



**उत्पाद मैनुअल**  
**आई एस 10124 (भाग 1 से 13):2009 के अनुसार**  
**पेय जल आपूर्ति के लिए सविरंचित**  
**पिवीसी – यु फिटिंगें के लिए**

**दस्तावेज़ संख्या – पी एम/ आई एस 10124 (भाग 1 से 13)/2/जून 2021**

*भारतीय मानक ब्यूरो की स्कीम-I (अनुरूपता मूल्यांकन) विनियम , 2018 के तहत यह उत्पाद मैनुअल प्रमाणीकरण के प्रचालन में रीति और पारिश्रिता की सुसंगतता सुनिश्चित करने के लिए सभी क्षेत्रीय/शाखा कार्यालयों और लाइसेंसी द्वारा संदर्भ सामग्री के रूप में उपयोग किया जाएगा। बीआईएस प्रमाणीकरण लाइसेंस/ प्रमाणपत्र प्राप्त करने के इच्छुक भावी आवेदकों द्वारा भी इस दस्तावेज़ का उपयोग किया जा सकता है ।*

**PRODUCT MANUAL FOR**  
**FABRICATED PVC-U FITTINGS FOR**  
**POTABLE WATER SUPPLIES**  
**ACCORDING TO IS 10124 (PART 1 TO 13) : 2009**

**Document No.- PM/ IS 10124 (Part 1 to 13)/ 2/ June 2021**

*This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure coherence of practice and transparency in operation of certification under Scheme-I of Bureau of Indian Standards (Conformity Assessment) Regulations, 2018 for various products. The document may also be used by prospective applicants desirous of obtaining BIS certification licence/certificate.*

भारतीय मानक ब्यूरो  
BUREAU OF INDIAN STANDARDS  
मानक भवन, ९, बहादुर शाह ज़फ़र मार्ग  
Manak Bhawan, 9, Bahadur Shah Zafar Marg  
नई दिल्ली- ११०००२  
New Delhi – 110002



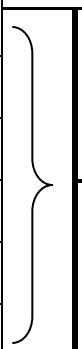
**PRODUCT MANUAL FOR  
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|    |                                                                                                                                                                                                                                                                                  |   |                                                      |
|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|------------------------------------------------------|
| 1. | <b>Product</b>                                                                                                                                                                                                                                                                   | : | IS 10124 (PART 1 TO 13) : 2009                       |
|    | <b>Title</b>                                                                                                                                                                                                                                                                     | : | FABRICATED PVC-U FITTINGS FOR POTABLE WATER SUPPLIES |
|    | <b>No. of Amendments</b>                                                                                                                                                                                                                                                         | : | 2                                                    |
| 2. | <b>Sampling Guidelines:</b>                                                                                                                                                                                                                                                      |   |                                                      |
| a) | <b>Raw material</b>                                                                                                                                                                                                                                                              | : | PVC pipes – IS 4985                                  |
| b) | <b>Grouping guidelines</b>                                                                                                                                                                                                                                                       | : | Please refer <a href="#">ANNEX – A</a>               |
| c) | <b>Sample Size</b>                                                                                                                                                                                                                                                               | : | 6 fittings and 1 fitting jointed with PVC pipes      |
| 3. | <b>List of Test Equipment</b>                                                                                                                                                                                                                                                    | : | Please refer <a href="#">ANNEX – B</a>               |
| 4. | <b>Scheme of Inspection and Testing</b>                                                                                                                                                                                                                                          | : | Please refer <a href="#">ANNEX – C</a>               |
| 5. | <b>Possible tests in a day :</b>                                                                                                                                                                                                                                                 |   |                                                      |
|    | (i) Socket length (Clause 5.1)<br>(ii) Maximum and minimum dimensions of mean inside diameter at mid-point of socket depth (Clause 5.1.2)<br>(iii) Out of roundness (Clause 5.1.3)<br>(iv) Opacity (Clause 6.1)<br>(v) Dimensions of fittings (As per relevant part of IS 10124) |   |                                                      |
| 6. | <b>Scope of the Licence :</b> Please refer ANNEX – D                                                                                                                                                                                                                             |   |                                                      |

**ANNEX A****Grouping Guidelines**

1. IS 10124 (Part 1): 2009 covers General Requirements for all types of fabricated PVC-U fittings for potable water supplies. IS 10124 (Part 2 to 13): 2009 covers different types of fittings as given below:

| Part of<br>IS 10124 | Type                                         |                                                                                     | Pressure<br>Class | Nominal size (mm)                     |                                                    |
|---------------------|----------------------------------------------|-------------------------------------------------------------------------------------|-------------------|---------------------------------------|----------------------------------------------------|
|                     |                                              |                                                                                     |                   | Socket for<br>solvent cement<br>joint | Socket for<br>elastomeric<br>sealing ring<br>joint |
| Part 2              | Sockets                                      |                                                                                     | 1                 | 90 – 630                              | -                                                  |
|                     |                                              |                                                                                     | 2                 | 63 – 630                              | 110 – 630                                          |
|                     |                                              |                                                                                     | 3                 | 40 – 630                              | 63 – 630                                           |
|                     |                                              |                                                                                     | 4                 | 25 – 630                              | 63 – 630                                           |
|                     |                                              |                                                                                     | 5                 | 20 – 630                              | 63 – 630                                           |
|                     |                                              |                                                                                     | 6                 | 20 – 630                              | 63 – 630                                           |
|                     |                                              |                                                                                     | Plumbing Pipe     | 20 – 50                               | -                                                  |
| Part 3              | Straight reducers                            |                                                                                     | 2 to 6            | 20 – 630                              |                                                    |
| Part 4              | Caps                                         |                                                                                     | 3 to 6            | 63 – 630                              |                                                    |
| Part 5              | Equal tees                                   |                                                                                     | 2 to 6            | 63 – 630                              |                                                    |
| Part 6              | Flanged tail pieces with<br>metallic flanges |                                                                                     | 2 to 6            | 63 – 630                              | 63 – 630                                           |
| Part 7              | Threaded adaptors                            |                                                                                     | 3 to 6            | 63 – 110                              |                                                    |
| Part 8              | 90° Bends                                    |  | 2                 | 63 – 630                              | 110 – 630                                          |
| Part 9              | 60° Bends                                    |                                                                                     | 3                 | 40 – 630                              | 63 – 630                                           |
| Part 10             | 45° Bends                                    |                                                                                     | 4                 | 25 – 630                              | 63 – 630                                           |
| Part 11             | 30° Bends                                    |                                                                                     | 5                 | 20 – 630                              | 63 – 630                                           |
| Part 12             | 22 ½ ° Bends                                 |                                                                                     | 6                 | 20 – 630                              | 63 – 630                                           |
| Part 13             | 11 ¼ ° Bends                                 |                                                                                     | Plumbing Pipe     | 20 – 50                               | -                                                  |

2. The fittings are categorized into following groups for the purpose of GoL/CSoL:

| Pressure Class | Group – I | Group – II | Group – III |
|----------------|-----------|------------|-------------|
| 1              | 90 – 110  | 125 – 315  | 355 – 630   |
| 2              | 20 – 110  | 125 – 315  | 355 – 630   |
| 3              | 20 – 110  | 125 – 315  | 355 – 630   |
| 4              | 20 – 110  | 125 – 315  | 355 – 630   |
| 5              | 20 – 110  | 125 – 315  | 355 – 630   |
| 6              | 20 – 110  | 125 – 315  | 355 – 630   |
| Plumbing Pipe  | 20 – 50   | -          | -           |

3. For considering GoL/CSoL, testing shall be done as follows:
- Each type of fitting of any size (as applicable to that type) from each size group, for each pressure class and for each type of joint (as applicable) shall be tested for all requirements to cover all the sizes of that particular type of fitting in the particular size group for the pressure class and type of joint tested.
4. The Firm shall declare the varieties of fittings they intend to cover in the Licence. The Scope of Licence may be restricted based on the Manufacturing and Testing capabilities of the Manufacturer.
5. During the operation of the Licence, BO shall ensure that all the varieties covered in the Licence are tested in rotation, to the extent possible.

**Note:**

- As IS 10124 (Part 1) covers General Requirements and are applicable to all other parts i.e IS 10124 (Part 2 to Part 13) wherein specific requirements relevant to each type of fittings are prescribed, licence may be granted as per IS 10124 (Part 1).
- Various types of fittings proposed to be covered in the licence as per different parts of IS 10124 shall be shown as varieties under the licence.
- The marking on the product shall be as per the relevant part as applicable.

(iv) Minimum marking fee applicable for the licence shall be as given below:

- Whenever more than one type as per different parts is covered under the licence, the highest minimum marking fee amongst the minimum marking fee of all applicable parts shall be collected.
- However if only one type is covered in the licence, minimum marking fee applicable for that part shall be collected.
- Unit Rate shall be as per the existing unit rates for the relevant part.

**ANNEX B****List of Test Equipment***Major test equipment required to test as per the Indian Standard*

| S. No. | Tests used in with Clause Reference                                                                                                                                     | Test Equipment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1      | Sizes of fittings (Clause 4)<br>Socket length & Diameter at mid-point of socket length (Clause 5)<br>Dimensions of fittings (Clause 3.2.2 of relevant part of IS 10124) | <ul style="list-style-type: none"> <li>- Dial Gauge Method or</li> <li>- Micrometer</li> <li>- Ultrasonic gauge</li> <li>- Outside calliper</li> <li>- Pi Tape or flexible tape</li> <li>- Vernier Caliper or Vernier depth gauge</li> <li>- Inside Caliper</li> <li>- Angle Protractor</li> </ul>                                                                                                                                                                                                              |
| 2      | Opacity (Clause 6.1)                                                                                                                                                    | <ul style="list-style-type: none"> <li>- Opacity Test Apparatus</li> <li>- Standard sample of opacity 0.2 %</li> </ul> <b>or Apparatus for Test Method-2</b> <ul style="list-style-type: none"> <li>- Source of light (halogen lamp 1000 W),</li> <li>- Photo-electric cell (with filter correction to match eye response),</li> <li>- Adjustable power arc or Incandescent lamp</li> <li>- Diaphragm and optical lens</li> <li>- Digital current meter.</li> <li>- Standard sample of opacity 0.2 %</li> </ul> |
| 3      | Short term hydrostatic test (Clause 6.2)                                                                                                                                | <ul style="list-style-type: none"> <li>- Hydrostatic pressure testing apparatus with pressuring unit and multiple outlets</li> <li>- Water bath with temperature control</li> <li>- Thermometer</li> <li>- End plugs</li> </ul>                                                                                                                                                                                                                                                                                 |
| 4      | Effect on water (Clause 6.3)                                                                                                                                            | <ul style="list-style-type: none"> <li>- Distilled water</li> <li>- Air conditioner</li> <li>- pH meter</li> <li>- Testing reagent and equipment for determination of cadmium, mercury, lead, tin and other toxic substances.</li> </ul>                                                                                                                                                                                                                                                                        |

*The above list is indicative only and may not be treated as exhaustive.*

**ANNEX C**

**Scheme of Inspection And Testing**

**1. LABORATORY** - A laboratory shall be maintained which shall be suitably equipped (as per the requirement given in column 2 of Table 1) and staffed, where different tests given in the specification shall be carried out in accordance with the methods given in the specification.

**1.1** The manufacturer shall prepare a calibration plan for the test equipment.

**2. TEST RECORDS** – The manufacturer shall maintain test records for the tests carried out to establish conformity.

**3. LABELLING AND MARKING** – As per the requirements of IS 10124 (Part 1): 2009 and relevant part of IS 10124 (Part 2 to 13): 2009.

**4. CONTROL UNIT** – All fittings of same type, size, pressure class and method of jointing fabricated under similar conditions in a shift of 8 h shall constitute a control unit.

**5. LEVELS OF CONTROL** - The tests as indicated in column 1 of [Table 1](#) and the levels of control in column 3 of [Table 1](#), shall be carried out on the whole production of the factory which is covered by this plan and appropriate records maintained in accordance with paragraph 2 above.

**5.1** All the production which conforms to the Indian Standard and covered by the licence should be marked with Standard Mark.

**6. REJECTIONS** – Disposal of non-conforming product shall be done in such a way so as to ensure that there is no violation of provisions of BIS Act, 2016.

**TABLE 1**

| (1)          |                           |                               |                                                              | (2)                                                                         | (3)                            |                                               |                                                                                                        |
|--------------|---------------------------|-------------------------------|--------------------------------------------------------------|-----------------------------------------------------------------------------|--------------------------------|-----------------------------------------------|--------------------------------------------------------------------------------------------------------|
| Test Details |                           |                               |                                                              | Test equipment requirement<br>R: required (or) S: Sub-contracting permitted | Levels of Control              |                                               |                                                                                                        |
| Cl.          | Requirement               | Test Methods                  |                                                              |                                                                             | No. of Sample                  | Frequency                                     | Remarks                                                                                                |
|              |                           | Clause                        | Reference                                                    |                                                                             |                                |                                               |                                                                                                        |
| 3            | Material                  | 3                             | IS 10124 (Part 1)<br><br>IS 4985                             | S                                                                           | 1                              | Each size/pressure class of PVC pipe received | #                                                                                                      |
| 4            | Size of fitting           | 4                             | IS 10214 (Part 1)                                            | -                                                                           | Each fitting                   | -                                             | -                                                                                                      |
| 5            | Dimensions                | 5.1 , Table 1<br>5.2, Table 2 | IS 10124 (Part 1)                                            | R                                                                           | 5                              | Each control unit                             | -                                                                                                      |
|              |                           | 3.2.2, Table 1 and Table 2    | IS 10124 (Part 2, 6, 8, 9, 10, 11, 12, 13)                   |                                                                             |                                |                                               |                                                                                                        |
|              |                           | 3.2.2, Table 1                | IS 10124 (Part 3, 4, 5)                                      |                                                                             |                                |                                               |                                                                                                        |
|              |                           | 3.3.2, Table 1                | IS 10124 (Part 7)                                            |                                                                             |                                |                                               |                                                                                                        |
| 3.2.3        | Metallic flange           | 3.2.3                         | IS 10124 (Part 6)                                            | S                                                                           | One                            | Each consignment received                     | #                                                                                                      |
| 6.1          | Opacity                   | 6.1                           | IS 10214 (Part 1)<br>IS 12235 (Part 3)                       | S                                                                           | 3<br>(Thinnest wall thickness) | Once in three months                          | Sample shall be tested in rotation so that over a period of one year all sizes and classes are tested. |
| 6.2          | Short term hydraulic test | 6.2                           | IS 10214 (Part 1)<br>Annex - A                               | R                                                                           | 3                              | Each control unit                             | -                                                                                                      |
| 6.3          | Effect on water           | 6.3                           | IS 10214 (Part 1)<br>IS 12235 (Part 4)<br>IS 12235 (Part 10) | S                                                                           | 1                              | Once in six months                            | Smallest size fittings produced shall be tested @                                                      |

# No further testing is required if accompanied with the Test Certificate or ISI marked.

@ Additional sample shall be tested whenever there is a change in formulation/composition. Fittings from each class shall be tested in one year.

Note-1: Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empanelled by the Bureau.

Note-2: Levels of control given in column 3 are only recommendatory in nature. The manufacturer may define the control unit/batch/lot and submit his own levels of control in column 3 with proper justification for approval by BO Head. 7

**ANNEX – D****Scope of the Licence**

|                                                                                                   |                                                                  |
|---------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| Licence is granted to use Standard Mark as per IS 10124 (Part 1) : 2009 with the following scope: |                                                                  |
| Name of the product                                                                               | FABRICATED PVC-U FITTINGS FOR POTABLE WATER SUPPLIES             |
| Type of Fittings with reference to relevant part of IS 10124                                      |                                                                  |
| Nominal Size and Pressure class                                                                   |                                                                  |
| Type of Joint (as applicable)                                                                     | Socket for Solvent Cement Joint / Elastomeric Sealing Ring Joint |