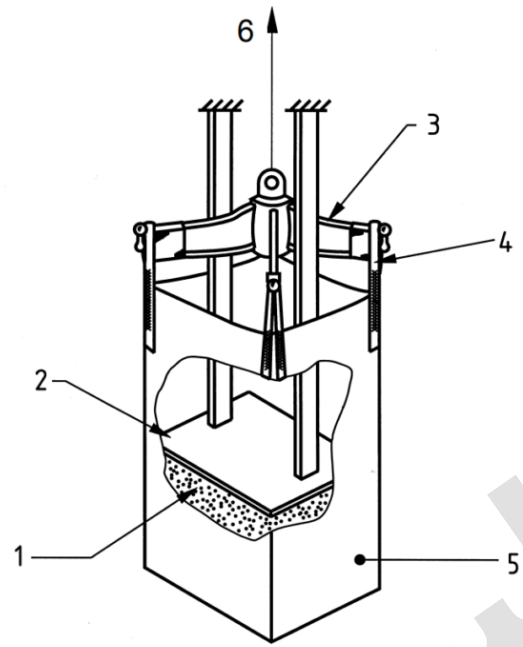


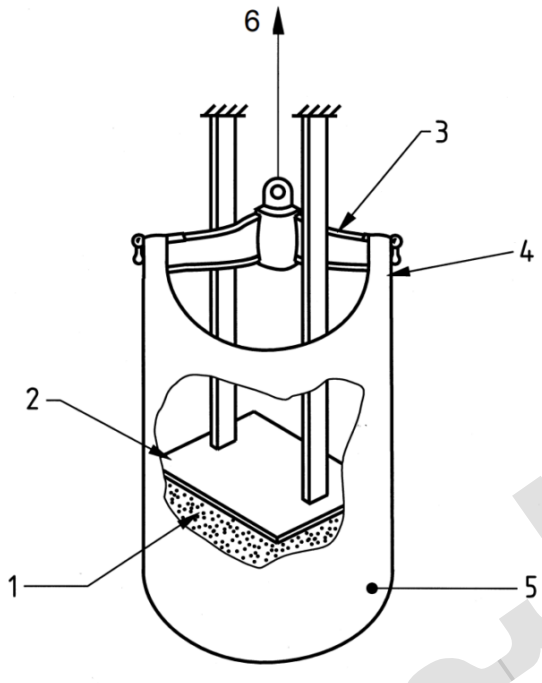
Figure B.2 — Cross section of suspension frame, Top lift test, FIBCs for single and. two point lifting



Key

1 Filler material
2 Pressure plate
3 Suspension frame
4 FIBC lifting device
5 FIBC
6 Hoisting device

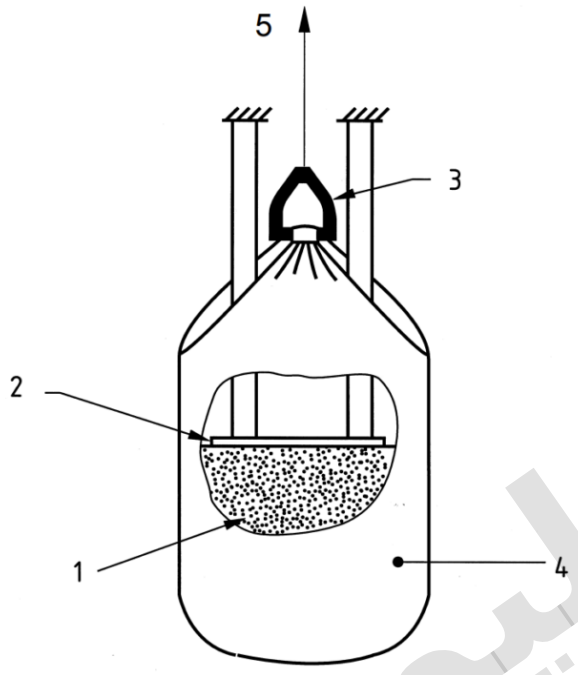
Figure B.3 — Perspective view of an FIBC with four lifting devices being tested using top restraint



Key

1 Filler material
2 Pressure plate
3 Suspension frame
4 FIBC lifting device
5 FIBC
6 Hoisting device

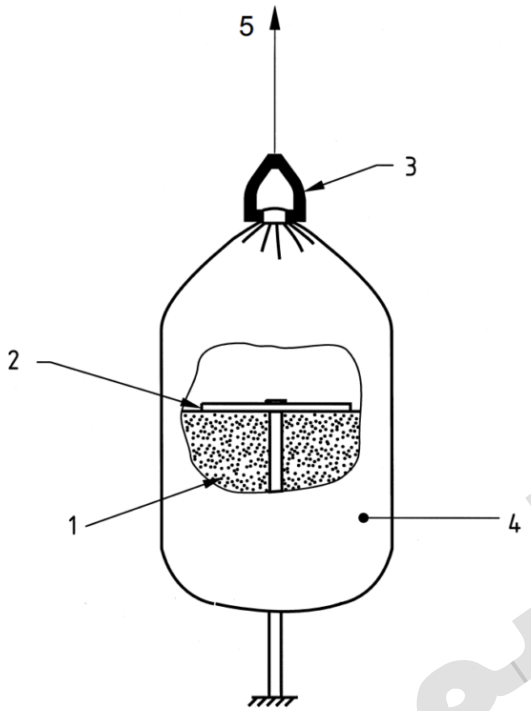
Figure B.4 — Elevation of an FIBC (with cut-out) with two lifting devices using top restraint



Key

1 Filler material
2 Pressure plate
3 Suspension frame
4 FIBC
5 Hoisting device

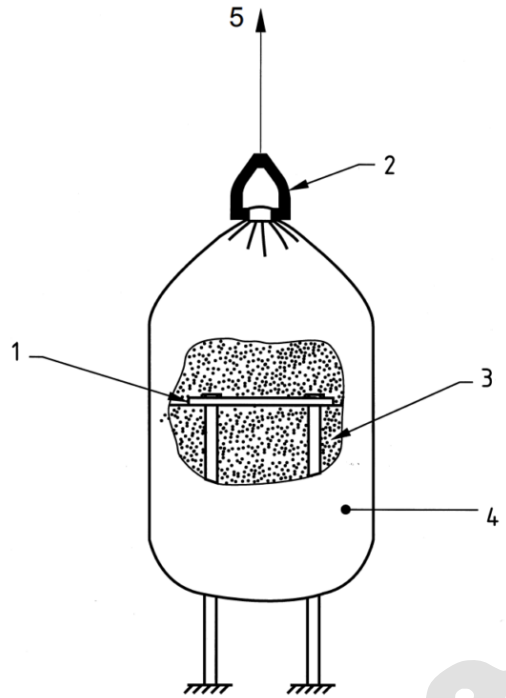
Figure B.5 — Elevation of an FIBC with the lifting devices formed by extensions of the body and using top restraint



Key

1 Filler material
2 Pressure plate
3 Suspension frame
4 FIBC
5 Hoisting device

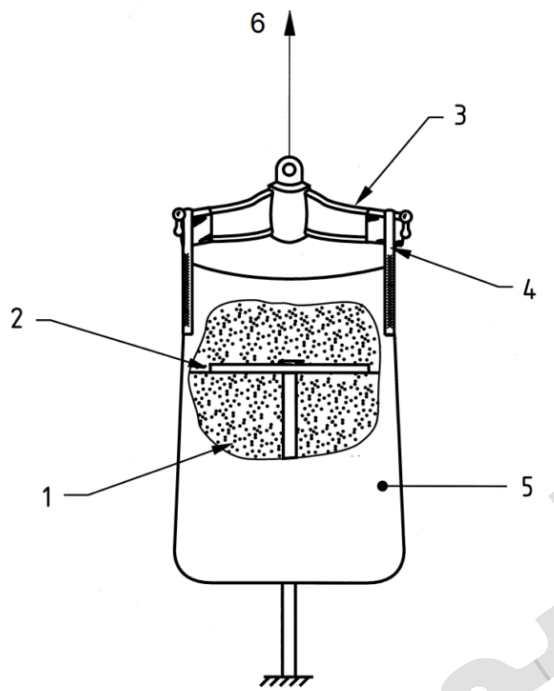
Figure B.6 — Elevation of a single-point lift FIBC with base restraint using one member restraining the pressure plate



Key

1 Pressure plate
2 Suspension frame
3 Filler material
4 FIBC
5 Hoisting device

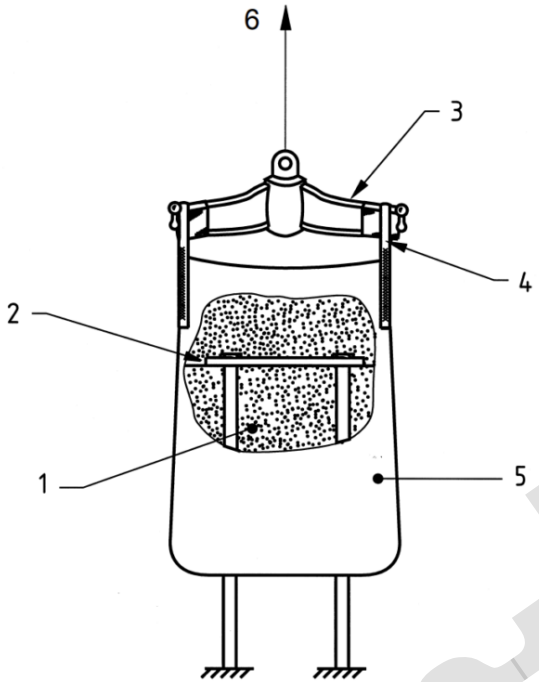
Figure B.7 — Similar to Figure B.6 but with two members restraining the pressure plate



Key

1 Filler material
2 Pressure plate
3 Suspension frame
4 FIBC lifting device
5 FIBC
6 Hoisting device

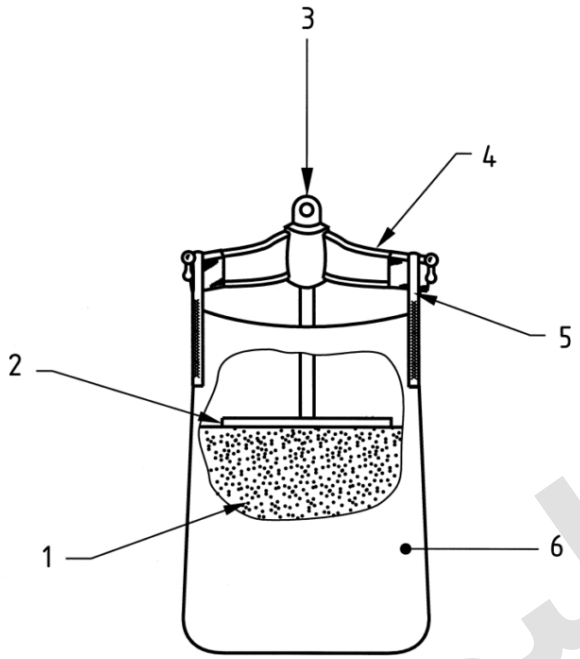
Figure B.8 — Elevation of an FIBC with two lifting devices using base restraint and one member restraining the pressure plate



Key

1 Filler material
2 Pressure plate
3 Suspension frame
4 FIBC lifting device
5 FIBC
6 Hoisting device

Figure B.9 — As Figure B.8 but with two members restraining the pressure plate



Key

1 Filler material
2 Pressure plate
3 Download force
4 Suspension frame
5 FIBC lifting device
6 FIBC

Figure B.10 — Elevation of an FIBC with two lifting devices being top lift tested using a downward force

Annex C
(normative)
Compression/stacking test

C.1 Principle

and, at بار using either a compression tester or a dead بار ed to the specified testبار The filled FIBC is
the end of the test period, is checked for loss of contents and for deterioration of the body which renders the FIBC unsafe for transport and storage.

.بار described in ISO 2872 or ISO 2874 or a flat plate with the appropriate dead دستگاه دستگاه C.2

C.3 روش اجرا

Fill and condition the FIBC under test in accordance with 5.2.1 and 5.2.2. Use the method described in
ed to a flat plate placed on top of the FIBC.بار by appropriate weights بار ISO 2872 or ISO 2874, as appropriate, or apply the

to be applied بار C.4 Calculation of the

of 4 times SWL shall not بار to be placed on the FIBC shall be 4 times its SWL. The compression بار The
in service. Other factors that affect stacking are the actual contents used in service, بار be taken as the allowable stacking FIBC dimensions and design, stacking method etc.

C.5 Duration of the test

ing shall be 6 hours.بار The duration of

C.6 Expression of results

Express the results of the test including whether loss of contents or deterioration of the body of the FIBC occurred.

Big Bag (Jumbo Bag) Test Rig

- Including test control panel
- Hydraulic نیرو application system
- KN 200 نیرو (4*50KN بارای capacity (cel
- Hopper for نمونه bottom
- Filling system for نمونه piece
- Software is included
- Reporting in MS WORD
- Computer is included
- Hoppers for ماده reservoir will be as per customer request
- online support 7/24

Universal کشش آزمونer

UV Test Chamber