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

GB/T 32217-2015

**Hydraulic fluid power -- Sealing devices -- Standard test
methods to assess the performance of seals used in oil
hydraulic reciprocating applications**

液压传动 密封装置 评定液压往复运动密封件性能的试验方法

(English Translation)

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Foreword

This standard was drafted in accordance with GB/T 1.1-2009 given rules.

This standard uses redrafted law revision using ISO 7986:1997 "Hydraulic seals hydraulic reciprocating seals assessment Standard Test Method for member properties. " this standard and ISO 7986:1997 technical differences exist compared to the terms of these differences has been involved through its outer margin bits Opposing vertical single line (-) was marked, and the main technical difference between the following reasons.

- Chapter 1, "scope" the statement to apply to the national standard formulation;
- On normative references, this standard has been adjusted technical differences, in order to adapt our technical conditions, the adjusted situation Focus is reflected in the status of Chapter 2, "Normative references", the specific adjustments are as follows.
 - Modify with international standards of GB/T 1800.2-2009 instead of ISO 286-2. 1988 (see Table 3);
 - equivalents using the international standard GB/T 6062-2009 instead of the ISO 3274:1996 (see 7.4);

- equivalents adoption of international standards ISO 6743-4:1999 of GB/T 7631.2-2003 instead of ISO 6743-4. 1982 (See 5.1);
 - equivalents adoption of international standards GB/T 10610-2009 replaces ISO 4288:1996 (see 9.1.1);
 - Remove the ISO 1052, ISO 1629, ISO 2944, ISO 10766;
 - increase of GB/T 15242.2.
 - In order to meet the technical conditions of Table 1 of Part Code and ISO 7986:1997 is different, and delete the code name "Ra" and "Rt" and its definition;
 - 4.1.2 adds isolation sets requirements;
 - 4.2.3 adds the seal groove material and a grooved surface roughness requirements.
- For ease of use, this standard also made the following editorial changes.
- Deleted "Figure 2 Note 2)" to direct marked on the map;
 - For ease of use, will be adjusted to 10 5, after the original 5 Figure successively postponed;
 - Delete international standards, "Chapter 11," content;
 - Delete international standards Appendix D.

The standard proposed by China Machinery Industry Federation.

This standard by the National Standardization Technical Committee of hydraulic and pneumatic (SAC/TC3) centralized.

This standard was drafted. Guangzhou Mechanical Engineering Research Institute Co., Ltd., Northwest Rubber Plastic Research and Design Institute, Anhui Ding seals Shares Ltd., Jieyang City seals Tiancheng Co., Ltd. Chengdu Sheng help seals, Pearl Test Machine Co., Ltd., Jiangsu.

Introduction

If the lack of key variables that affect the installation and operation of the reciprocating seal control, test results will be reciprocating seal unpredictability.

In order to obtain comparative data reciprocating seal performance for seals provide the basis for design and selection, test seals should be strictly controlled these concerns Key variables, and provides strict test conditions.

This standard specifies the value of a series of standard test speed, pressure, temperature and surface roughness can be selected into the most suitable conditions Line test.

The factors affecting the sealing performance comprising.

a) Installation.

- Sealing systems, such as. supporting ring, seal and dust seal design;
- Mounting tolerances, including the sealing groove of the piston rod and the support ring, the extrusion gap;
- Rod material and hardness;
- Rod surface roughness, the surface roughness of the rod in addition to or greater than $Ra0.08\mu m \sim Ra0.15\mu m$ $Rt1.5\mu m$ will seriously affect the sealing performance. Best surface roughness of choice with different seal materials and different;
- Trench surface roughness, in order to avoid leakage and wear static seal pressure cycle, the surface roughness should be less than $Ra0.8\mu m$;
- Support ring of material, including the impact on the texture of the piston rod and the boundary layer.

b) Run.

- A fluid medium, for example. viscosity, lubricity, and the sealing material and the compatibility of the additive, and the level of contamination;
- Pressure, including cycling;
- The speed, especially the speed of the loop;
- Speed \u200b\u200b/ pressure cycling, for example. start - stop condition;
- Travel, especially short-stroke oil film prevents the formation of (2 times the width of the sealing contact width and below);
- Temperature, for example. the impact on the viscosity and the sealing material properties;
- The external environment.

In all applications the seal standard test results predict the performance of the practical application of the seal, it is necessary to consider the above factors and their sealed the potential impact of member properties.

Hydraulic transmission hydraulic reciprocating sealing means assessment Standard Test Method for Performance sports seal

1 Scope

This standard specifies the test conditions and methods for assessing hydraulic reciprocation seal performance.

This standard applies to hydraulic fluid as the transmission medium hydraulic reciprocating

motion assess seal performance.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document.

GB/T 1800.2-2009 Geometrical product specifications (GPS) limits and fits - Part 2 standard tolerance grades and hole axis pole

Table limit deviations (ISO 286-2. 1988, MOD)

GB/T 6062-2009 Geometrical product specifications (GPS) Surface texture Profile method of contact (stylus) instruments nominal characteristics (ISO 3274:1996, IDT) GB/T 7631.2-2003 Lubricants, industrial oils and related products (L class) classification - Part 2. H (Hydraulic systems) (ISO 6743-4:1999, IDT) GB/T 10610-2009 Geometrical product specifications (GPS) Surface texture Profile method - Rules and procedures for evaluation of the surface structure (ISO 4288:1996, IDT) GB/T 15242.2 hydraulic cylinder piston and piston seals bearing rings - Dimensions and tolerances Code 3 Code, definitions and units are shown in Table 1.

Table 1 code, definitions and units

Code-defined unit

d1 mm inner diameter of the seal lip D mm nominal diameter seal groove h seal height mm Friction force F N d2 seal root diameter mm l leakage mL L mm axial length of the sealing groove p1 test pressure (forward stroke) MPa p2 return pressure (return trip) MPa S1 radial seal lip section width mm S2 root radial seal section width mm v Test speed m/s