IS 1703 (2000): Water Fittings - Copper Alloy Float Valves (Horizontal Plunger Type) - [CED 3: Sanitary Appliances and Water Fittings]

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IS 1703 : 2000
(Reaffirmed 2010)

भारतीय मानक

पानी के लिए फिटिंग तांबा मिश्रधातु के प्लव वाल्व (क्षैतिज प्लंजर प्रकार के) - विशिष्टि

(चौथा पुनरीक्षण)

Indian Standard

WATER FITTINGS — COPPER ALLOY FLOAT YALYES (HORIZONTAL PLUNGER TYPE) — SPECIFICATION

(Fourth Revision)

ICS 23.060.01

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI I10002

April 2000 Price Group 7

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)

Reprography Unit, BIS, New Delhi, India

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 2 1960 '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

Indian Standard

WATER FITTINGS — COPPER ALLOY FLOAT VALVES (HORIZONTAL PLUNGER TYPE) — SPECIFICATION

(Fourth Revision)

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 pitting 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

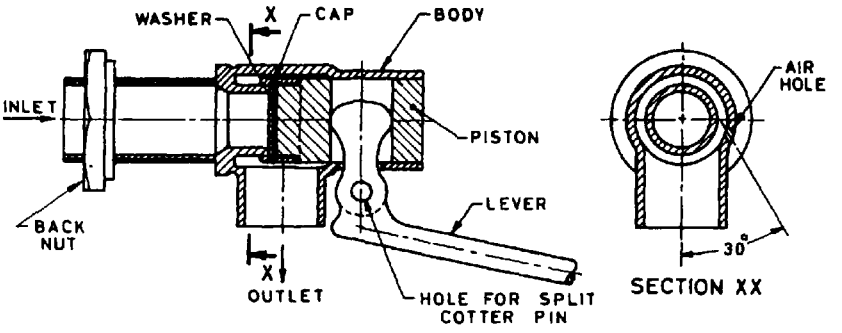
7.1 Illustration of a typical ball valve is shown in Fig 1

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

(*Clause* 5 1)

Sl No	Component	Material	Reference to Indian Standard
(1)	(2)	(3)	(4)
i)	Body and parts of fittings (except lever or rod and back nut)	a) Cast brass	Grade LCB 2 of IS 292 Grade DCB 2 of IS 1264
		b) Leaded-tin bronze	Grade LTB 2 of IS 318
ii)	Lever rod	Brass rod	Half hard of IS 319 or Grade 2 Half hard of IS 8364 or Grade HT 1 of IS 320 Grade FLB of IS 6912
iii)	Back nut and nuts for inlet pipe	a) Brass	Grade LCB 2 of IS 292 Grade HT 1 of IS 320 Grade FLB of IS 6912 Grade DCB 2 of IS 1264
		b) Leaded-tin bronze	Grade LTB 2 of IS 318
iv)	Washer	Synthetic rubber	IS 4346
v)	Inlet pipe	Brass	IS 407



NOTE The shapes of the component parts are only illustrative but the dimensions and minimum requirements, where specified, are binding

FIG 1 BALL VALVE (ASSEMBLY)

body of the valve The inlet shank shall be horizontal In case of 15 mm size the inlet shank may be either horizontal or vertical

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

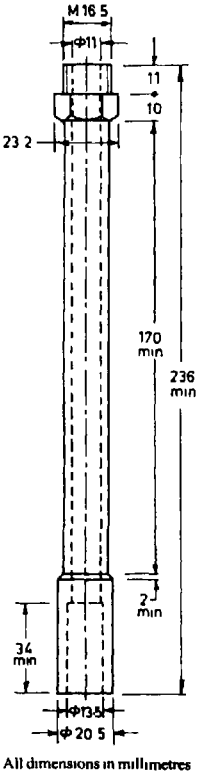
The inlet shank shall have an external parallel fastening thread conforming to IS 2643 (Part 3) Class B of the same size as the nominal size of float valve and all the other screw threads shall conform to ISO metric screw threads given in IS 4218 (Parts 1 to 6)

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 with standing 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



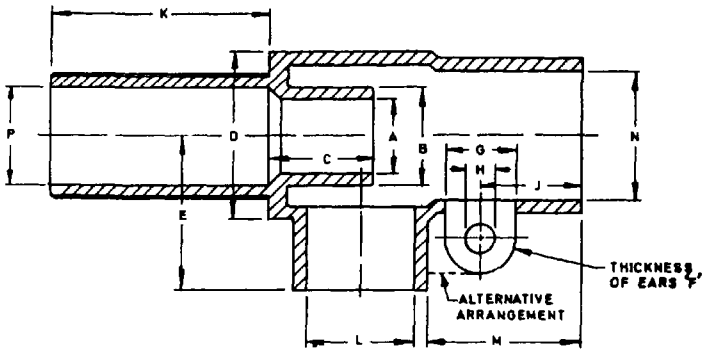
All dimensions in millimetres

FIG 2 INLET BRASS PIPE WITH HEXAGONAL NUT

Table 2(a) Dimensions of Body for Low Pressure Float Valve

(*Clause* 7.4)

All dimensions in millimetres



Sl No	Particulars	Dimensions for Nominal Size											
		15		20		25		32		40		50	
		Min	*Max*	*Min*	*Max*	*Min*	*Max*	*Min*	*Max*	*Min*	*Max*	*Min*	*Max*
i)	Bore of seating, *A*	9 0	9 5	13 0	13 5	17 0	17 5	23 5	24 0	24 5	25 0	31 0	31 5
ii)	Outer diameter of Seating, *B*	13 5	—	17 5	—	23 5	—	31 5	—	31 5	—	39 5	—
iii)	Length of seating, *C*	19 0	—	20 0	—	26 0	—	26 0	—	35 0	—	35 0	—
iv)	Size of flats of square under flange, *D*	27 0	—	32 0	—	40 0	—	55 0	—	55 0	—	67 0	—
v)	Centre of body to face of outlet nose *E*	24 0	—	30 0	—	41 0	—	57 0	—	57 0	—	76 0	—
vi)	Thickness of ears, *F*	4 0	—	5 0	—	5 5	—	8 0	—	8 0	—	9 5	—
vii)	Width of ears, *G*	16 0	—	16 0	—	17 5	—	19 0	—	19 0	—	25 0	—
viii)	Diameter of hole for split pin, *H*	5 0	—	6 5	—	6 5	—	8 0	—	8 0	—	9 5	—
ix)	Centre line of fulcrum to outside of body, *J*	20 0	—	20 0	—	23 0	—	23 0	—	25 0	—	25 0	—
x)	Length of inlet shank, *K*	45 0	—	46 0	—	54 0	—	66 0	—	66 0	—	73 0	—
xi)	Bore of outlet nose, *L*	14 3	—	20 7	—	27 0	—	39 7	—	40 0	—	52 4	—
xii)	Length of spigot, *M*	35 0	—	35 0	—	36 0	—	40 0	—	50 0	—	50 0	—
xiii)	Spigot bore, *N*	22 6	22 8	27 2	27 5	32 2	32 5	44 3	44 6	44 3	44 6	52 3	52 6
xiv)	Bore of inlet, *P*	14 0	14 6	19 4	20 0	23 6	24 2	32 0	32 6	38 2	38 8	48 0	48 6

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

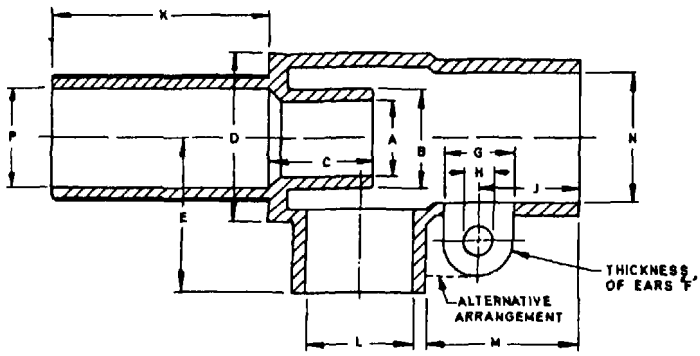
2 8 mm — For 32 mm and 40 mm size

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



Sl No.	Particulars	Dimensions for Nominal Sizes											
		15		20		25		32		40		50	
		Min	*Max*	*Min*	*Max*	*Min*	*Max*	*Min*	*Max*	*Min*	*Max*	*Min*	*Max*
i)	Bore of seating, *A*	3 0	3 5	6 0	6 5	9 0	9 5	12 5	13 0	18 5	19 0	25 5	26 0
ii)	Outer diameter of seating, *B*	9 0	—	12 0	—	16 0	—	21 0	—	27 0	—	34 0	—
iii)	Length of seating, *C*	12 0	—	12 0	—	15 0	—	20 0	—	20 0	—	25 0	—
iv)	Diameter of flange, *D*	27 0	—	32 0	—	40 0	—	55 0	—	55 0	—	67 0	—
v)	Centre of body to face of outlet nose, *E*	18 0	—	24 0	—	30 0	—	41 0	—	57 0	—	57 0	—
vi)	Thickness of ears, *F*	4 0	—	5 0	—	5 5	—	8 0	—	8 0	—	9 5	—
vii)	Width of ears, *G*	12 0	—	16 0	—	17 5	—	19 0	—	19 0	—	25 0	—
viii)	Diameter of hole for split pin, *H*	4 5	—	5 0	—	6 0	—	6 0	—	8 0	—	8 0	—
ix)	Centre line of fulcrum to outside of body, *J*	20 0	—	20 0	—	23 0	—	23 0	—	25 0	—	25 0	—
x)	Length of inlet shank, *K*	42 0	—	46 0	—	54 0	—	66 0	—	66 0	—	73 0	—
xi)	Bore of outlet nose, *L*	12 0	—	14 0	—	20 0	—	26 0	—	39 0	—	40 0	—
xii)	Length of spigot, *M*	30 0	—	35 0	—	36 0	—	40 0	—	50 0	—	50 0	—
xiii)	Spigot bore, *N*	18 5	18 7	22 6	22 8	27 2	27 5	32 2	32 5	44 3	44 6	44 3	44 6
xiv)	Bore of inlet, *P*	14 0	14 6	19 4	20 0	23 6	24 2	32 0	32 6	38 2	38 8	48 0	48 6
xv)	Thickness from root of flange, *Q*	3 0	—	3 0	—	4 0	—	4 0	—	5 0	—	6 0	—

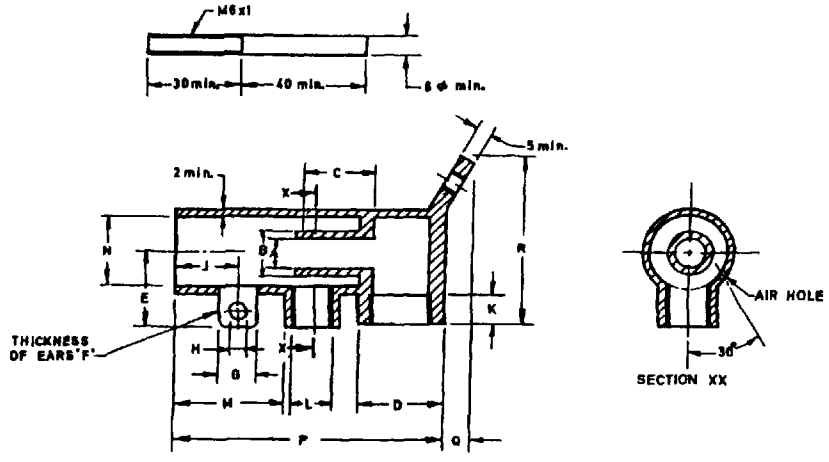
NOTE — *Minimum thickness of metal of outlet nose and piston socket*

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

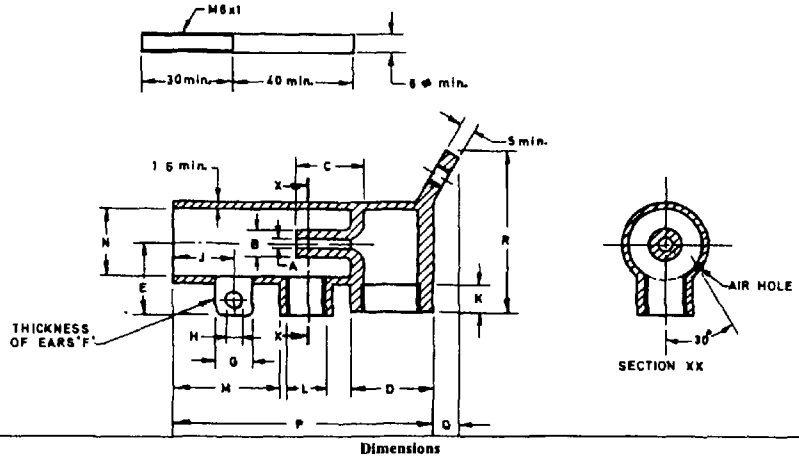


	Dimensions															
	A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*J*	*K*	*L*	*M*	*N*	*P*	*Q*	*R*
Max	9 5	—	—	—	—	—	—	—	—	—	—	—	22 8	—	—	-
Min	9 0	13 5	20 0	23 2	24 0	4 0	12 0	5 0	20 0	12	14 3	35 0	22 6	86 0	9 5	55 0

Table 3(b) Dimensions of Body with Vertical Inlet Shank for 15 mm Float Valve High Pressure

(*Clause* 7 4)

All dimensions in millimetres

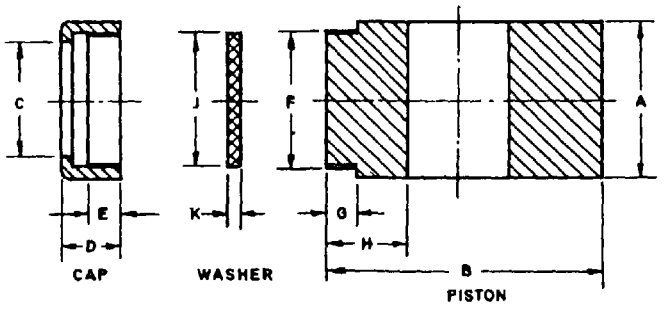


	Dimensions															
	A	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*J*	*K*	*L*	*M*	*N*	*P*	*Q*	*R*
Max	3 5	—	—	—	—	—	—	—	—	—	—	—	18 7	—	—	—
Min	3 0	9 0	12 0	23 0	18 0	4 0	12 0	4 5	20 0	12	12 0	30 0	18 5	79 0	9 0	50 0

Table 4(a) Dimensions of Piston for Low Pressure Float Valve

(*Clauses* 7.6 *and* 7.8)

All dimensions in millimetres



Sl No.	Particulars	Dimensions for Nominal Size											
		15		20		25		32		40		50	
		Min	*Max*	*Min*	*Max*	*Min*	*Max*	*Min*	*Max*	*Min*	*Max*	*Min*	*Max*
i)	Diameter of piston, *A*	22 3	22 5	26 8	27 0	31 8	32 0	43 8	44 0	43 8	44 0	51 8	52 0
ii)	Length of piston, *B*	32 0	—	46 0	—	54 0	—	76 0	—	76 0	—	105	—
iii)	Opening in cap, *C*	15 5	16 0	19 5	20 0	25 5	26 0	33 5	34 0	33 5	34 0	42 5	43 0
iv)	Length of cap, *D*	10 0	—	11 0	—	13 0	—	16 0	—	16 0	—	17 0	—
v)	Length of thread of cap (internal), *E*	5 0	—	7 0	—	8 0	—	9 0	—	9 0	—	9 0	—
vi)	Size of external thread, *F*	M 20 × 1 5		M 24 × 1 5		M 30 × 1 5		M 39 × 1 5		M 39 × 1 5		M 48 × 1 5	
vii)	Length of external thread, *G*	5 0	—	7 0	—	8 0	—	9 0	—	9 0	—	9 0	—
viii)	Face of piston slot, *H*	8 0	—	11 0	—	14 0	—	22 0	—	22 0	—	32 0	—
ix)	Diameter of piston washer, *J*	18 0	—	22 0	—	28 0	—	37 0	—	37 0	—	46 0	—
x)	Thickness of piston washer, *K*	3 0	—	3 0	—	3 0	—	4 0	—	4 0	—	5 0	—

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)+*P*

where

P = 0 8 mm for 15 mm and 20 mm size,

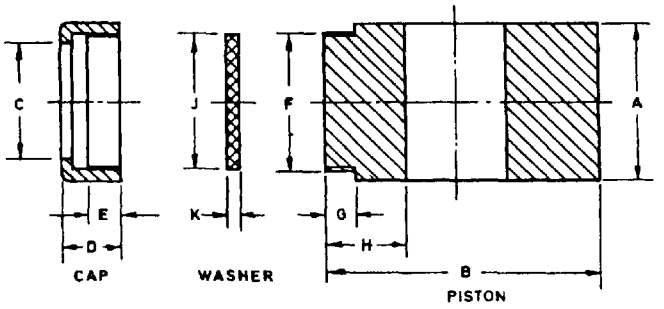
= 1 2 mm for 25 mm, 32 mm and 40 mm size, and

= 1 6 mm for 50 mm size

Table 4(b) Dimensions of Piston for High Pressure Float Valve

(*Clauses* 7.6 *and* 7.8)

All dimensions in millimetres



Sl No.	Particulars	Dimensions for Nominal Size											
		15		20		25		32		40		50	
		Min	*Max*	*Min*	*Max*	*Min*	*Max*	*Min*	*Max*	*Min*	*Max*	*Min*	*Max*
i)	Diameter of piston, *A*	18 2	18 4	22 3	22 5	26 8	27 0	31 8	32 0	43 8	44 0	43 8	44 0
ii)	Length of piston, *B*	28 0	—	32 0	—	46 0	—	54 0	—	76 0	—	76 0	-
iii)	Opening in cap, *C*	12 5	13 0	15 5	16 0	19 5	20 0	25 5	26 0	33 5	34 0	36 5	37 0
iv)	Length of cap, *D*	9 0	--	11 0	-	13 0	--	16 0	-	16 0	-	17 0	
v)	Length of thread of cap (internal), *E*	5 0	—	7 0	—	8 0	—	9 0	-	9 0		9 0	
vi)	Size of external thread, *F*	M 16 × 1 5		M 20 x 1 5		M 24 x 1 5		M 30 x1 5		M 39 x 1 5		M 39 x 1 5	
vii)	Length of external thread, *G*	5 0	—	7 0	-	8 0	-	9 0	—	9 0	-	9 0	--
viii)	Face of piston to slot, *H*	8 0	--	10 0	--	14 0	—	22 0	—	22 0	---	32 0	—
ix)	Diameter of piston washer, *J*	14 0	—	18 0	--	22 0	—	28 0	—	37 0	--	37 0	
x)	Thickness of piston washer, *K*	3 0	—	3 0	—	3 0	--	4 0	--	4 0	---	5 0	—

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 = 0 8 mm for 15 mm and 20 mm size,

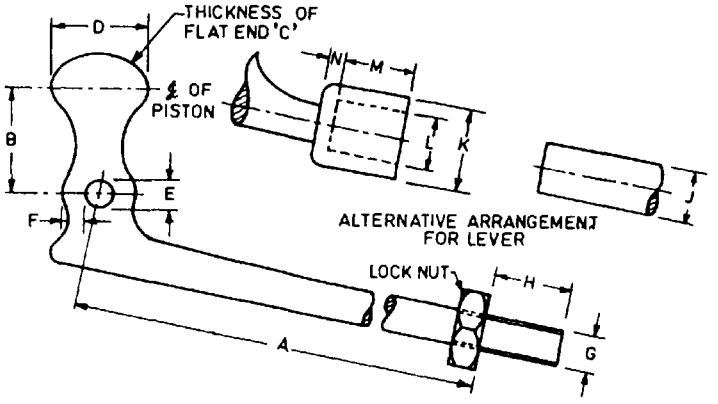
= 1 2 mm for 25 mm, 32 mm and 40 mm size, and

= 1 6 mm for 50 mm size

Table 5(a) Dimensions of Levers for Low Pressure Float Valve

(*Clause* 7.7.1)

All dimensions in millimetres.



Sl No.	Particulars	Dimensions for Nominal Size											
		15		20		25		32		40		50	
		Min	*Max*	*Min*	*Max*	*Min*	*Max*	*Min*	*tax*	*Min*	*Max*	*Min*	*Max*
i)	Length of lever from fulcrum to face of lock nut (long arm), *A*	210 0	--	318 0	-	387.0	--	552 0	-	552 0	-	711 0	--
ii)	Length of leverage from fulcrum to centre of piston, *B*	16 0	—	20 5	- -	25 0	—	28 0		35 0	- -	45 0	—
iii)	Thickness of flat end of short arm, *C*	5 0	--	5 5	—	6 5	—	9 0	-	9 5	—	9.5	—
iv)	Size over end of short arm, *D*	16 0	- -	19 0	—	22 0		28 0	—	35 0	—	45 0	-
v)	Nominal diameter of fulcrum hole for split cotter pin, *E*	5 0	—	6.3	-	6 3		8 0	-	8 0	-	10 0	-
vi)	Width of metal around fulcrum hole, *F*	4 0	—	5 0	—	5 5	--	7 0	—	7 0	—	8.0	---
vii)	Screw thread for boss of float, *G*	M 8 × 1 25		M 8 × 1 25		M 12 × 1 75		M 14 × 2		M 14 × 2		M 16 × 2	
viii)	Length of clear thread on float end of the rod, *H*	12 0	—	12 0	—	19.0	—	19 0	—	19.0	—	25 0	--
ix)	Diameter of plain end of rod for soldered or screwed joint, *J*	8 0	—	8.0	—	12 0	-	14 0	—	14 0	--	16 0	—
x)	Diameter of heel of boss, *K*	12.7	—	12.7	—	18 0	—	23 0	—	23 0	- -	25 0	-
xi)	Diameter of boring in boss for plain end of rod, *L*	- -	8.3	—	8 3	--	12.3	—	14 3	—	14.3		16 3
xii)	Axial length of boring in boss, *M*	12.0	—	12.0	-	16 8	—	21 0		21.0	-	24 0	—
xiii)	Thickness of metal at bottom of soldered jointing boring, *N*	2 3	—	2 3	—	3 3	—	4 2	—	4 2	- -	4 7	—

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).

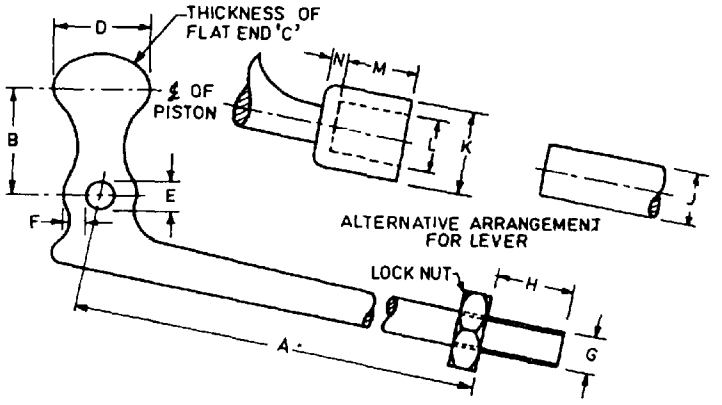
c) Leading dimensions of nuts shall confirm to IS 1364 (Parts 1 to 5).

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



Sl No	Particulars	Dimensions for Nominal Size											
		15		20		25		32		40		50	
		Min	*Max*	*Min*	*Max*	*Min*	*Max*	*Min*	*Max*	*Min*	*Max*	*Min*	*Max*
i)	Length of lever from fulcrum to face of lock nut (long arm), *A*	210 0	-	318 0	—	387 0		552 0		552 0		711 0	
ii)	Length of leverage from fulcrum to centre of piston, *B*	16 0	—	19 0	—	23 0	—	28 0	—	35 0	—	45 0	
iii)	Thickness of flat end of short arm, *C*	5 0	—	5 0	-	5 5	-	9 0	—	9 5	—	9 5	
iv)	Size over end of short arm, *D*	13 0	-	16 0	—	19 0	—	22 0		28 0		45 0	-
v)	Nominal diameter of fulcrum hole for split cotter pin, for sizes of split cotter pins (*see* Note 1), *E*	4 5		5 0	-	6 0	—	6 0	—	8 0		8 0	
vi)	Width of metal around fulcrum hole, *F*	4 0	—	4 0	—	5 0	—	7 0	—	7 0	—	8 0	—
vii)	Screw thread for boss of float, *G*	M 8 × 1 25		M 8 × 1 25		M 12 × 1 75		M 14 × 2		M 14 × 2		M 16 × 2	
viii)	Length of clear thread on float end of rod, *H*	12 0		12 0	—	19 0	—	19 0	—	19 0	—	25 0	—
ix)	Diameter of plain end of rod for soldered or screwed joint, *J*	8 0	—	8 0	—	12 0	—	14 0	—	14 0	—	16 0	-
x)	Diameter of heel of boss, *K*	12 0	-	12 7	—	17 5	—	23 0	—	23 0		25 0	-
xi)	Diameter of boring in boss for plain end of rod, *L*	—	8 3	—	8 3	—	12 3	—	14 3		14 3		16 3
xii)	Axial length of boring in boss, *M*	12 0	-	12 0	—	16 8	—	21 0	—	21 0		24 0	
xiii)	Thickness of metal at bottom of soldered jointing boring, *N*	2 3	—	2 3	—	3 0	—	4 2	—	4 2	—	4 7	

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 confirm to IS 1364 (Parts 1 to 5)

5 The length of lever, *A* for 15 mm size can be reduced to 175±3 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 is 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 :

Nominal Size of the Valve	*Piston Travel*
mm	mm
15	5.0
20	6.5
25	8.0
32	11.0
40	11.0
50	16.0

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).

7.10 Floats

The floats shall conform to IS 9762.

7.11 Back Nut

The back nuts shall conform to the dimensions given in Table 6 and shall be provided with parallel internal thread conforming to IS 2643 (Part 3) of the same size as the nominal size of the float valves. It may be chrome-plated.

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.

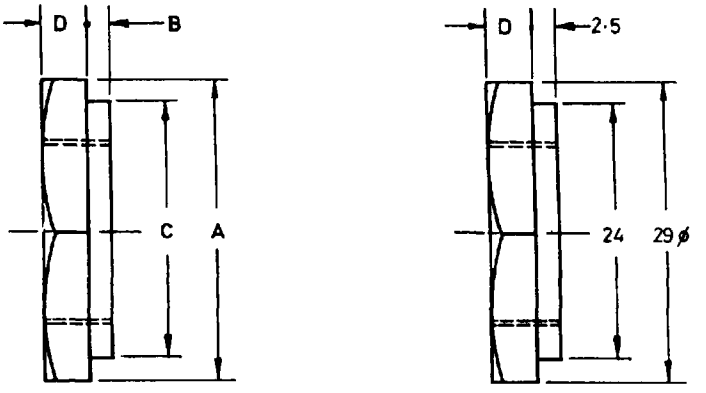
NOTE — The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act*, 1986 and the Rules and Regulations made thereunder. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements 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



Sl No.	Particulars	Dimensions for Nominal Size					
		15 *Min*	20 *Min*	25 *Min*	32 *Min*	40 *Min*	50 *Min*
i)	Size of hexagon across flats, *A*	35 0	38 0	46 0	60 0	66 0	82 0
ii)	Depth of round portion, *B*	1 5	2 0	2 5	3 5	4 5	5 5
iii)	Diameter of round portion, *C*	25 0	31 0	38 0	50 0	56 0	70 0
iv)	Height of hexagon, *D*	5 0	5 0	5 9	7 4	8 9	10 7

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)

Sl No.	Nominal Size of Float Valve	Length of Leverage from Fulcrum to Face of Lock Nut for Load Test	Length of Leverage from Fulcrum to Centre of Piston (Short Arm) (*Min*)	Test Load (kg)
(1)	(2)	(3)	(4)	(5)
i)	15	210	16 0	1 67
ii)	20	318	20 5	4 06
iii)	25	357	25 0	8 63
iv)	32	552	28 0	8 97
v)	40	552	35 0	13 0
vi)	50	711	45 0	20 0

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

IS No	*Title*
292 1983	Leaded brass ingots and castings (*second revision*)
318 1981	Leaded tin bronze ingots and castings (*second revision*)
319 1989	Free cutting brass bars, rods and sections (*fourth revision*)
320 1980	High tensile brass rods and sections (other than forging stock) (*second revision*)
407 1981	Brass tubes for general purposes (*third revision*)
549 1974	Split pins (*second revision*)
1264 1997	Brass gravity die castings (ingots and castings) (*fourth revision*)
1364	Hexagon head bolts, screws and nuts of product grades A and B
Part 1 1992	Hexagon head bolts (size range M1 6 to M64) (*third revision*)
Part 2 1992	Hexagon head screws (size range M1 6 to M64) (*third revision*)
Part 3 1992	Hexagon nuts (size range M1 6 to M64) (*third revision*)
Part 4 1992	Hexagon thin nuts (chamfered) (size range M1 6 to M64) (*third revision*)
Part 5 1992	Hexagon thin nuts (unchamfered) (size range M1 6 to M10) (*third revision*)
2643 (Part 3) 1975	Dimensions for pipe threads for fastening purposes Part 3 Limits of sizes (*first revision*)
4218	ISO Metric screw threads
(Part 1) 1976	Basic and design profiles (*first revision*)
(Part 2) 1976	Diameter pitch combinations (*first revision*)
(Part 3) 1976	Basic dimensions for design profiles (*first revision*)
(Part 4) 1976	Tolerancing system (*first revision*)
(Part 5) 1979	Tolerances (*first revision*)
(Part 6) 1978	Limits of sizes for commercial bolts and nuts (diameter range 1 to 52 mm (*first revision*)
4346 1982	Washers for use with fittings for water services (*first revision*)
6912 1985	Copper and copper alloys forging stock and forgings (*first revision*)
8364 1989	Free cutting brass wire (*first revision*)
9762 1994	Polyethylene floats (spherical) for float valves

ANNEX B

(Foreword)

COMMITTEE COMPOSITION

Sanitary Appliances and Water Fittings Sectional Committee, CED 3

Chairman	*Representing*
SHRI S K CHHABRA	Delhi Jal Board, New Delhi
Members	
SHRI VIDUR BHASKAR	Bhaskar Refractories and Stoneware Pipes Pvt Ltd, Faridabad
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SHRI A SHARIFF (*Alternate*)	
SHRI V M AGGARWAL	Indian Water Works Association, New Delhi
SHRI S K NEOGI	Institution of Public Health Engrs, India
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CHIEF ENGINEER (PS&G) (*Alternate*)	
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SHRI H K ARORA (*Alternate*)	
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SHRI D K KANUNGO	National Test House, Calcutta
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SUPG ENGR TAC (Q/C)	Uttar Pradesh Jal Nigam, Lucknow
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	Member-Secretary
	SHRI W R. PAUL
	Additional Director (Civ Engg)

(*Continued on page* 14)

(*Continued from page* 13)

Domestic Water Fittings Subcommittee CED 3:2

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657, Sector 8, Pocket C,
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