



**DRAFT PRODUCT MANUAL FOR
RUBBER SEALS FOR HYDRAULIC GATES
ACCORDING TO IS 15466:2004**

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.

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| 1. | Product | : | IS 15466:2004 |
| | Title | : | RUBBER SEALS FOR HYDRAULIC GATES |
| | No. of Amendments | : | NIL |
| | | | |
| 2. | Sampling Guidelines: | | |
| a) | Raw material | : | Material – Clause 3.1 of IS 15466 : 2004 |
| b) | Grouping guidelines | : | Each type of rubber seal shall be tested to cover that particular type in the scope of licence |
| c) | Sample Size | : | Rubber seal – 2 nos and Rubber test pads for physical testing as per IS 3400 |
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| 3. | List of Test Equipment | : | Please refer ANNEX – A |
| | | | |
| 4. | Scheme of Inspection and Testing | : | Please refer ANNEX – B |
| | | | |
| 5. | Possible tests in a day : | | |
| | a) Type, Shapes and dimensions (Clause 5) | | |
| | b) Thickness of cladded seal (Clause 6.1) | | |
| 6. | Scope of the Licence : | | Please refer ANNEX – C |

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

| Sr. No. | Tests Used with clause reference | Test Equipment/Chemicals |
|----------------|---|---|
| 1 | Shore A durometer hardness (Clause 4 , Table 3) | Hardness Tester |
| 2 | Elongation at break (Clause 4 , Table 3) | Dumbbell Die and Cutter Thickness gauge Slicing machine |
| 3 | Tensile Strength (Clause 4 , Table 3) | Press Tensile Testing Machine with test rig Hygrometer Humidity Conditioning Chamber |
| 4 | Mass of Water Absorbed (Clause 4 , Table 3) | Balance Beaker with hanging arrangement (Total immersion apparatus) |
| 5 | Tensile Strength after Accelerated Ageing (Clause 4 , Table 3) | Dumbbell Die and Cutter Thickness gauge Slicing machine Press Tensile Testing Machine with test rig Hygrometer Humidity Conditioning Chamber Hot air Oven With O ₂ cylinders & pressure gauge Digital stop watch |
| 6 | Low temperature Brittleness (Clause 4 , Table 3) | Cold Chamber With test set up for carrying out Low Brittleness as per Annex-A of IS 15466 with gas as heat transfer media & die for punching type A specimen |
| 7 | Type, Shapes and Dimensions (Clause 5) | Measuring scale Digital Vernier caliper Dead weight thickness gauge Combination set for Seal angle measurement Radius gauge for Seal radius measurement |

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| 8 | Additional Requirements for Cladded Seals (Clause 6) | Digital Vernier caliper Dead weight thickness gauge Combination set for Seal angle measurement Radius gauge for Seal radius measurement |
| 9 | General laboratory conditions | Arrangement for maintaining temperature of 27 ± 2 °C and 65 ± 5 % |

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

ANNEX B

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 15466 : 2004.

4. CONTROL UNIT – Rubber seals of same type manufactured from same type of material compound under similar condition of manufacturing shall constitute as 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 R: required (or) S: Sub-contracting permitted | Levels of Control | | |
| Cl. | Requirement | Test Methods | | | No. of Sample | Frequency | Remarks |
| | | Clause | Reference | | | | |
| 3 | Materials | 3.1 & 3.2 | IS 15466 | S | One | Once in six month | # |
| 4 Table 1 | Physical requirement | | | | | | |
| i) | Shore A durometer hardness | 4 | IS 15466 IS 3400 (Part 23) | R | One | Each control unit | - |
| ii) | Elongation at break, Percent | 4 | IS 15466 IS 3400 (Part 1) | R | One | Once in a week for each type of rubber seal | - |
| iii) | Tensile strength | 4 | IS 15466 IS 3400 (Part 1) | R | One | Once in a week for each type of rubber seal | - |
| iv) | Mass of water absorbed in 7 days | 4 | IS 15466 IS 3400 (Part 6) | R | One | Once in fifteen days for each type of rubber seal | - |
| v) | Tensile strength after accelerated aging test of 48 h in oxygen at 70 ± 1 °C and 2.1 ± 0.1 N/mm ² | 4 | IS 15466, IS 3400 (Part 4) IS 3400 (Part 1) | R | One | Once in a week for each type of rubber seal | - |
| vi) | Low temperature brittleness | 4 Annex A | IS 15466 | R | One | Once in a week for each type of rubber seal | - |
| 5 | Type, Shapes and dimensions | 5.1, 5.2 Table 2 | IS 15466 | R | 10 | Each control unit | - |
| 6 | Additional requirements for cladde seals | 6.1 to 6.5 | IS 15466 | R | One | Each control unit | - |

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

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.

ANNEX- C

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| Scope of the Licence : | |
| “Licence is granted to use Standard Mark as per IS 15466:2004 with the following scope: | |
| | |
| Name of the product | RUBBER SEALS FOR HYDRAULIC GATES |
| Type | <ul style="list-style-type: none"> a) Angle shaped seals (ASS) – Type I, Type II, Type III and Type IV b) Flat/wedge seals (F/WS) – Type A , Type B, Type C, Type D and Type E c) Music note seal (MNS) – Solid bulb seal, Hollow bulb seal d) Double caisson seal (DCS) – Solid double stem seal Type I Solid double stem seal Type II Hollow double stem seal Solid double stem seal with bulb at ends Type I Solid double stem seal with bulb at ends Type II e) Double bulb seal (DBS) f) Corner seals – Type I (CST I) Type II (CST II) Type III (CST III) Type IV (CST IV) |
| Any other aspect | With or Without cladding |