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Aerospace - O-ring grooves - Dimensions

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(English Translation)

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document is modified to adopt ISO 23748:2016 "Dimensions of O-ring grooves for aerospace applications".

This document has undergone significant structural adjustments compared to ISO 23748:2016. A table comparing the structural numbering changes between the two documents is provided.

See Appendix A.

This document differs significantly from ISO 23748:2016. The relevant clauses are indicated in vertical single-line margins.

The line (|) is used for marking. The technical differences between this document and ISO 23748:2016, and the reasons for these differences, are as follows.

---The roughness requirements for d3 and d9 in Figure 1 have been changed (see 5.2) to conform to the actual situation in China;

---The roughness requirements for d6 and d10 in Figure 2 have been changed (see 5.3) to conform to the actual situation in China;

---The addition of "sharp edges should be rounded" in index number descriptions of Figures 1 and 2 (see 5.2, 5.3) aligns with the actual situation in China;

---The roughness requirements for the groove bottom in Figures 3 and 4 have been revised (see 5.4 and 5.5) to conform to the actual situation in China;

---The roughness requirements in Tables 1, 8, 15 and 22 have been revised (see 5.2~5.5) to conform to the actual situation in China.

The following editorial changes have been made to this document.

---Incorporates amendments to ISO 23748:2016/Amd1.2021; the relevant clauses are indicated by vertical margins.

The double lines (||) are used to indicate this.

---A "Y" has been added to the symbol (see Chapter 4);

---Units have been uniformly added to the upper right corner of the tables to better suit Chinese usage habits (see 5.2~5.5);

---Introductory phrases for the tables 3-7, 10-14, 17-21, and 24-28 have been added (see 5.2-5.5);

---In Tables 1, 8, 15, and 22, "Rmax" should be changed to "Rz" to conform to Chinese usage habits (see 5.2-5.5);

---In Tables 1, 8, 15, and 22, "Working Pressure" should be changed to "No Pressure Fluctuation". The conditions for "No Pressure Fluctuation" and "Pressure Fluctuation" should be considered separately.

Adding a "Work Pressure" row above the "Work Time" table is more in line with Chinese usage habits (see 5.2-5.5);

---In Tables 24-28, the dimensional tolerance "H11" in column 3 (d8) is changed to "h11" (see 5.5), which is consistent with the dimensional tolerance in column 6 (d8).

The difference remains consistent;

---Add the following. "The groove marking consists of the standard designation, size designation, and structural designation." (See Chapter 6);

--- "See Figure 5 for example" should be changed to "See Figure 5 for an example of trench drawing annotation for structure designation A with dimension designation A0040".

"See Figure 6 for examples," "See Figure 7 for examples," "See Figure 8 for examples" (see 7.2~7.5);

---ISO 286-2 has been replaced by GB/T 1800.2 (see references).

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed and is under the jurisdiction of the National Aircraft Standardization Technical Committee (SAC/TC435).

1 Scope

This document specifies the dimensions and tolerances for static sealing O-ring grooves for aerospace applications.

This document applies to the dimensions and tolerances of static seal O-ring grooves for the following aerospace applications.

---Radial sealing grooves for rods or cylinders;

---Axial sealing groove subjected to internal or external pressure.

2 Normative references

This document has no normative references.

3 Terms and Definitions

This document does not contain any terms or definitions that need to be defined.

4 Symbols

The following symbols apply to this document.

b---O-ring groove width.

d1---Inner diameter of the O-ring.

d2---O-ring cross-section diameter.

d3 --- The diameter of the groove bottom when the O-ring is installed on the rod.

- d4 --- Cylinder diameter when the O-ring is installed on the rod.
- d5 --- The outer diameter of the rod when the O-ring is installed on the cylinder.
- d6 --- The diameter of the groove bottom when the O-ring is installed on the cylinder.
- d7---Outer diameter of the groove for axial sealing (subject to internal pressure).
- d8 --- Inner diameter of the groove for axial sealing (subject to external pressure).
- d9 --- The outer diameter of the rod when the O-ring is installed.
- d10 --- Cylinder diameter when O-rings are installed.
- h --- The depth of the groove for axial sealing.
- R---Relative of the fillet radius of the groove edge.
- r1---Relative of the bottom fillet of the groove.
- t---Trench depth.
- Y---Maximum bounce.
- Z---Chamfer length for installation guide.