

October 2023

For Comments only

DRAFT *INDIAN STANDARD*

PLASTIC FISHING FLOATS — SPECIFICATION
[First Revision of IS 9496 (Part 1)]

(ICS no 65.150)

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**Last date for receipt
of comments is 27 12 2023**

Inland Harbour Crafts and Fishing Vessels Sectional Committee, TED 18

FOREWORD

This draft Indian Standard (First Revision) shall be adopted by Bureau of Indian Standards, after the draft finalized by the Inland Harbour Crafts and Fishing Vessels Sectional Committee is approved by the Transport Engineering Division Council.

Floats are one of the accessories of the fishing net and are buoyant objects.

Buoyancy of the floats changes with the sizes and mass in the case of hollow floats and with the size and density in the case of the sponge plastic. Therefore, the size alone is not the sole indication of the buoyancy of a float. Further, since the hydrodynamic behaviour of the float changes with the trawling speed, it is important to consider this aspect in deciding the characteristics of these floats.

This standard was first published in 1980 as IS 9496 (Part 1) covering floats made of Aluminium alloy and glass. The other part of the standard was to cover the floats of other materials, especially of plastics.

With the introduction of new materials like High Density Polyethylene (HDPE), Poly Vinyl Chloride (PVC), Acrylonitrile-Butadiene-Styrene (ABS), Ethylene Vinyl Acetate (EVA), Expanded Polystyrene etc, plastic floats have, almost completely, replaced floats made of wood, glass and aluminium due to their high buoyancy, pressure withstanding capacity and durability.

This first revision is being undertaken to update the standard and to incorporate latest technological advancement/ development that has taken place in various fields. The salient features of this first revision are:

- a) The designation of Indian Standard has been changed from IS 9496 (Part 1) to IS 9496.
- b) The Indian Standard is now covering floats made of plastic material only.
- c) The standard has been drafted as per latest drafting guidelines.

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- d) Reference to Indian Standard has been updated

The composition of the Committee responsible for the formulation of this standard is given at Annex C (Will be added later).

In reporting the result of a test or analysis made in accordance with this draft standard, if the final value, observed or calculated, is to be rounded off it shall be done in accordance with IS 2 : 2022 'Rules for rounding off numerical values (*second revision*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1 SCOPE

1.1 This standard prescribes shape and performance requirements of plastic floats used in fishing net.

1.2 Section 2 covers floats made of High Density Polyethylene (HDPE) having spherical, apple and disc shape while Section 3 covers floats made of Poly Vinyl Chloride (PVC), having apple, disc and egg shape.

2 REFERENCE

The following standard contain provisions, which through reference in this text, constitutes provisions of this standard. At the time of publication the edition indicated was valid. This standard is subject to revision and parties to agreements based on this standard is encouraged to investigate the possibility of applying the most recent edition of the standard indicated below:

<i>IS No.</i>	<i>Title</i>
2500 (Part 1):2000	Sampling inspection procedures : Part 1 : Attribute sampling plans indexed by acceptable quality limit (AQL) for lot-by-lot inspection (<i>third revision</i>)
7328 : 2020	Specification for polyethylene material for moulding and extrusion (<i>third revision</i>)
17658 : 2021	Poly vinyl chloride (PVC) homopolymers — Specification

3 TERMINOLOGY

3.1 Extra Buoyancy

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The net upward thrust of the float when fully submerged in water.

SECTION 1 GENERAL REQUIREMENTS APPLICABLE TO BOTH TYPES OF PLASTIC FLOATS

4 REQUIREMENT

4.1 Material

The material of float shall be as specified in respective section.

4.2 Shape and dimensions of the floats shall be as specified in respective section.

4.3 Manufacture and shape of the floats shall be as specified in respective section.

5 TESTING

The selected samples of the floats shall be subjected to the extra buoyancy test and pressure test, according to the method given in Annex A and B respectively. The pressure test shall be carried out for a period of 48 hours.

6 DESIGNATION

6.1 The float shall be designated in terms of its material, shape, extra buoyancy and the maximum depth of its operation.

Example:

An HDPE spherical float of extra buoyancy 400 g and 70 m maximum depth of operation shall be designated as:

Float— HDPE—Spherical— 400—70

7 MARKING

7.1 The floats shall be marked with indelible printing or embossed with the following information:

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- a) Name, initials or recognized trade-mark of the manufacturer; and
- b) Designation of float.

7.2 BIS Certification Marking

7.2.1 Plastic fishing floats may also be marked with the Standard Mark.

7.2.2 The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the BIS Act, 2016 and the Rules and Regulations framed thereunder, and the product(s) may be marked with the Standard Mark.

8 SAMPLING

Unless otherwise agreed upon between a supplier and purchaser, the inspection sampling shall be as per IS 2500 (Part 1).

SECTION 2 HIGH DENSITY POLYETHYLENE (HDPE) FLOATS

9 REQUIREMENT

9.1 Material

The floats shall be made of High Density Polyethylene conforming to IS 7328.

9.2 The dimensions of the float shall be as specified in Table 1.

10 MANUFACTURE

HDPE spherical shaped floats are made of two hemispheres joined at the seam and provided with an eye at the end through which float line is passed for attaching to the net (Fig. 1). Apple shaped (Fig. 2) and disc shaped (Fig. 3) floats shall have a hole in the centre for attaching with the floatline.

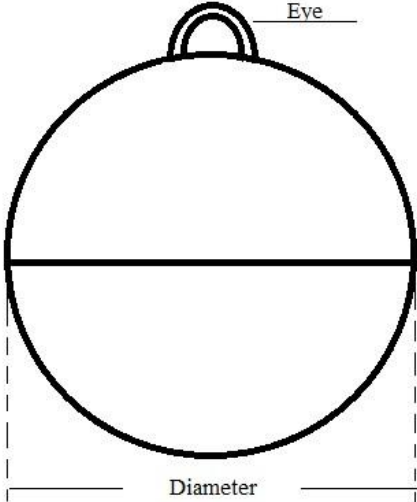


FIG. 1 SPHERICAL SHAPED FLOAT

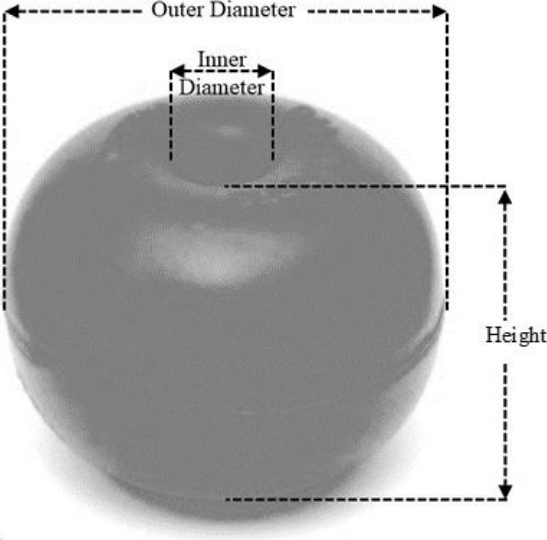


FIG.2 APPLE SHAPED FLOAT

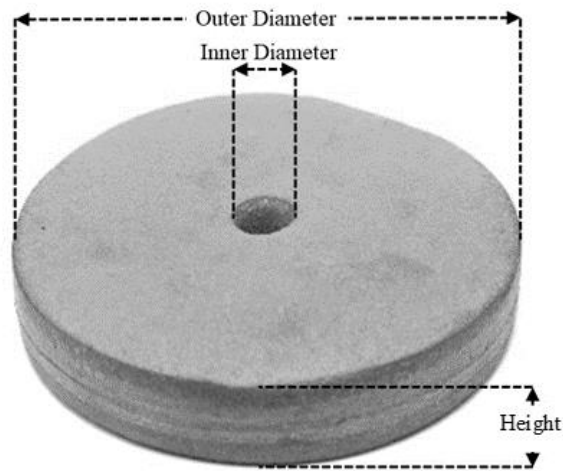


FIG. 3 DISC SHAPED FLOAT

SECTION 3 POLYVINYL CHLORIDE (PVC) FLOATS

11 REQUIREMENT

11.1 Material

The floats shall be made of Polyvinyl Chloride conforming to IS 17658.

11.2 The dimensions of the float shall be as specified in Table 2.

12 MANUFACTURE

Floats of Polyvinyl Chloride shall be disc shaped (Fig. 4), apple shaped (Fig.5) and egg shaped (Fig. 6) having a hole in the centre for attaching with the floatline.

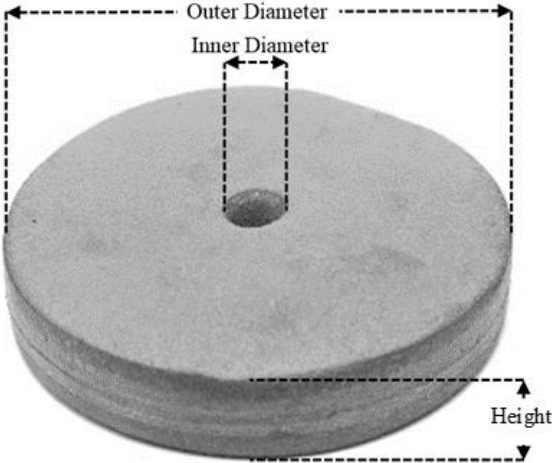


FIG. 4 DISC SHAPED FLOAT

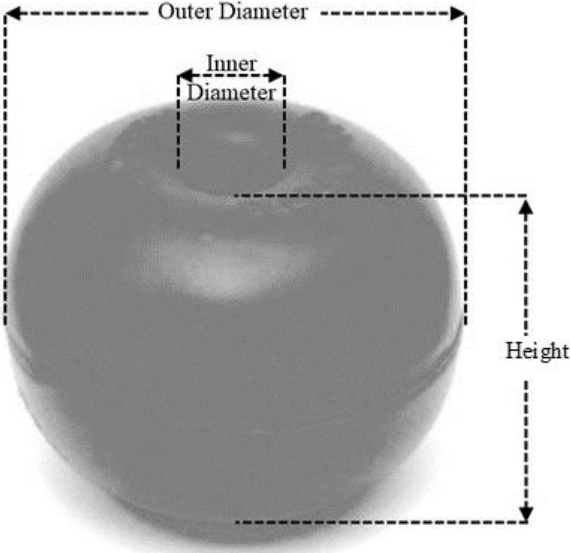


FIG.5 APPLE SHAPED FLOAT

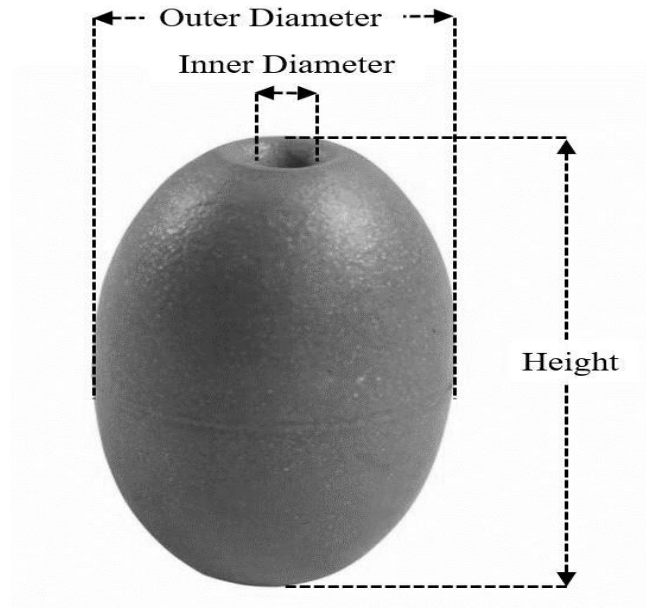


FIG.3 EGG SHAPED FLOAT

Table 1 Requirements of HDPE Fishing Floats

S. No.	Shape	Dimension	Extra Buoyancy	Pressure the Floats Shall Withstand in Water	Maximum Depth Upto Which Float Can Be Operated
(1)	(2)	(3)	(4)	(5)	(6)
i)	Spherical	(mm) Diameter	g	kgf/cm ²	metre
		125	600	9	90
		100	400	7	70
		75	230	6	60
ii)	Apple shape	Outer Diameter × height × inner diameter			
		110×86×21	550	2	20
		107×77×20	435	3.5	35
		97×74×18	360	2.4	24
		87×58×17	220	2.4	24

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		64×41×11	80	3.2	32
		56×31×10	50	2	20
		45×35×7	25	5	50
		25×20×6	5	10	100
iii)	Dis shape	Outer Diameter ×height × inner diameter			
		15×20×13	70	10	100
		130×15×9	60	10	100
		100×20×14	130	10	100
		80×10×8	40	10	100
		70×20×14	55	10	100
		60×20×8	35	8	80
		50×15×7	15	8	80
		50×10×6	15	5	50
		45×25×8	20	10	100
		40×20×9	20	10	100
		40×15×8	10	10	100
		35×12×6	6	10	100
		25×10×5	4	10	100

NOTE — A tolerance of ± 10 percent may be allowed to the requirements given in the above table for acceptance.

Table 2 Requirements of PVC Fishing Floats

S. No.	Shape	Dimension	Extra Buoyancy	Pressure the Floats Shall Withstand in Water	Maximum Depth Upto Which Float Can Be Operated
(1)	(2)	(3) (mm)	(4) g	(5) kgf/cm ²	(6) metre
i)	Disc shape	Outer diameter x height x inner diameter			
ii)		150×190×22	2795	5	50
		150×20×12	272	5	50
		150×15×10	215	5	50
		125×20×12	197	5	50
		100×125×14	769	5	50
		100×75×12	464	5	50

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		100×50×13	330	5	50
		100×20×12	121	5	50
		90×20×12	100	5	50
		80×60×12	235	5	50
		80×40×10	160	5	50
		80×20×10	80	5	50
		70×60×9	160	5	50
		70×30×8	90	5	50
		70×20×10	67	5	50
		60×50×9	108	5	50
		60×20×9	46	5	50
		50×40×11	70	5	50
		50×30×10	50	5	50
		50×20×9	30	5	50
		50×10×9	17	5	50
		45×20×9	20	5	50
iii)	Apple	100×70×9	370	50	50
	shape	70×50×9	110	50	50
iv)	Egg	80×150×12	425	5	50
	shape	70×125×10	250	5	50

NOTE-A tolerance of ± 10 percent may be allowed to the requirements given in the above table for acceptance

ANNEX A

(Clause 5)

EXTRA BOUYANCY TEST

A-1 APPARATUS

It consists of a circular iron frame to which loose webbings of netting yarns is attached to form a bag. From the frame two strings are attached which are held up by a wooden plank. Another set of 3 strings of suitable length attached to the frame join below and carries weight. Part of the system consisting of the iron frame, set of strings with weight and a portion of the part of the strings holding the wooden platform is immersed in water container (Fig. 7).

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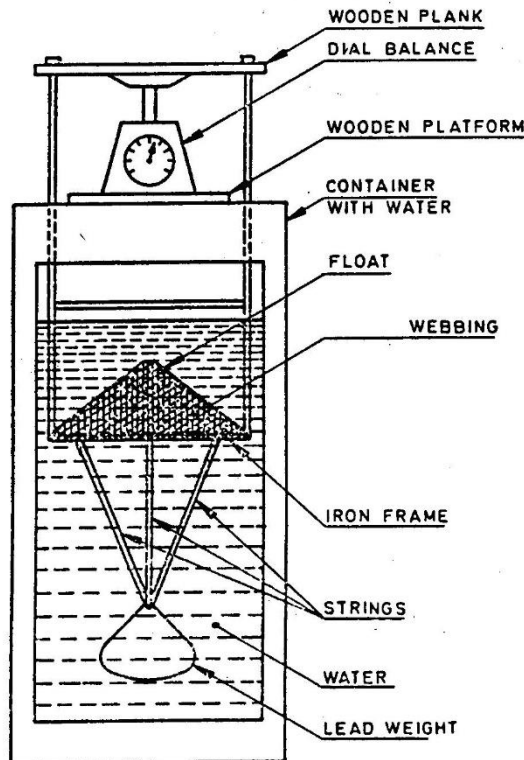


FIG. 7 EXPERIMENTAL SET UP TO MEASURE THE EXTRA BUOYANCY OF FLOATS

A-2 PROCEDURE

Extra buoyancy of fishing floats is determined in the experimental setup as depicted in Fig. 7. A weighing balance is placed over the water container to measure the extra buoyancy. The initial reading on the balance is noted. The weights are adjusted to see that the net remain completely submerged under water. Then the float is introduced under the webbing which is kept submerged in water. The buoyancy of the float causes a reduction in the reading. After noting down the final reading the float is removed. The difference between initial and final readings corresponds to the extra buoyancy of that float. Ten such floats are tested and the mean value can be taken.

A-3 ASSESSMENT OF RESULTS

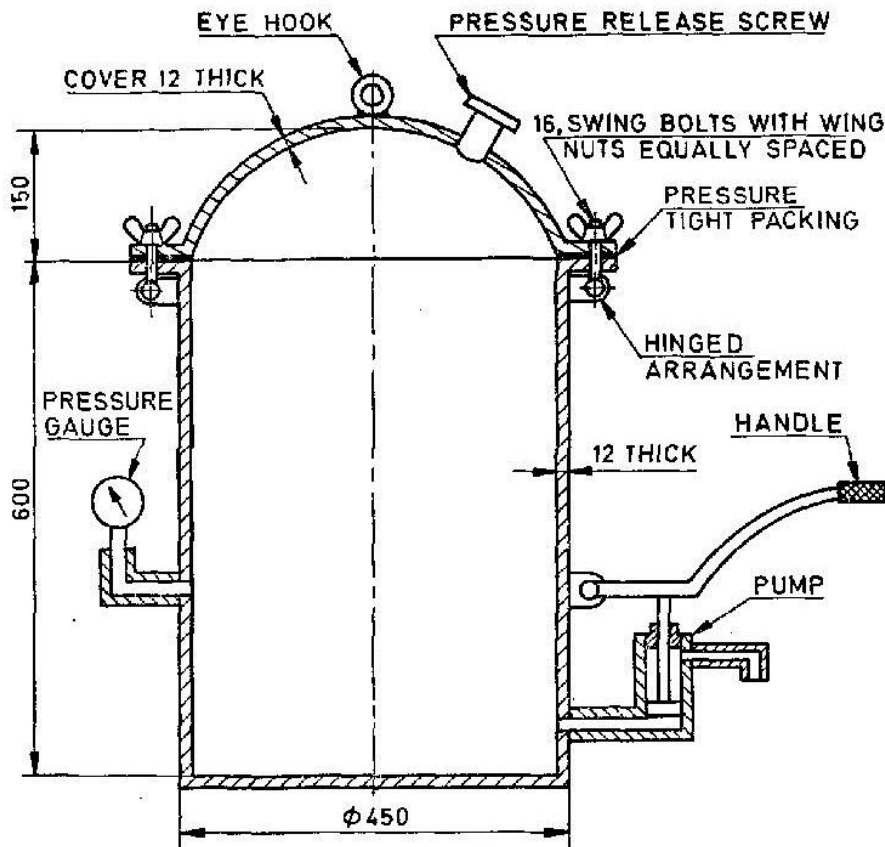
The specimen when tested as above shall meet the requirements given in Table 1.

ANNEX B
(Clause 5)

PRESSURE TEST

B-1 APPARATUS

The pressure withstanding capacity of the floats are tested using specially designed High Pressure Autoclave/High Pressure Testing Chamber (HP Chamber) as given in Fig. 8.



All measurements in millimetre

Figure 8: High Pressure Tank

B-2 PROCEDURE

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The float to be tested is placed inside the high pressure test chamber (Fig. 8) and tied to a clamp to maintain the float at the centre of the chamber to prevent it from floating to the top of the chamber. The lid of the chamber is closed and water pumped in, filling the chamber completely using a pump leaving no air pockets inside. The pressure is then increased gradually to the required level till the float fails. This is accomplished by pumping in more water inside the closed chamber. If the float bursts at a certain pressure there will be a deflection on the pressure gauge connected to the chamber. The deflection on the pressure gauge is monitored and the pressure at burst is noted. This gives the maximum pressure that the float can withstand under operation. Afterwards, the pressure is released slowly, water emptied and the float is taken out and examined for the extent of physical damages and its condition after the test.

B-3 ASSESSMENT OF RESULTS

The specimen when tested as above shall meet the requirements given in Table 1.

ANNEX C
(Committee Composition)
(Foreword)

To be added later