



भारतीय मानक ब्यूरो

(उपभोक्ता मामले, खाद्य एवं सार्वजनिक वितरण मंत्रालय, भारत सरकार)

**BUREAU OF INDIAN STANDARDS**

(Ministry of Consumer Affairs, Food & Public Distribution, Govt. of India)

मानक भवन, 9 बहादुरशाह जफर मार्ग नई, दिल्ली-110002

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi-110002

Phones: 23230131 / 23233375 / 23239402

Website: www.bis.org.in, www.bis.gov.in

## Review Document

### Basic Details

|    |                                  |   |
|----|----------------------------------|---|
| 1. | Sectional Committee No. & Title: | TED 2 - Automotive Primemovers, Transmission Systems and Internal Combustion Engine   |
| 2. | IS No :                          | IS 8422 : Part 5 : 1977   |
| 3. | Title :                          | Specification for piston rings for IC engines: Part 5 stepped oil scraper rings from 30 up to 200 mm nominal diameter Z - Rings |
| 4. | Date of Previous Review:         | September, 2019   |

### Review Analysis

#### 5.1 Status of standard(s), if any from which assistance had been drawn in the formulation of this IS.

| S.No. | Standard (No.) | Standard (Title)  | Whether the standard has since been revised           | Major changes | Action proposed           |
|-------|----------------|---|---|---------------|---------------------------|
| 1     | BS 5341-1      | Specification of piston rings up to 200 mm diameter for internal combustion engines : Part I Single piece designs, dimensions, materials and designations | BS 5341-1 has been finalized from the draft standard. | NA            | Please see recommendation |

#### 5.2 Status of standard referred in the IS.

| S.No. | Referred standards (No.) | Referred standards (Title)   | Since revised IS no. of the corresponding IS | Changes in the referred Standards since last review of IS   | Changes in the referred standard which are affecting the standard under review | Action proposed           |
|-------|--------------------------|--|--|---|--|---------------------------|
| 1     | 5791:1977                | INTERNAL COMBUSTION ENGINES अंतरिक्ष पिस्टन RINGS अंतरिक्ष MATERIAL SPECIFICATIONS | 5791:2006                                    | In this revision, the following technical changes have been incorporated: a) Table of Typical materials for piston rings had been modified. b) Hardness in terms of Vickers, Rockwell and Brinell is given for respective materials. c) Combinations of Typical modulus of elasticity and Bending strength is extended. d) Typical applications for respective categories have been provided. The text of ISO Standard has been approved as suitable for publication as an Indian Standard without deviations | Please see 5.2)4   | Please see recommendation |

**5.3 Any other standards available related to the subject & scope of the standard being reviewed (International/regional/other national/association/consortia, etc or of new or revision of existing Indian Standard).**

| S.No. | Standard (No.) | Standard (Title)   | Provisions that could be relevant while reviewing the IS   | Action proposed                                  |
|-------|----------------|--|--|--|
| 1     | ISO 6623:2013  | Internal combustion engines<br>Piston rings<br>Scraper rings made of cast iron | ISO 6623:2013 specifies the essential dimensional features of scraper rings made of cast iron, types N, NM, E, and EM, having diameters from 30 mm up to and including 200 mm, used in reciprocating internal combustion engines for road vehicles and other applications. | Adoption of ISO 6623 in toto may be looked into. |

**5.4 Technical comments on the standard received, if any.**

| S.No.                       | Source | Clause of IS | Comment | Action proposed |
|-----------------------------|--------|--------------|---------|-----------------|
| No entry made in this table |        |              |         |                 |

**5.5 Information available on relevant technical developments**

| S.No. | Source                      | Development   | Relevant clause of the IS under review that is likely to be impacted (Clause & IS No.) | Action proposed           |
|-------|-----------------------------|---|--|---------------------------|
| 1     | Manufacturer (Non-licensee) | During the interaction it was found that all the manufacturing and testing of Piston Rings in the country is done on the basis of ISO standards in order to align the same with international practice. | General  | Please see recommendation |

**5.6 Issues arising out of changes in any related IS or due to formulation of new Indian Standard.**

| S.No.                       | Related IS (revised or new) | Related IS Title | Provision in the IS under review that would be impacted & the clause no. or addition of new clause/provision | Changes that may be necessary in the Standards under review | Action proposed |
|-----------------------------|-----------------------------|------------------|--|---|-----------------|
| No entry made in this table |                             |                  |  |   |                 |

**5.7 Any consequential changes to be considered in other IS.**

| S.No.                       | Related IS to get impacted | Related IS Title | Requirements to be impacted |
|-----------------------------|----------------------------|------------------|-----------------------------|
| No entry made in this table |                            |                  |                             |

**Other Details**

|   |   |   |  |  |                           |  |
|---|---|---|--|--|---------------------------|--|
| 6.  | Any other observation:  | <p>The series of ISO standards may be adopted in place of related Indian Standards on the subject in order to align the manufacturing and testing practices with international standards- 1 ISO 6621-1, internal combustion engines - Piston rings - Part I: Vocabulary. 2 ISO 6621-2, internal combustion engines - Piston rings - Part 2: Inspection measuring principles. 3 ISO 6621-4, internal combustion engines - Piston rings - Part 4: General specifications. 4 ISO 6621-5, Internal combustion engines - Piston rings - Part 5: Quality requirements. 5 ISO 6622-1 Internal combustion engines - Piston rings - Part 1: Rectangular rings made of cast 6 ISO 6622-2, internal combustion engines - Piston rings - Part 2: Rectangular rings with narrow ring width. 7 ISO 6623, internal combustion engines - Piston rings - Scraper rings made of cast iron. 8 ISO 6624-1 Internal combustion engines - Piston rings - Part I: Keystone rings made of cast iron. 9 ISO 6624-2, Internal combustion engines - Piston rings - Part 2: Half keystone rings 10 ISO 6624-3, internal combustion engines - Piston rings - Part 3: Keystone rings made of steel. 11) ISO 6624-4, Internal combustion engines - Piston rings - Part 4: Half keystone rings made of steel. 12 ISO 6625:1986, Internal combustion engines - Piston rings - Oil control rings. 13 ISO 6626:1989, Internal combustion engines - Piston rings - Coilspring-loaded oil control rings. 14 ISO 6626-2, internal combustion engines - Piston rings - Part 2: Coil-spring-loaded oil control rings of narrow width made of cast iron. 15 ISO 6627, Internal combustion engines - Piston rings - Expander/segment oil-control rings.</p> |  |  |                           |  |
| 7.  | Upload Supporting Document(s)   |   |  |  |                           |  |
| <table border="1"> <tr> <td data-bbox="137 779 566 846"><b>7.1 ARP Report</b></td> <td data-bbox="566 779 1458 846"><a href="#">67_15586_221228034836_ARP_Report.pdf</a></td> </tr> <tr> <td data-bbox="137 846 566 913"><b>7.2 Draft Document</b></td> <td data-bbox="566 846 1458 913"><a href="#">67_15586_221228034615_Draft_Document.pdf</a></td> </tr> </table> |   |   | <b>7.1 ARP Report</b>  | <a href="#">67_15586_221228034836_ARP_Report.pdf</a> | <b>7.2 Draft Document</b> | <a href="#">67_15586_221228034615_Draft_Document.pdf</a> |
| <b>7.1 ARP Report</b>   | <a href="#">67_15586_221228034836_ARP_Report.pdf</a>  |   |  |  |                           |  |
| <b>7.2 Draft Document</b>   | <a href="#">67_15586_221228034615_Draft_Document.pdf</a>  |   |  |  |                           |  |
| 8.  | <p>Recommendations - On the basis of the analysis of the info available as mentioned above consideration of sectional committee is solicited on the following aspects of the IS under review:</p> | <table border="1"> <tr> <td data-bbox="820 952 1458 1041"> <p>Based on above findings, it is recommended to adopt latest version of ISO 6623 in place of IS 8422 Part V: 1977</p> </td> </tr> </table>  | <p>Based on above findings, it is recommended to adopt latest version of ISO 6623 in place of IS 8422 Part V: 1977</p> |  |                           |  |
| <p>Based on above findings, it is recommended to adopt latest version of ISO 6623 in place of IS 8422 Part V: 1977</p>  |   |   |  |  |                           |  |