***भारतीय मानक***

***Indian Standard***

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**IS 905:2024**

***अग्निशमन के लिए डिलिवरी ब्रीचिंग — विभाजन और संग्रहण — तात्कालिक पैटर्न — विशिष्टि***

(तीसरा पुनरीक्षण)

**Delivery Breechings for Fire Fighting — Dividing and Collecting — Instantaneous Pattern — Specification**

*(Third Revision)*

ICS 13.220.10

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भारतीय मानक ब्यूरो



BUREAU OF INDIAN STANDARDS

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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.

Delivery breechings are normally used for fire fighting operations along with the hoses. Dividing breeching is employed to meet those cases where it is necessary to divide or breech a line of hose under good pressure into two lines so that two branches may be used. A collecting breeching is employed in cases where the pressure is not adequate, and it is required to step up the same by an additional feed.

In the case of dividing breeching, there shall be a male fitting (single) on the inlet side and female fittings on the two outlets. In the case of collecting breeching, there shall be a female fitting (single) on the outlet side and male fittings on the two inlets.

This standard was prepared to ensure compatibility of breechings with other standard fire fighting equipment. It was first published in 1958 and subsequently revised in 1965 and 1980. In this revision, the following significant changes have been made:

1. The standard has been made performance oriented.
2. Only the dimensions for threads are made mandatory.
3. Stainless steel option has been added within material of construction
4. All the cross-referred standards have been made up to date.

The composition of the Committee responsible for the formulation of this standard is given in Annex B.

For the purpose of deciding whether a particular requirement 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 : 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.

*Indian Standard*

**DELIVERY BREECHINGS FOR FIRE FIGHTING — DIVIDING AND COLLECTING — INSTANTANEOUS PATTERN — SPECIFICATION**

(*Third Revision*)

# 1 SCOPE

This standard lays down the requirements regarding materials, shape, dimensions, and performance requirements of delivery breechings, dividing and collecting types.

# 2 REFERENCES

The standards listed in Annex A contain provisions which through reference in this text, constitute provisions 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 indicated at Annex A.

# 3 TERMINOLOGY

For the purpose of this standard the following definitions shall apply:

**3.1 Breechings**

**3.1.1** *Male/Collecting Breechings*— fitting used to unite two or more lengths of hose into one hose or pipe, usually to increase the pressure and quantity of discharge.

**3.1.2** *Female/Dividing Breeching*— fitting used to divide one line of hose into two or more.

**3.2 Coupling —** device for connecting together hoses, branch pipes breechings etc, so as to secure continuity from the source of water supply to the delivery point.

**3.3 Hose Coupling —** means used to join two lengths of hose together or to connect other equipment to a hose.

# 4 WORKMANSHIP AND FINISH

All fittings shall be of good workmanship, finish and free from all burrs and sharp edges. The forgings and castings shall be sound and free from porosity, blowholes, scales, cracks and other imperfections and shall not be repaired or filled so as to hide casting defects. The waterway of the fittings shall have a smooth finish. Where welding is used, welds shall be free from lack of fusion, cracks, non-metallic inclusions, porosity and cavities.

# 5 DESIGN AND MATERIAL

**5.1** The delivery breechings shall be of two types as under:

1. Dividing (*see* Fig 1), and
2. Collecting (*see* Fig 2).

**5.2** Typical designs of dividing and collecting breechings is given in Fig 1 and Fig 2 respectively. The design of breechings shall be such that they are suitable for use with the male and female instantaneous half couplings (*see* IS 903).

A drawing of a y shaped pipe

Description automatically generated

NOTE — Tolerance where not specified shall be ± 0.5 mm.

All dimensions in millimetres

Fig 1 Dividing Breeching

A drawing of a y joint

Description automatically generated

NOTE — Tolerance where not specified shall be ± 0.5 mm.

All dimensions in millimetres

Fig. 2 Collecting Breeching

## 5.3 Materials

**5.3.1** Copper alloys used for castings or forgings shall conform to the requirements given in Table 1.

**Table 1** **Copper Alloys Used for Castings or Forgings**

(*Clause* 5.3.1)

|  |  |  |
| --- | --- | --- |
| **Sl. No** | **Type of Casting/ Forging** | **Criteria for Conformity** |
|  |  |  |
|  | Sand Castings | Grade LTB 2 of IS 318 or  Grade HTB 1 of IS 304 |
|  | Die Castings | Grade LCB 2 of IS 292 |
|  | Hot Forgings | Grade FNB of IS 6912 with:  Fe: max. 0.1%  Other elements: max. 0.1% and Zinc: Balance. |

**5.3.2** Aluminium alloys shall be used in die casting only and shall conform to designation 4225, 4450 or 4600 of IS 617. Exposed aluminium surfaces shall have an anodized finish and all threaded parts of aluminium alloy components shall be coated with molybdenum listed grease.

**5.3.3** Stainless Steel die casting conforming to IS 3444 Grade 1/ 4 shall be allowed.

**5.3.4** Springs used in the plunger lugs in case of copper alloy breechings shall be made from phosphor bronze wire and shall conform to IS 7608.

**5.3.5** Springs used in the plunger lugs in case of aluminium alloy, and stainless-steel breechings shall be made from stainless steel wire and shall conform to IS 6528.

**5.3.6** Springs used in the plunger lugs in case of aluminium alloy and zinc alloy breechings shall be made from stainless steel wire and shall conform to IS 6528.

**5.3.7** Plunger springs shall be of such stiffness that they can be compressed to a length sufficient to free the plunger from engagement by a force of not less than 45 N and not greater than 65 N.

**5.3.8** The washers used in the breeching shall conform to Type A of IS 937.

**5.3.9** The material of construction shall be declared by the manufacturer.

NOTES

**1** The possibility of corrosion, especially that of bi-metallic corrosion may be given due regard in the choice of materials. Temporary, occasional contact of different metals connected during use do not typically pose problems. However prolonged contact is known to cause severe corrosion in some metals, such as that of aluminium and its alloys corroding in contact with copper or its alloys. Where it is imperative that different such materials have to be used in combination and prolonged contact is anticipated, suitable measures should be taken to prevent corrosion.

**2** The possibility of corrosion due to environmental conditions may also be given due regard. Particular care should be exercised in the selection of materials for use in marine environments where the water to be used in the fire hose might be seawater.

**3** Materials should be free from toxic substances and should not give rise to taste, odour, cloudiness or discolouration of the water or foster any microbiological growth.

## 5.4 Hydraulic Test

The assembled fitting shall be subjected to a hydraulic pressure of 2.1 N/mm2 (21 kg/cm2) (increasing at a rate not more than 1 N/mm2 per minute) for a period of 150 seconds after the pressure is obtained. There shall be no sign of leakage or sweating.

# 6 MARKING

**6.1** Each fitting shall be separately, clearly and permanently marked with the following information:

1. Manufacturer’s name or trademark,
2. Type (where applicable)
3. Material of construction, and
4. Month and Year of manufacture.

## 6.2 BIS Certification Marking

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

**ANNEX A**

*(Clause 2)*

**LIST OF REFERRED INDIAN STANDARD**

|  |  |
| --- | --- |
| *IS No.* | *Title* |
| IS 292: 1983 | Specification for leaded brass ingots and castings *(second revision)* |
| IS 304: 1981 | Specification for high tensile brass ingots and castings *(second revision)* |
| IS 318: 1981 | Specification for leaded tin bronze ingots and castings *(second revision)* |
| IS 617: 1994 | Cast aluminium and its alloys — ingots and castings for general engineering purposes — specification *(third revision)* |
| IS 903: 2024 | Fire hose delivery couplings, branch pipes, nozzles, breechings, and nozzle spanners — specification (*fifth revision*) |
| IS 937: 1981 | Specification for washers for water fittings for fire fighting purposes *(second revision)* |
| IS 2643: 2005 | Pipe threads where pressure-tight joints are not made on the threads — dimensions, tolerances and designation (third revision) |
| IS 5290: 2024 | Landing valves — specification (*fourth revision*) |
| IS 6528: 1995 | Stainless steel wire – specification *(first revision)* |
| IS 6912: 2005 | Copper and copper alloys forging stock and forging — specification *(first revision)* |
| IS 7608: 1987 | Specification for phosphor bronze wires for general engineering purposes *(first revision)* |
| IS 11864: 1986 | Recommended construction practice of apparatus for spray cabinet for various salt spray tests |

# ANNEX B

(*Foreword*)

# COMMITTEE COMPOSITION

Fire Fighting Sectional Committee, CED 22

| *Organization* | *Representative(s)* |
| --- | --- |
| In Personal Capacity (*House No. 1933, Sector-4, Urban Estate, Gurugram*), Haryana | Dr K. C Wadhwa (***Chairperson***) |
| Advance Firetec and Research Lab Private Limited, New Delhi | Shri Subir K Nandi |
| Agni Controls, Chennai | Shri Balachandran  Shri Arun Kumar (*Alternate*) |
| Airports Authority of India, New Delhi | Shri Arvind Kumar  Shri P. K. Deshmukh (*Alternate*) |
| CSIR - Central Building Research Institute, Roorkee | Dr Harpal Singh  Shri Shorab Jain (*Alternate*) |
| Central Industrial Security Force, New Delhi | Shri Sudhir Kumar |
| Central Public Works Department, New Delhi | Shri Chaitanya Kumar Verma  Shri Prem Mohan (*Alternate*) |
| Centre for Fire and Explosive Environment Safety, Defence Institute of Fire Research, Delhi | Shri Pankaj Chawla |
| Directorate General of Quality Assurance, New Delhi | Controller  Jt Controller (*Alternate*) |
| Engineers India Limited, New Delhi | Shri Amitabh Kishore  Shri Gyasuddin (*Alternate* I)  Shri Akash Deep Patel (*Alternate* II) |
| F.M. Engineering International India Branch, Bangalore | Shri Srikanth Yajjala  Shri Yassar Nabeel Mohamed (*Alternate*) |
| Fire and Emergency Services, Kolkata | Shri Abhijit Pandey  Shri Kamal Nandy (*Alternate*) |
| Fire and Security Association of India, Chennai | Shri Anas Rizvi |
| Gunnebo India Private Limited, Thane | Shri Johnson Mathew  Shri Samir Misri (*Alternate* I)  Shri Yogesh Jadhav (*Alternate* II) |
| H.D. Fire Protect Private Limited, Thane | Shri Harish N. Dharamshi  Shri K. T. Chaudhari (*Alternate* I)  Shri Anik N. Dharamshi (*Alternate* II) |
| Indian Oil Corporation Limited, New Delhi | Shri Samir V Sathe |
| Institute of Fire Engineers India, New Delhi | President  Shri U. S. Chhillar (*Alternate* I)  Shri Pradeep Kumar (*Alternate* II) |
| Johnson Controls, Bengaluru | Shri Santhosh Muzumdar  Shri Nitin Rastogi (*Alternate*) |
| K. V. Fire Chemicals India Private Limited, Navi Mumbai | Shri Rajesh Sabadra  Shri Uday K. Shroff (*Alternate*) |
| Maharashtra Fire Services, Mumbai | Shri Santosh S. Warick  Shri Kiran Hatyal (*Alternate*) |
| Ministry of Home Affairs, New Delhi | Shri Moreshwar Kudkilwar |
| National Association of Fire Officers, Mumbai | Shri M. V. Deshmukh  President (*Alternate*) |
| National Fire Service College, Nagpur | Dr Anant R Sontake |
| Oil Industry Safety Directorate, Noida | Shri Murari Mohan Prasad  Shri N. K. Pandey (*Alternate*) |
| Proion Consultants, New Delhi | Shri Sandeep Goel |
| RESQ Technologies, Ahmedabad | Shri Rohit V. Shah |
| Reliance India Limited, Mumbai | Shri Umesh Khandalkar  Shri Mukesh Chandra Kumar (*Alternate*) |
| Safex Fire Services Limited, Mumbai | Shri Jitendra Shah  Shri Sandip Shah (*Alternate*) |
| Shah Bhogilal Jethalal & Bros., Ahmedabad | Shri Mukesh M. Shah |
| State Bank of India, Mumbai | Shri Mayank Yadav |
| Swastik Synergy Engineering Private Limited, Mumbai | Shri Mukesh D. Shah  Shri Kunal Zatakia (*Alternate* I)  Shri Varun Shah (*Alternate* II) |
| TTS Consultant, Kolkata | Shri Tarak Chakraborty |
| Uttar Pradesh Fire Service, Government of Uttar Pradesh, Lucknow | Shri Aman Sharma |
| In Personal Capacity (*Bldg. No.8/S/3, Kamat Classic, Phase 4, Caranzalem, Panaji, Goa*), Panaji | Shri Ashok Menon |
| In Personal Capacity (*K-33-A, Green Park, First Floor, New Delhi - 110016*) | Shri S. K. Dheri |
| In Personal Capacity (*Gheekanta Road, Near Madhuram Cinema, Ahmedabad – 380001*)Gujarat | Shri Abhay D. Purandare |
| In Personal Capacity (*Flat No. 9221, ATS Pristine, Sector 150, NOIDA-201310*) | Dr G. C. Misra |
| In Personal Capacity (*D-317, 2nd Floor, Nirman Vihar, New Delhi - 110092*) New Delhi | Shri R. C. Sharma |
| In Personal Capacity (*27A, Tapovan Senior Citizens Foundation, Coimbatore - 641010*) Tamil Nadu | Shri T. R. A. Krishnan |
| Directorate General, Bureau of Indian Standards | Shri Dwaipayan Bhadra, Scientist ‘E’/Director and Head (Civil Engineering), Representing Director General (*Ex-officio*) |

*Member Secretary*

Shri Rajesh Choudhary

Scientist ‘B’/Assistant Director

(Civil Engineering) BIS

Fire Fighting Equipment Including Water Fittings Subcommittee, CED 22:2

| *Organization* | *Representative(s)* |
| --- | --- |
| In Personal Capacity (*D-317, 2nd Floor, Nirman Vihar, New Delhi - 110092*) New Delhi | Shri R. C. Sharma (**Convener**) |
| Advance Firetec and Research Lab Private Limited, New Delhi | Shri Subir K Nandi  Shrimati Indu Sharma (*alternate)* |
| Aska Equipments Private Limited, New Delhi | Shri Navdeep Garg |
| Ceasefire Industries Private Limited, Noida | Shri Amit Kumar Bajpai  Shri Vivekasheel Chaturvedi  (*Alternate*) |
| Centre for Fire and Explosive Environment Safety, Defence Institute of Fire Research, Delhi | Shri Pankaj Chawla |
| Chhatariya Rubber and Chemicals Industries, Mumbai | Shri S. A. Haveliwala  Shri H. S. Haveliwala (*Alternate*) |
| Department of Delhi Fire Services, Govt of NCT of Delhi, Delhi | Shri Virendra Singh |
| Devraj Engineers, Ahmedabad | Shri Vaishnav B. Shah  Shri Devan B. Shah *(Alternate)* |
| Daasnav Solutions Private Limited, Noida | Shri Kumar Vishal |
| Directorate General of Quality Assurance, New Delhi | Col V. V. Kadam  Col N. K. N Rao (*Alternate*) |
| Directorate of Fire and Emergency Services, Goa | Shri Nitin V. Raiker |
| FM Engineering International (India) Private Limited, Bengaluru | Shri Srikanth Yajjala  Shri Yassar Nabeel Mohamed *(Alternate)* |
| G K Engineering Company Limited, New Delhi | Shri A. K. Dhawan |
| Gunnebo India Private Limited, Thane | Shri Johnson Mathew  Shri Samir Misri (*Alternate-I*)  Shri Ajay Kumar M Jadhav (*Alternate-II*) |
| H.D. Fire Protect Private Limited, Thane | Shri Anik N. Dharamshi  Shri K. T. Chaudhari (*Alternate*) |
| Institute of Fire Engineers India, New Delhi | President  Shri U. S. Chhillar (*Alternate*) |
| Integrated Fire Protection Private Limited, Kolkata | Shri A. K. Karmakar  Shri A. K. Mukherjee (*Alternate*) |
| K. V. Fire Chemicals India Private Limited, Navi Mumbai | Shri Rajesh Sabadra |
| Ministry of Home Affairs, New Delhi | Shri Prashant Lonkar  Shri Moreshwar Kudkilwar (*Alternate*) |
| Municipal Corporation of Greater Mumbai, Mumbai | Chief Fire Officer  Dy Chief Fire Officer  (*Alternate*) |
| NewAge Industries, Fire Protection Engineers, Surendranagar | Shri Ashok Shah |
| Peter Autokits Private Limited, Mumbai | Shri J. K. Shah  Shri Paresh Joshi  (*Alternate*) |
| S & P Safety Products Private Limited, Kolkata | Shri Tunir Chakrabarti |
| Safex Fire Services Limited, Mumbai | Shri Jitendra Shah  Shri Sandip Shah (*Alternate*) |
| Shah Bhogilal Jethalal & Bros., Ahmedabad | Shri Mukesh M. Shah |
| Surex Production & Sales Private Limited, Kolkata | Shri Tarit Sur  Shri Debashis Neogi (*Alternate*) |
| Swastik Synergy Engineering Private Limited, Mumbai | Shri Mukesh D. Shah  Shri Kunal Zatakia (*Alternate*) |
| Topaz Fire Systems Private Limited, Bengaluru | Shri Liaqut Ali Khan |
| In Personal Capacity (*Bldg. No.8/S/3, Kamat Classic, Phase 4, Caranzalem, Panaji, Goa*), Panaji | Shri Ashok Menon |
| In Personal Capacity (*Gheekanta Road, Near Madhuram Cinema, Ahmedabad – 380001*)Gujarat | Shri Abhay D. Purandare |
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