Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

"जानने का अधिकार, जीने का अधिकार"
Mazdoor Kisan Shakti Sangathan
"The Right to Information, The Right to Live"

"पुराने को छोड़ नये के तरफ"
Jawaharlal Nehru
"Step Out From the Old to the New"

IS 1703 (2000): Water Fittings - Copper Alloy Float Valves (Horizontal Plunger Type) - [CED 3: Sanitary Appliances and Water Fittings]
Indian Standard
WATER FITTINGS — COPPER ALLOY FLOAT VALVES
(HORIZONTAL PLUNGER TYPE) — SPECIFICATION
( Fourth Revision)
AMENDMENT NO. 1 AUGUST 2003
TO
IS 1703 : 2000 WATER FITTINGS — COPPER ALLOY
FLOAT VALVES (HORIZONTAL PLUNGER TYPE) —
SPECIFICATION
(Fourth Revision)

(Page 11, Table 6) — Insert the following below the figure at right hand side:

'Alternate dimensions for 15 mm back nut.'

(CED 3)
FOREWORD

This Indian Standard (Fourth Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Sanitary Appliances and Water Fittings Sectional Committee had been approved by the Civil Engineering Division Council.

This standard was first published in 1962 and was subsequently revised in 1968, 1977 and 1989. The fourth revision of the standard has been taken up to incorporate further changes in the standard found necessary in the light of improvements made by the industry in this field.

Important changes made in this revision include:

a) Dimensions for body and fittings for low pressure and high pressure type have been separated.

b) The dimensions for low pressure type remains the same whereas in case of high pressure type, the bore of seating is much less than low pressure type. So the need was felt that even if diameter of body at spigot is reduced and accordingly reducing the diameter of piston and providing small flange at the end of inlet shank. A lot of costly metal is saved without at all affecting the performance of the valve.

c) Dimensions for low pressure type vertical inlet shank have been introduced to facilitate the consumers to use the valve where the pressure of water is below 0.175 MPa.

d) The minimum requirement of long arm and short arm of lever have been mentioned at Table 7 and the loads have proportionately been increased. This will help the testing labs to check this requirement instead of generally giving remarks.

The composition of the committee responsible for the formulation of this standard is given at Annex B.

In reporting the result of a test or analysis in accordance with this standard, if the final value, observed or calculated, is to be rounded off, it shall be done in accordance with IS 21960 'Rules for rounding off numerical values (revised)'. 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 lays down requirements regarding sizes, materials, manufacture and workmanship, and testing of float valves (horizontal plunger type) for water supply purposes.

2 REFERENCES

The Indian Standards given in Annex A contains provisions which through reference in this text, constitute provision of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards given in Annex A.

3 CLASSIFICATION

3.1 Float valves shall be of the following two classes:

a) **High Pressure**
   
   High pressure float valves are indicated by the abbreviation 'HP', and are designed for use on mains having pressure of 0.175 MPa or above.

b) **Low Pressure**
   
   Low pressure float valves are indicated by the abbreviation 'LP', and are designed for use on mains having a pressure less than 0.175 MPa.

4 NOMINAL SIZES

4.1 Float valves shall be of the following nominal sizes:

15, 20, 25, 32, 40 and 50 mm.

5 MATERIALS

5.1 The component parts shall be made of materials given in Table 1.

6 MANUFACTURE AND WORKMANSHIP

6.1 Castings

Castings shall be sound in all respects and shall be free from laps, blow holes and pits. External and internal faces shall be neatly dressed and no casting shall be burnt, plugged or patched.

6.2 Machining

All machining shall be carried out so that parts are true to shape within the limits of the sizes given for the respective parts in this specification, and it shall be ensured that they are in correct alignment when assembled. All machined surfaces shall be smoothly finished.

7 CONSTRUCTION

7.1 Illustration of a typical float valve is shown in Fig. 1.

7.2 The inlet shank, seat, outlet nose and socket for piston shall be cast in one single unit to constitute the

### Table 1: Materials for Body and Component Parts of Float Valves

<table>
<thead>
<tr>
<th>SI No</th>
<th>Component</th>
<th>Material</th>
<th>Reference to Indian Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>i)</td>
<td>Body and parts of fillings (except lever or rod and back nut)</td>
<td>a) Cast brass</td>
<td>Grade LCB 2 of IS 292</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Grade DCB 2 of IS 1264</td>
</tr>
<tr>
<td>ii)</td>
<td>Lever rod</td>
<td>b) Lead-tin bronze</td>
<td>Grade LTB 2 of IS 318</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Brass rod</td>
<td>Grade LTB 2 of IS 318</td>
</tr>
<tr>
<td>iii)</td>
<td>Back nut and nuts for inlet pipe</td>
<td>a) Brass</td>
<td>Grade LTB 2 of IS 318</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Grade LTB 2 of IS 318</td>
</tr>
<tr>
<td>iv)</td>
<td>Washer</td>
<td>b) Lead-tin bronze</td>
<td>Synthetic rubber IS 4346</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Brass</td>
<td>IS 407</td>
</tr>
<tr>
<td>v)</td>
<td>Inlet pipe</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
7.3 The seating of the ball valve shall be cast integral with the body and shall be rounded off so that there are no sharp corners.

7.4 The dimensions of the body shall conform to Table 2(a) for low pressure and Table 2(b) for high pressure. In case of 15 mm size float valves with vertical inlet Shank the dimensions of the body and inlet pipe shall conform to Table 3(a) for low pressure and Table 3(b) for high pressure respectively and Fig 2.

7.5 Screw Threads

The inlet Shank shall have an external parallel fastening thread conforming to IS 2643 (Part 3) Class B of the same size as the nominal size of float valve and all the other screw threads shall conform to ISO metric screw threads given in IS 4218 (Parts 1 to 6).

7.6 The piston shall be capable of having uniform contact all around against the seat even when the washer is removed. The dimensions of the piston shall conform to Table 4(a) for low pressure and 4(b) for high pressure.

7.7 Levers

7.7.1 The component parts of the lever shall conform to the dimensions given in Table 5(a) for low pressure and Table 5(b) for high pressure. The lever shall be capable of withstanding the test stipulated in 8.3.

7.7.2 The section of the lever shall be such that it is of sufficient rigidity so as not to get deformed under normal working conditions, but shall be sufficiently ductile to be bent, without detriment, for the purpose of adjustment.
**Table 2(a) Dimensions of Body for Low Pressure Float Valve**  
*(Clause 7.4)*

All dimensions in millimetres

![Diagram of Body Dimensions](image)

<table>
<thead>
<tr>
<th>Si No</th>
<th>Particulars</th>
<th>Dimensions for Nominal Size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>1)</td>
<td>Bore of seating, A</td>
<td>Min</td>
</tr>
<tr>
<td>2)</td>
<td>Outer diameter of seating, B</td>
<td>9.0</td>
</tr>
<tr>
<td>3)</td>
<td>Length of seating, C</td>
<td>13.5</td>
</tr>
<tr>
<td>4)</td>
<td>Size of flats of square under flange, D</td>
<td>19.0</td>
</tr>
<tr>
<td>5)</td>
<td>Centre of body to face of outlet nose, E</td>
<td>27.0</td>
</tr>
<tr>
<td>6)</td>
<td>Thickness of ears, F</td>
<td>24.0</td>
</tr>
<tr>
<td>7)</td>
<td>Width of ears, G</td>
<td>20.0</td>
</tr>
<tr>
<td>8)</td>
<td>Diameter of hole for split pin, H</td>
<td>4.0</td>
</tr>
<tr>
<td>9)</td>
<td>Centre line of fulcrum to outside of body, J</td>
<td>16.0</td>
</tr>
<tr>
<td>10)</td>
<td>Length of inlet shank, K</td>
<td>3.0</td>
</tr>
<tr>
<td>11)</td>
<td>Bore of outlet nose, L</td>
<td>3.5</td>
</tr>
<tr>
<td>12)</td>
<td>Length of spigot, M</td>
<td>2.5</td>
</tr>
<tr>
<td>13)</td>
<td>Bore of inlet, P</td>
<td>1.4</td>
</tr>
</tbody>
</table>

**NOTE:** Minimum thickness of metal of outlet nose and piston socket  
1.6 mm — For 15 mm and 20 mm size  
2.4 mm — For 25 mm size  
2.8 mm — For 32 mm and 40 mm size  
3.6 mm — For 50 mm size
Table 2(b) Dimensions of Body for High Pressure Float Valve  
*(Clause 7.4)*

All dimensions in millimetres

![Diagram of Body Dimensions](image)

<table>
<thead>
<tr>
<th>Sl No.</th>
<th>Particulars</th>
<th>Dimensions for Nominal Sizes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>1)</td>
<td>Bore of sealing, (A)</td>
<td>Min</td>
</tr>
<tr>
<td>2)</td>
<td>Outer diameter of seating, (B)</td>
<td>3.0</td>
</tr>
<tr>
<td>3)</td>
<td>Length of seating, (C)</td>
<td>12.0</td>
</tr>
<tr>
<td>4)</td>
<td>Diameter of flange, (D)</td>
<td>27.0</td>
</tr>
<tr>
<td>5)</td>
<td>Centre of body to face of outlet nose, (E)</td>
<td>18.0</td>
</tr>
<tr>
<td>6)</td>
<td>Thickness of ears, (F)</td>
<td>4.0</td>
</tr>
<tr>
<td>7)</td>
<td>Width of ears, (G)</td>
<td>12.0</td>
</tr>
<tr>
<td>8)</td>
<td>Diameter of hole for split pin, (H)</td>
<td>4.5</td>
</tr>
<tr>
<td>9)</td>
<td>Centre line of fulcrum to outside of body, (J)</td>
<td>20.0</td>
</tr>
<tr>
<td>10)</td>
<td>Length of inlet shank, (K)</td>
<td>42.0</td>
</tr>
<tr>
<td>11)</td>
<td>Bore of outlet nose, (L)</td>
<td>12.0</td>
</tr>
<tr>
<td>12)</td>
<td>Length of spigot, (M)</td>
<td>30.0</td>
</tr>
<tr>
<td>13)</td>
<td>Spigot bore, (N)</td>
<td>18.5</td>
</tr>
<tr>
<td>14)</td>
<td>Bore of inlet, (P)</td>
<td>14.0</td>
</tr>
<tr>
<td>15)</td>
<td>Thickness from root of flange, (Q)</td>
<td>3.0</td>
</tr>
</tbody>
</table>

**NOTE:** Minimum thickness of metal of outlet nose and piston socket

- 1.6 mm - For 15 mm and 20 mm size
- 2.4 mm - For 25 mm size
- 2.8 mm - For 32 mm and 40 mm size
- 3.6 mm - For 50 mm size
Table 3(a) Dimensions of Body with Vertical Inlet Shank for 15 mm Float Valve Low Pressure
(Clause 7.4)
All dimensions in millimetres

<table>
<thead>
<tr>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Max</td>
</tr>
<tr>
<td>Min</td>
</tr>
</tbody>
</table>

Table 3(b) Dimensions of Body with Vertical Inlet Shank for 15 mm Float Valve High Pressure
(Clause 7.4)
All dimensions in millimetres

<table>
<thead>
<tr>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Max</td>
</tr>
<tr>
<td>Min</td>
</tr>
</tbody>
</table>
Table 4(a) Dimensions of Piston for Low Pressure Float Valve  
(Clauses 7.6 and 7.8)

All dimensions in millimetres

<table>
<thead>
<tr>
<th>Sl No.</th>
<th>Particulars</th>
<th>Dimensions for Nominal Size</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>32</th>
<th>40</th>
<th>50</th>
</tr>
</thead>
<tbody>
<tr>
<td>1)</td>
<td>Diameter of piston, $A$</td>
<td>Min</td>
<td>Max</td>
<td>Min</td>
<td>Max</td>
<td>Min</td>
<td>Max</td>
<td>Min</td>
</tr>
<tr>
<td>2)</td>
<td>Length of piston, $B$</td>
<td>32.0</td>
<td>—</td>
<td>46.0</td>
<td>—</td>
<td>54.0</td>
<td>—</td>
<td>76.0</td>
</tr>
<tr>
<td>3)</td>
<td>Opening in cap, $C$</td>
<td>15.5</td>
<td>16.0</td>
<td>19.5</td>
<td>20.0</td>
<td>25.5</td>
<td>26.0</td>
<td>33.5</td>
</tr>
<tr>
<td>4)</td>
<td>Length of cap, $D$</td>
<td>10.0</td>
<td>—</td>
<td>11.0</td>
<td>—</td>
<td>13.0</td>
<td>—</td>
<td>16.0</td>
</tr>
<tr>
<td>5)</td>
<td>Length of thread of cap (internal), $E$</td>
<td>5.0</td>
<td>—</td>
<td>7.0</td>
<td>—</td>
<td>8.0</td>
<td>—</td>
<td>9.0</td>
</tr>
<tr>
<td>6)</td>
<td>Size of external thread, $F$</td>
<td>M 20 x 1.5</td>
<td>M 24 x 1.5</td>
<td>M 30 x 1.5</td>
<td>M 39 x 1.5</td>
<td>M 39 x 1.5</td>
<td>M 48 x 1.5</td>
<td>—</td>
</tr>
<tr>
<td>7)</td>
<td>Length of external thread, $G$</td>
<td>5.0</td>
<td>—</td>
<td>7.0</td>
<td>—</td>
<td>8.0</td>
<td>—</td>
<td>9.0</td>
</tr>
<tr>
<td>8)</td>
<td>Face of piston slot, $H$</td>
<td>8.0</td>
<td>—</td>
<td>11.0</td>
<td>—</td>
<td>14.0</td>
<td>—</td>
<td>22.0</td>
</tr>
<tr>
<td>9)</td>
<td>Diameter of piston washer, $J$</td>
<td>18.0</td>
<td>—</td>
<td>22.0</td>
<td>—</td>
<td>28.0</td>
<td>—</td>
<td>37.0</td>
</tr>
<tr>
<td>10)</td>
<td>Thickness of piston washer, $K$</td>
<td>3.0</td>
<td>—</td>
<td>3.0</td>
<td>—</td>
<td>3.0</td>
<td>—</td>
<td>4.0</td>
</tr>
</tbody>
</table>

NOTES

1. The screw thread 'F' shall conform to the ISO metric screw thread given in IS 4218 (Parts 1 to 6) and shall have dimensions and tolerances given therein.

2. Dimensions of slot in the piston to accommodate the heel of lever

   Minimum width = Dimension C in Table 5(a) for respective size + 0.1 mm

   Minimum length = Dimension D in Table 5(a) x P

   where

   $P = \begin{cases} 
   0.8 \text{ mm for 15 mm and 20 mm size,} \\
   1.2 \text{ mm for 25 mm, 32 mm and 40 mm size, and} \\
   1.6 \text{ mm for 50 mm size} 
   \end{cases}$
Table 4(b) Dimensions of Piston for High Pressure Float Valve
(Clauses 7.6 and 7.8)

All dimensions in millimetres

<table>
<thead>
<tr>
<th>SI No.</th>
<th>Particulars</th>
<th>Dimensions for Nominal Size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>1</td>
<td>Diameter of piston, ( A )</td>
<td>Min</td>
</tr>
<tr>
<td>2</td>
<td>Length of piston, ( B )</td>
<td>28.0</td>
</tr>
<tr>
<td>3</td>
<td>Opening in cap, ( C )</td>
<td>12.5</td>
</tr>
<tr>
<td>4</td>
<td>Length of cap, ( D )</td>
<td>9.0</td>
</tr>
<tr>
<td>5</td>
<td>Length of thread of cap (internal), ( E )</td>
<td>5.0</td>
</tr>
<tr>
<td>6</td>
<td>Size of external thread, ( F )</td>
<td>M 16 x 1.5</td>
</tr>
<tr>
<td>7</td>
<td>Length of external thread, ( G )</td>
<td>5.0</td>
</tr>
<tr>
<td>8</td>
<td>Face of piston to slot, ( H )</td>
<td>8.0</td>
</tr>
<tr>
<td>9</td>
<td>Diameter of piston washer, ( J )</td>
<td>14.0</td>
</tr>
<tr>
<td>10</td>
<td>Thickness of piston washer, ( K )</td>
<td>3.0</td>
</tr>
</tbody>
</table>

**NOTES**

1. The screw thread "\( F \)" shall conform to the ISO metric screw thread given in IS 4218 (Parts 1 to 6) and shall have dimensions and tolerances given therein.

2. Dimensions of slot in the piston to accommodate the heel of lever

   Minimum width - Dimension \( C \) in Table 5(b) for respective size = 0.1 mm

   Minimum length - Dimension \( D \) in Table 5(b) + \( P \)

   where

   \( P = \begin{align*}
   0.8 \text{ mm for 15 mm and 20 mm size}, \\
   1.2 \text{ mm for 25 mm, 32 mm and 40 mm size}, \\
   1.6 \text{ mm for 50 mm size}.
   \end{align*} \)
### Table 5(a) Dimensions of Levers for Low Pressure Float Valve

(Clause 7.7.1)

All dimensions in millimetres.

<table>
<thead>
<tr>
<th>Sl No.</th>
<th>Particulars</th>
<th>Dimensions for Nominal Size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>1</td>
<td>Length of lever from fulcrum to face of lock nut (long arm), A</td>
<td>Min</td>
</tr>
<tr>
<td>2</td>
<td>Length of leverage from fulcrum to centre of piston, B</td>
<td>16</td>
</tr>
<tr>
<td>3</td>
<td>Thickness of flat end of short arm, C</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>Size over end of short arm, D</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>Nominal diameter of fulcrum hole for split cotter pin, E</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Width of metal around fulcrum hole, F</td>
<td>16</td>
</tr>
<tr>
<td>7</td>
<td>Screw thread for boss of float, ( G )</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Length of clear thread on float end of the rod, ( H )</td>
<td>16</td>
</tr>
<tr>
<td>9</td>
<td>Diameter of plain end of rod for soldered or screwed joint, ( J )</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Diameter of heel of boss, ( K )</td>
<td>12</td>
</tr>
<tr>
<td>11</td>
<td>Diameter of boring in boss for plain end of rod, ( L )</td>
<td>12</td>
</tr>
<tr>
<td>12</td>
<td>Axial length of boring in boss, ( M )</td>
<td>8</td>
</tr>
<tr>
<td>13</td>
<td>Thickness of metal at bottom of soldered jointing bored, ( N )</td>
<td>2.3</td>
</tr>
</tbody>
</table>

**NOTES**

1. For sizes of split cotter pins refer to IS 549.
2. Diameter \( E \) -- Actual diameter of hole provided shall be such as to allow split pin used to snugly fit into it.
3. Screw thread \( G \)-- Bolt dimensions with tolerances of class as given in IS 4218 (Part 5)
4. Lock Nut
   a) Screw thread shall be the same as specified for \( G \)
   b) Screw threads shall have nut tolerances of class as given in IS 4218 (Part 5).
   c) Leading dimensions of nuts shall conform to IS 1364 (Parts 1 to 5).
5. The length of lever, \( A \) for 15 mm size can be reduced to 175±3 mm.
### Table 5(b) Dimensions of Levers for High Pressure Float Valve

**Clause 7.7.1**

All dimensions in millimetres

<table>
<thead>
<tr>
<th>No</th>
<th>Particulars</th>
<th>Dimensions for Nominal Size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Min</td>
</tr>
<tr>
<td>1</td>
<td>Length of lever from fulcrum to face of lock nut (long arm), A</td>
<td>2100</td>
</tr>
<tr>
<td>2</td>
<td>Length of lever from fulcrum to centre of piston, B</td>
<td>160</td>
</tr>
<tr>
<td>3</td>
<td>Thickness of flat end of short arm, C</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>Size over end of short arm, D</td>
<td>130</td>
</tr>
<tr>
<td>5</td>
<td>Nominal diameter of fulcrum hole for split cotter pin, for used of split cotter pins (see Note 1), E</td>
<td>4.5</td>
</tr>
<tr>
<td>6</td>
<td>Width of metal around fulcrum hole, F</td>
<td>4.0</td>
</tr>
<tr>
<td>7</td>
<td>Screw thread for boss of float, G</td>
<td>M 8 x 1.25</td>
</tr>
<tr>
<td>8</td>
<td>Length of clearance thread on float end of rod, H</td>
<td>12.0</td>
</tr>
<tr>
<td>9</td>
<td>Diameter of plain end of rod for soldered or screwed joint, J</td>
<td>8.0</td>
</tr>
<tr>
<td>10</td>
<td>Diameter of heel of boss, K</td>
<td>12.0</td>
</tr>
<tr>
<td>11</td>
<td>Diameter of boring in boss for plain end of rod, L</td>
<td>8.3</td>
</tr>
<tr>
<td>12</td>
<td>Axial length of boring in boss, M</td>
<td>12.0</td>
</tr>
<tr>
<td>13</td>
<td>Thickness of metal at bottom of soldered jointing boring, N</td>
<td>2.3</td>
</tr>
</tbody>
</table>

**NOTES**

1. For sizes of split cotter pins refer to IS 549
2. Diameter E — Actual diameter of hole provided shall be such as to allow split pin used to snugly fit into it
3. Screw thread G — Bolt dimensions with tolerances of class as given in IS 4218 (Part 5)
4. Lock nut
   a) Screw thread shall be the same as specified for G
   b) Screw threads shall have nut tolerances of class as given in IS 4218 (Part 5)
   c) Leading dimensions of nuts shall conform to IS 1344 (Parts 4 to 5)
5. The length of lever, A for 15 mm size can be reduced to 175x3 mm
7.7.3 The lever may be made in one piece or the short arm and rod may be separately constructed. Whenever it is made in one piece, it shall be forged. In two piece levers the rod shall be secured to the short arm by means of brazed joint or a screwed joint. The clearance diameter different between the lever and the arm at the joint shall not exceed 0.15 mm in the case of brazed joints. Threads shall be provided at the end of the rod with a wing nut for attachment to the short arm in the case of screwed joint.

7.7.4 The short arm of the lever, whether integral with the rod or separately made, shall be provided with a 'heal' so shaped as to prevent either the lever or the piston from locking in the full open position.

7.7.5 Full and complete threads shall be provided at the end of the lever with a lock nut for the attachment of the float. The diameter of the lever rod shall not be less than the diameter of the thread for boss of float as specified in IS 9762.

7.7.6 The design of each float valves shall be such that when the washer in contact with the face of the seat, the short arm of the lever shall be nearly in a vertical position.

7.7.7 The arc of movement of the lever shall permit the piston travel from the shut to the full open position to be not less than the following dimensions:

<table>
<thead>
<tr>
<th>Nominal Size of the Valve</th>
<th>Piston Travel</th>
</tr>
</thead>
<tbody>
<tr>
<td>mm</td>
<td>mm</td>
</tr>
<tr>
<td>15</td>
<td>5.0</td>
</tr>
<tr>
<td>20</td>
<td>6.5</td>
</tr>
<tr>
<td>25</td>
<td>8.0</td>
</tr>
<tr>
<td>32</td>
<td>11.0</td>
</tr>
<tr>
<td>40</td>
<td>11.0</td>
</tr>
<tr>
<td>50</td>
<td>16.0</td>
</tr>
</tbody>
</table>

7.8 Washers

Piston washers shall be accurately made to the dimensions given in Table 4(a) for low pressure and Table 4(b) for high pressure and shall be enclosed in caps to prevent their spreading.

7.9 Silencing Pipes and Anti-Siphonage Provision

7.9.1 The float valve may be developed with an internally threaded outlet nose adopted to receive a silencing pipe, if desired by the purchaser.

7.9.2 All float valves shall have an air hole in the body discharging downwards. The diameter of the hole shall be 3 mm except in the case of float valve of nominal size 15 mm and 20 mm in which the diameter of the hole may be reduced to 2.5 mm. The hole shall be so located as to have its external orifice not more than 6.5 mm below the axis of the inlet in the case of float valves of 15 mm and 20 mm size and not lower than the junction angle of nose and body in the case of all other sizes (see section XX in Fig. 1).

8 TESTING

8.1 Hydraulic Test

Every float valve, while in closed position shall withstand an internally applied hydraulic pressure of 1.5 MPa for a minimum period of 2 min without leakage or sweating.

8.2 Shutting Off Test

Every high pressure float valve when assembled in working condition with the float immersed to not more than half its volume shall remain closed against test pressure of 1.05 MPa and a low pressure float valve against a test pressure of 0.35 MPa.

8.3 Test for Mechanical Strength of Lever

When mounted in a suitable and rigid fixture, levers shall be capable of supporting a test load, applied gradually, of the amount and at leverage from fulcrum specified in Table 7 without showing any permanent set.

9 MARKING

9.1 Each float valve shall be legibly and permanently marked with the following information:

a) Manufacturer's name or trade-mark,
b) Size and class of float valve, and
c) Date of manufacture/batch No.

NOTE — The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act, 1986 and the Rules and Regulations made thereunder. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a license for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

9.2 Each float valve shall be supplied with a leaflet containing manufacturer's instructions for installation and maintenance.
### Table 6 Dimensions of Back Nut
*(Clause 7.11)*

All dimensions in millimetres

<table>
<thead>
<tr>
<th>No.</th>
<th>Particulars</th>
<th>Dimensions for Nominal Size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>i)</td>
<td>Size of hexagon across flats, A</td>
<td>35 0</td>
</tr>
<tr>
<td>ii)</td>
<td>Depth of round portion, B</td>
<td>15</td>
</tr>
<tr>
<td>iii)</td>
<td>Diameter of round portion, C</td>
<td>25 0</td>
</tr>
<tr>
<td>iv)</td>
<td>Height of hexagon, D</td>
<td>5 0</td>
</tr>
</tbody>
</table>

### Table 7 Load Carrying Capacity of Lever
*(Clause 8.3)*

All dimensions in millimetres

*(For low pressure, high pressure and 15 mm size vertical inlet shank)*

<table>
<thead>
<tr>
<th>No.</th>
<th>Nominal Size of Float Valve</th>
<th>Length of Leverage from Fulcrum to Face of Lock Nut for Load Test</th>
<th>Length of Leverage from Fulcrum to Centre of Piston (Short Arm) (Min)</th>
<th>Test Load (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
</tr>
<tr>
<td>i)</td>
<td>15</td>
<td>210</td>
<td>16 0</td>
<td>1 67</td>
</tr>
<tr>
<td>ii)</td>
<td>20</td>
<td>318</td>
<td>20 5</td>
<td>4 06</td>
</tr>
<tr>
<td>iii)</td>
<td>25</td>
<td>357</td>
<td>25 0</td>
<td>8 63</td>
</tr>
<tr>
<td>iv)</td>
<td>30</td>
<td>552</td>
<td>28 0</td>
<td>8 97</td>
</tr>
<tr>
<td>v)</td>
<td>40</td>
<td>552</td>
<td>35 0</td>
<td>13 0</td>
</tr>
<tr>
<td>vi)</td>
<td>50</td>
<td>711</td>
<td>45 0</td>
<td>20 0</td>
</tr>
</tbody>
</table>

*NOTE — If the length of leverage is more than the minimum specified value at col (3), the test load to decrease proportionately*
## ANNEX A
*(Clause 2.1)*

### LIST OF REFERRED INDIAN STANDARDS

<table>
<thead>
<tr>
<th>IS No</th>
<th>Title</th>
<th>IS No</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>292 1983</td>
<td>Leaded brass ingots and castings <em>(second revision)</em></td>
<td>2643 (Part 3) 1975</td>
<td>Dimensions for pipe threads for fastening purposes <em>Part 3 Limits of sizes (first revision)</em></td>
</tr>
<tr>
<td>318 1981</td>
<td>Leaded tin bronze ingots and castings <em>(second revision)</em></td>
<td>4218</td>
<td>ISO Metric screw threads</td>
</tr>
<tr>
<td>319 1989</td>
<td>Free cutting brass bars, rods and sections <em>(fourth revision)</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>320 1980</td>
<td>High tensile brass rods and sections <em>(other than forging stock) (second revision)</em></td>
<td>319 1989</td>
<td>Free cutting brass bars, rods and sizes <em>(fourth revision)</em></td>
</tr>
<tr>
<td>407 1981</td>
<td>Brass tubes for general purposes <em>(third revision)</em></td>
<td>4218</td>
<td>ISO Metric screw threads</td>
</tr>
<tr>
<td>549 1974</td>
<td>Split pins <em>(second revision)</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1264 1997</td>
<td>Brass gravity die castings <em>(ingots and castings) (fourth revision)</em></td>
<td>1264 1997</td>
<td>Brass gravity die castings <em>(ingots and castings) (fourth revision)</em></td>
</tr>
<tr>
<td>1364</td>
<td>Hexagon head bolts, screws and nuts of product grades A and B</td>
<td>4346 1982</td>
<td>Washer for use with fittings for water services <em>(first revision)</em></td>
</tr>
<tr>
<td>Part 1 1992</td>
<td>Hexagon head bolts <em>(size range M1 6 to M64) (third revision)</em></td>
<td>6912 1985</td>
<td>Copper and copper alloys forging stock and forgings <em>(first revision)</em></td>
</tr>
<tr>
<td>Part 2 1992</td>
<td>Hexagon head screws <em>(size range M1 6 to M64) (third revision)</em></td>
<td>8364 1989</td>
<td>Free cutting brass wire <em>(first revision)</em></td>
</tr>
<tr>
<td>Part 3 1992</td>
<td>Hexagon nuts <em>(size range M1 6 to M64) (third revision)</em></td>
<td>9762 1994</td>
<td>Polyethylene floats <em>(spherical)</em> for float valves</td>
</tr>
<tr>
<td>Part 4 1992</td>
<td>Hexagon thin nuts <em>(chamfered) (size range M1 6 to M64) (third revision)</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Part 5 1992</td>
<td>Hexagon thin nuts <em>(unchamfered)</em></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ANNEX B
(Foreword)

COMMITTEE COMPOSITION
Sanitary Appliances and Water Fittings Sectional Committee, CED 3

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Shri S. Sundaram

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Shri. K. Ramakrishna Rao

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Shri Sanjeev Somany (Alternate)

Shri K. Lakshmi Narasimma

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Shri S. K. Naga

Shri A. K. Sinha (Alternate)

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Shri V. K. Jain (Alternate)

Technical Member

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Shri S. V. Jadhav (Alternate)

Shri Hemant Beri

Shri H. K. Adiga (Alternate)

Shri D. K. Thombre

Chief Engineer (Rural) (Alternate)

Shri P. S. Jais

Shri Arun Kant Biswas

Shri D. K. Kanungo

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Shri. Eng. TAC (QbC)

Shri S. S. Sethi

Director (Civil Engrg)

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Bombay Municipal Corporation, Mumbai

Building Materials and Technical Promotion Council, New Delhi

Veeratex Ltd, Hyderabad

CPHEEO, New Delhi

CBRI, Roorkee

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Central Institute of Plastic Engineering & Technology, Chennai

Central Public Works Department, New Delhi

DOIS&D, New Delhi

Delhi Jal Board, New Delhi

LID-Party (India) Ltd, Rampet

Engineer-in-Chief’s Branch, New Delhi

Goverdhan Das P A (Calcutta), Calcutta

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Hindustan Shipyards Ltd, Visakapattanam

Indian Water Works Association, New Delhi

Institution of Public Health Engineers, India

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NEERI, Calcutta

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Northern Railway, New Delhi

Uttar Pradesh Jal Nigam, Lucknow

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Member-Secretary

Shri W. R. Paul

Additional Director (Civil Engrg)

(Continued on page 14)
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Smt A. L. Singh
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Amendments Issued Since Publication

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