IS 909 : 1992
(Reaffirmed 1997)

भारतीय मानक

भूमिगत अग्नि नलिका कपाट वाल्व टाईप – विशिष्टि

(तीसरा पुनरीक्षण)

Indian Standard

UNDERGROUND FIRE HYDRANT, SLUICE VALVE TYPE — SPECIFICATION

(Third Revision)

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BUREAU OF INDIAN STANDARDS
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Price Group 3

Fire Fighting Sectional Committee, CED 22

FOREWORD

This Indian Standard (Third Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Fire Fighting Sectional Committee had been approved by the Civil Engineering Division Council.

Hydrants are invariably used for fire fighting purposes to derive water from the water line. The hydrants could be stand-post type or underground, that is, sluice-valve type. This standard covering underground fire hydrants, sluice-valve type was first published in 1958 and revised in 1965. The second revision has been prepared to incorporate complete details of duck-foot bend besides making other contents up to date.

In the formulation of this standard, due weightage has been given to international co-ordination among the standards and practices prevailing in different countries in addition to relating it to the practices in the field in this country.

In the present revision of the standard, in addition to general updating, the following major changes have been introduced:

a) A detailed figure of 'Underground Fire Hydrant Valve' including an 'item list' of components giving their details has been included.

b) 'Valve seat tightness test' has also been included under performance requirements.

For the purpose of deciding whether a particular requirment of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off 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

UNDERGROUND FIRE HYDRANT, SLUICE VALVE TYPE — SPECIFICATION

(Third Revision)

1 SCOPE

This standard lays down the requirements regarding materials, shape, dimensions and tests of udergground hydrant, sluice-valve type.

NOTE — Generally the sluice-valve type hydrant shall have one sluice-valve. Where it is intended to introduce into this type of additional facilities for closing off mains for repairs, then an additional sluice-valve of a similar type may be introduced adjacent to the sluice-valve on the side of the mains.

2 REFERENCES

The Indian Standards listed in Annex A are necessary adjuncts to this standard.

3 GENERAL REQUIREMENTS

The hydrant shall consist of the following components (*see* Fig. 1A and Fig. 1B):

a) Body
b) Bonnet
c) Spindle
d) Gland
e) Spindle cap
f) Spindle nut
g) Valve
h) Screwed outlet
j) Outlet cap and chain

4 MATERIAL

4.1 Body, bonnet, gland, outlet cap and spindle cap shall be made of cast iron grade FG 200 of IS 210 : 1978.

4.2 Outlet, seat for valve, valve, spindle nut, check nut shall be made of copper alloys as stated below:

a) Sand Casting — LTB-2 of IS 318 : 1981 or HTB 1 of IS 304 : 1981
b) Die castings — LCB 2 of IS 292 : 1983
c) Hot forging — Grade 1 of IS 291 : 1989

4.3 Spindle shall be made of brass conforming to IS 320 : 1980 or IS 319 : 1974 or stainless steel Gr 04 Cr 18 Ni 10 conforming to IS 6603 : 1972.

4.4 Gaskets shall be made of rubber conforming to IS 937 : 1981 or IS 638 : 1965 or leather conforming to IS 581 : 1976 or compressed asbestos fibre conforming to IS 2712 : 1979.

4.5 Gland packing shall be of asbestos thread conforming to IS 4687 : 1980.

4.6 Bolts and nuts shall be made of carbon steel conforming to IS 1367 (Part 14) : 1984.

5 ROAD SURFACE BOX

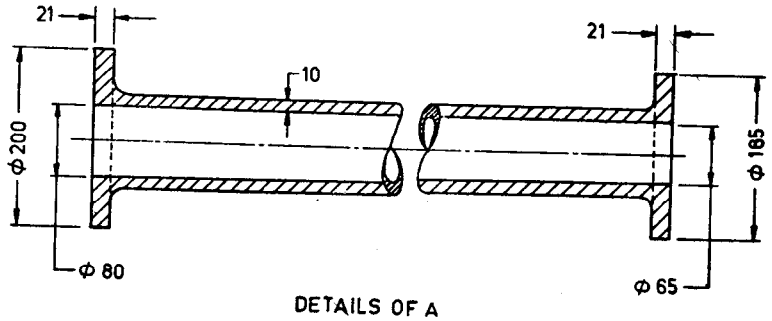
The road surface box shall be made according to the details given in Fig. 2. The minimum weight of the surface box shall be 135 kg. When a second sluice-valve is provided surface box for this sluice-valve shall conform to IS 3950 : 1979.

6 CONSTRUCTION AND DIMENSIONS

The outlet of the hydrant shall be of screwed type and provided with external round thread (two threads per 2·54 cm) as shown in Fig. 3. It shall be attached to the flanged end of the pipe by means of bolts. The outlet cap shall completely cover the outlet thread and be attached to the outlet by means of a chain made from steel stock not less than 3 mm in diameter or from material having equivalent strength, with the chain length and its attachment arranged to permit removal of the cap without binding. Suitable anti-corrosive treatment should be given to the chain.

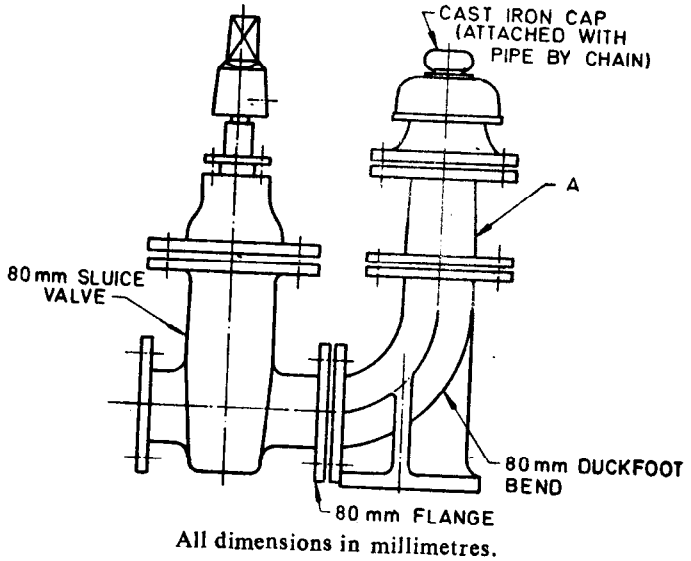
7 FINISH

All parts shall be of good finish, clear of all burrs and sharp edges. All castings shall be clean and sound excluding of plugging, welding or repairs of any defects.



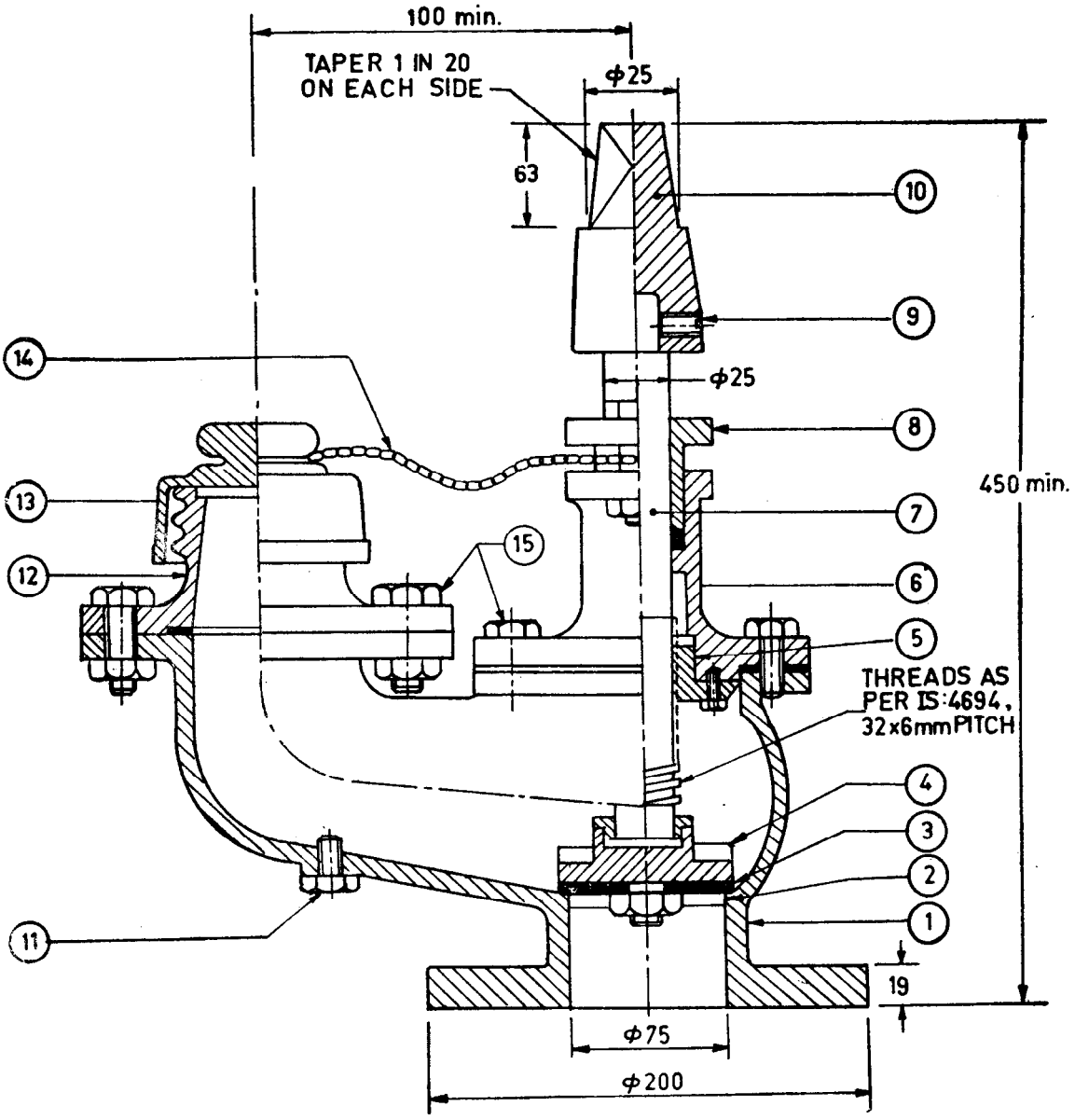
DETAILS OF A

DETAILS OF FLANGED REDUCER



All dimensions in millimetres.

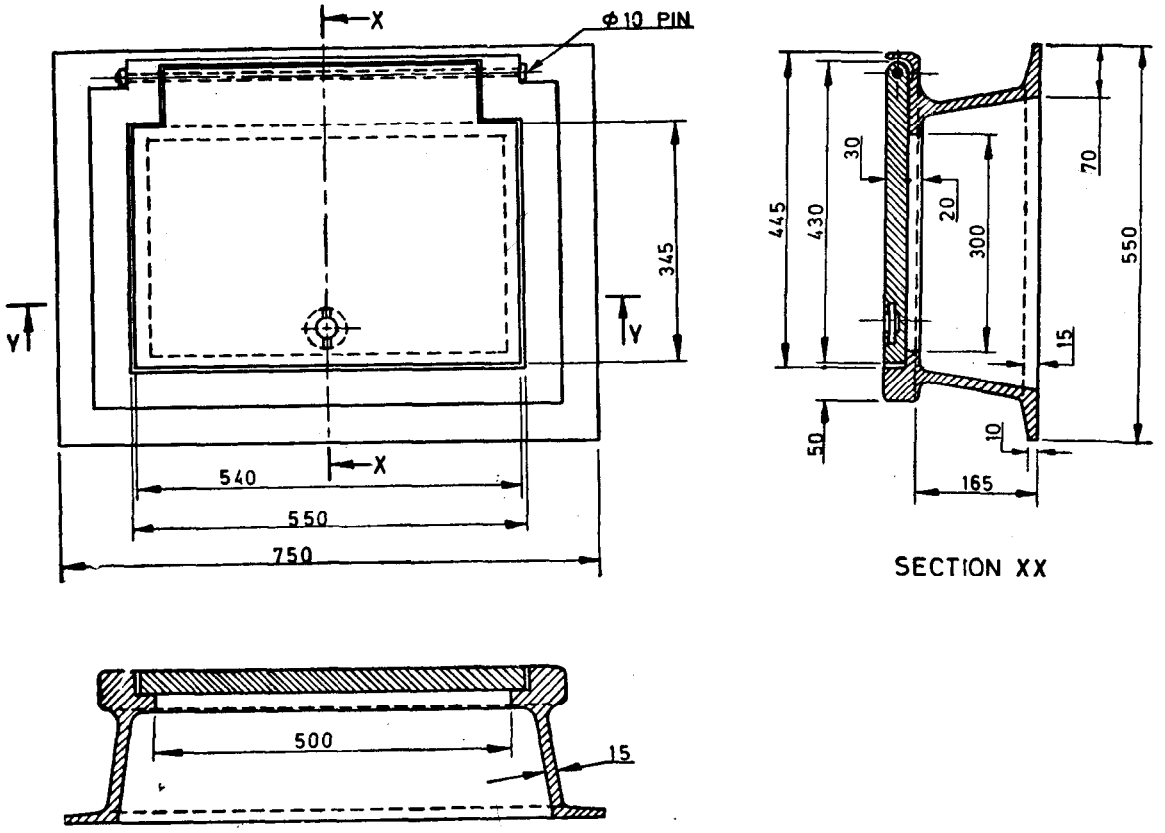
FIG. 1A UNDERGROUND FIRE HYDRANT, SLUICE-VALVE TYPE



No.	Description	Mat.	Mat. Specification
15	Nut and Bolt	M.S.	—
14	Chain	GAL.MS.	—
13	Cap	C. I.	IS : 210-1978 FG-200
12	Outlet	G. M.	IS : 318-1981 LTB-2
11	Drain Bolt	M. S.	—
10	Spindle Cap	C. I.	IS : 210-1978 FG-200
9	Grush Screw (12 mm)	M. S.	IS : 6094-1981
8	Gland	C. I.	IS : 210-1978 FG-200
7	Spindle	BRASS	IS : 319-1989
6	Bonnet	C. I.	IS : 210-1978 FG-200
5	Spindle Nut	G. M.	IS : 318-1981 LBT-2
4	Valve	G. M.	IS : 318-1981 LTB-2
3	Washer	RUBBER	IS : 937-1981
2	Valve Seat	G. M.	IS : 318-1981 LTB-2
1	Body	C. I.	IS : 210-1972 FG-200

TOLERANCES AS PER IS 2102 : 1962
All dimensions in millimetres.

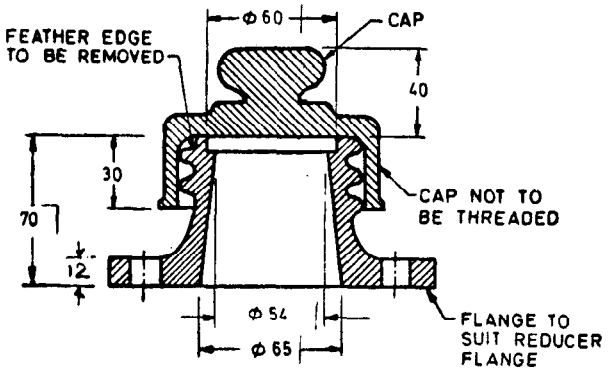
FIG 1B UNDERGROUND FIRE HYDRANT, SLUICE-VALVE GATE



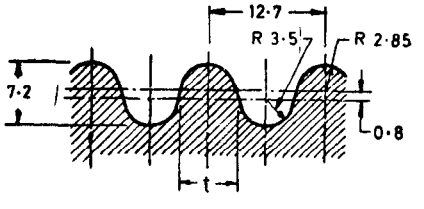
NOTE — The tolerance in dimensions shall be +2 mm for up to and including 15 mm, ± 2 mm or 16 mm and above and up to and including 50 mm, and ± 5 mm for 51 mm and above.

All dimensions in millimetres.

FIG. 2 CI ROAD SURFACE BOX



3A OUTLET AND CAP



3B DETAILS OF THREAD OF OUTLET

NOTES

1 Crest diameter of Thread 82·2 $^{+0·0}_{-0·4}$, Root diameter of Thread 68·0 *Max*

2 Thickness of Thread (t) 5·7 $^{+0·0}_{-0·4}$

All dimensions in millimetres.

FIG. 3 SCREWED OUTLET AND CAP (ROUND THREAD)

8 COATING OF PARTS OTHER THAN SLUICE-VALVE

8.1 Immediately after casting and before machining all cast iron parts shall be thoroughly cleaned, and before rusting commences, shall be coated by dipping in a bath containing a composition having a bituminous base (*see* IS 158 : 1981) and maintained at a temperature between 143 and 166°C. The proportions of the ingredients of the composition shall be so regulated as to produce a coating having the properties specified in **8.3**.

8.2 The casting shall be re-heated before dipping; either by immersion in hot water or by heating in an oven, or shall be held in the dipping bath sufficiently long to reach an equivalent temperature, the method used being at the maker's option. Care shall be taken to see that the casting are perfectly dry immediately before dipping. On removal from the bath the castings shall be sufficiently drained and ensure that no portion is left uncoated.

8.3 The coating shall be such that it shall not impart any taste or smell to water. The coating shall be smooth, glossy and tenacious, sufficiently hard so as not to flow when exposed to a temperature of 77°C and not so brittle at a temperature of 0°C as to chip off when scribed lightly with the point of a penknife.

9 PAINTING

Complete hydrant shall be painted externally with two coats of fire red paint conforming to shade No. 536 of IS 5 : 1978. The cover of the road surface box shall be painted with two coats of canary yellow colour paint conforming to shade 309 of IS 5 : 1978.

10 PERFORMANCE REQUIREMENTS

10.1 Hydrostatic Pressure Test

Each assembled unit shall be subjected to a hydrostatic pressure of 2.1 MN/m^2 with the valve open and outlet closed for a period of 2·5 minutes for the purpose of locating porosity in the casting. When so tested, it shall not fail or show any sign of leakage either through the valve body or through the gland of the spindle.

10.2 Valve Seat Tightness Test

The stop valve shall be fully closed by screwing down the spindle. A hydrostatic pressure of 1·4 MN/m^2 shall then be applied to each valve on its inlet side. There shall be no leakage through the valve and its seat.

11 CRITERIA FOR ACCEPTANCE

Each hydrant shall be tested for the requirements prescribed in this standard.

12 MARKING

12.1 Each hydrant shall be clearly and permanently marked with the following information:

a) Manufacturer's name or trade-mark, and

b) Year of manufacture.

12.2 The cover of the road surface box shall have the letters 'PH' embossed on it and painted in black colour.

12.2.1 The hydrant may also be marked with the Standard Mark.

ANNEX A

(*Clause* 2)

IS No.	*Title*
5 : 1978	Specification for grey iron castings (*second revision*)
158 : 1981	Specification for ready mixed paint, brushing, bituminous, black, leadfree, acid, alkali, water and heat resisting for general purposes (*second revision*)
210 : 1978	Grey iron castings (*third revision*)
291 : 1989	Naval brass rods and sections (suitable for machining and forging) (*second revision*)
292 : 1983	Leaded brass ingots and castings (*second revision*)
304 : 1981	High tensile 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 (*third revision*)
320 : 1980	High tensile brass rods and section (other than forging stock) (*second revision*)
581 : 1976	Vegetable tanned hydraulic leather (*second revision*)
638 : 1979	Sheet rubber jointing and rubber insertion jointing (*second revision*)
937 : 1981	Washer for water fittings for fire fighting purposes (*second revision*)
1367 (Part 14) : 1984	Technical supply condition for threaded steel fasteners : Part 14 Stainless steel threaded fasteners (*second revision*)
2712 : 1979	Compressed asbestos fibre joint (*second revision*)
3950 : 1979	Surface boxes for sluice valves (*first revision*)
4687 : 1980	Gland packing asbestos (*first revision*)
6094 : 1981	Hexagon socket set screws (*first revision*)
6603 : 1972	Stainless steel bars and flats

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Review of Indian Standards

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