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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 35083.2-2018

**Plain bearings -- Testing of the tribological behaviour of bearing
materials -- Part 2: Testing of polymer-based bearing materials**

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Foreword

GB/T 35083 "Tribological Bearing Bearing Material Tribological Characteristics Test" consists of the following two parts.

---Part 1. Test of metal bearing materials;

--- Part 2. Polymer bearing material test.

This part is the second part of GB/T 35083.

This part is drafted in accordance with the rules given in GB/T 1.1-2009.

This part uses the translation method equivalent to ISO 7148-2.2012 "Sliding bearing bearing material tribological properties test part 2.

Polymer Bearing Material Test.

The documents of our country that have a consistent correspondence with the international documents referenced in this part are as follows.

Plastics -- Determination of tensile properties of plastics -- Part 2 . Test conditions for moulding and extruded plastics

(ISO 527-2.1993, IDT)

Determination of tensile properties of plastics -- Part 3. Test conditions for sheets and sheets (ISO 527-

3.1993, IDT)

---GB/T 16748-1997 Compression test of sliding bearing metal bearing materials (ISO 4385.1981, IDT)

---GB/T 23893.2009 Classification and marking of thermoplastic polymers for plain bearings (ISO 6691.2000, IDT)

This part was proposed by the China Machinery Industry Federation.

This part is under the jurisdiction of the National Technical Committee for Standardization of Plain Bearings (SAC/TC236).

This section is responsible for drafting units. China Machine Productivity Promotion Center, Hefei Bolin New Materials Co., Ltd., Hunan Chongde Industrial Technology Co., Ltd.

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This part is explained by the National Technical Committee for Standardization of Plain Bearings.

Tribological properties test of plain bearing materials

Part 2. Polymer bearing material testing

1 Scope

This part of GB/T 35083 specifies the tribological tests of plain bearing polymer bearing materials under specific operating conditions, such as load carrying capacity,

Test methods for sliding speed and temperature, with or without lubrication. Through the test results, metal-polymer or polymer-polymer friction can be obtained

Associated tribological performance data.

The purpose of this section is to obtain a polymer shaft for plain bearings without lubrication (dry friction surfaces) and with lubrication (boundary lubrication).

The combination of the material and its counterpart material can be repeatedly measured for friction and wear under specified and clearly defined test conditions.

Only when all the parameters with influence are the same, the test results can be practical for practical applications. Test conditions deviate from practical application

The more the situation, the higher the uncertainty of the application of the test results.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article.

Pieces. For undated references, the latest edition (including all amendments) applies to this document.

Plastics -- Determination of tensile properties of plastics -- Part 2 . Test conditions for molded and extruded plastics (Plastics-Determi-

nationoftensileproperties-Part 2.Testconditionsformouldingandextrusionplastics)

Determination of tensile properties of plastics -- Part 3. Test conditions for films and sheets (Plastics-Determination

oftensileproperties-Part 3.Testconditionsforfilmsandsheets)

Machining preparation of ISO 2818 plastic samples

ISO 4385 sliding bearing metal bearing material compression test (Plainbearings-Compressiontestingofmetallic

Bearingmaterials)

ISO 6691 Classification and labeling of thermoplastic polymers for plain bearings (Thermoplastic polymers forplainbearings-

Classificationanddesignation)

3 symbols, units and abbreviations

See Table 1.

Table 1 Symbols and units

Symbol definition unit

A, B, C, D, E Test Method -

a sliding distance km

Dr dry friction -

f Friction factor; that is, the ratio of friction to positive pressure. $f=F_f/F_n$ -

Ff friction force N

Table 1 (continued)

Symbol definition unit

Fn positive pressure N

Gr grease -

Kw

Wear factor, volume wear rate associated with positive pressure.

$K_w=V_w/(F_n \times a)=w_v/F_n$

$Mm^3/(N \cdot km)$

Lw wire wear amount mm

Mf friction torque Nm

Oi Lubricant -

p specific load (force/actual contact area) MPa

Rd,B Compressive strength MPa

Rd0.2 specifies non-proportional compression strength MPa

So solid lubricant -

T Temperature of the sample near the sliding surface when tested under steady state conditions °C

Tamb ambient temperature °C

Tg glass transition temperature °C

Tlim bearing maximum allowable temperature °C

Tch test time h