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GB/T 5568-2013 / ISO 6803:2008

Replacing GB/T 5568-2006

Rubber or plastics hoses and hose assemblies - Hydraulic-pressure impulse test without flexing

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Standardization Administration of the People's Republic of China.

Table of Contents

Foreword

This Standard is drafted according to the rules given in the GB/T 1.1-2009.

This Standard replaced GB/T 5568-2006 "*Rubber or plastics hoses and hose assemblies - Hydraulic-pressure impulse test without flexing*". Compared with GB/T 5568-2006, the main changes of this Standard are as follows:

- ADD low-pressure impulse test (refer to Chapter 1);

- ADD a reference standard (refer to Chapter 2);

- ADD the terms and definitions (refer to Chapter 3);

- ADD a test chosen temperature (refer to Chapter 6; the Chapter 5 in 2006 edition);

- REVISE test fluid requirements (refer to Chapter 5; Chapter 4 in 2006 edition);

- REVISE expression of the formula for the tested hose free length (refer to 7.2, 6.2 in 2006 edition);

- REVISE the test procedure; INCREASE the requirements of impulse frequency for high-pressure and low-pressure impulse test (refer to 8.2, 7.2 in 2006 edition);

- DELETE result determination of the failure for hose end fittings (8.2 in 2006 edition);

- ADD the date of test (refer to Chapter10).

This Standard uses translation method and equivalently adopts ISO 6803:2008 *"Rubber or plastics hoses and hose assemblies - Hydraulic-pressure impulse test without flexing"*.

The national documents that have the consistency correspondence with international documents in normative references of this Standard are as follows:

- GB/T 3141-1994 "Industrial liquid lubricants - ISO viscosity classification" (eqv ISO 3448:1992), there is no technical difference between the contents quoted in this Standard and the international standard.

- GB/T 7528-2011 "Rubber and plastics hoses and hose assemblies – Vocabulary"

- GB/Z 18427-2001 "Hydraulic hose assemblies - External leakage classification for hydraulic systems"

The Standard was proposed by China Petroleum and Chemical Industry Federation.

This Standard shall be under the jurisdiction of National Technical Committee on Rubber and Products of Standardization Administration of China (SAC/TC 35/SC 1).

Drafting organizations of this Standard: Hebei Yutong Special Rubber Hose Co., Ltd., Luohe Letong Rubber Co., Ltd, Hengshui Administration of Quality and Technical Supervision, Inspection, Qingdao Xiangliu Rubber Hose Co., Ltd., Tianjin Ge Tesi Detection Equipment Technology Development Co., Ltd., and Shenyang Rubber Research & Design Institute.

The main drafters of this Standard: Hao Wei, Zhong Weijiang, Li Jinsheng, Wang Yongfu, Cai Zhixiong, Zhao Hongliang, Liu Hongbin, and Zhang Yanfen.

The historical versions replaced by this Standard are as follows:

- GB/T 5568-1985, GB/T 5568-1994, GB/T 5568-2006.

Rubber or plastics hoses and hose assemblies - Hydraulic-pressure impulse test without flexing

WARNING - Personnel who uses this Standard shall have the experience working in the regular laboratory. This Standard does not refer to all the possible safety problems. Users have the responsibility for appropriate safety and health measures and shall guarantee that all the measures shall comply with the conditions specified by national related regulations.

1 Scope

This Standard specifies hose impulse test, without flexing, of rubber or plastics hydraulic hose assemblies at both high and low impulse pressures. The high-pressure testing is carried out at pressures more than 3MPa and the low-pressure test at pressures from 1.5 MPa to 3 MPa.

The test procedure applies to hydraulic hose assemblies that are subject to pulsating pressures in service which are included in the product requirements.

Note: Impulse test procedures with flexing can be found in ISO 6802, "*Rubber and plastics hoses and hose assemblies with wire reinforcements - Hydraulic impulse test with flexing*".

2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this Standard.

ISO 3448 Industrial liquid lubricants - ISO viscosity classification

ISO 8330 Rubber and plastics hoses and hose assemblies - Vocabulary

ISO/TR 11340 Rubber and rubber products - Hydraulic hose assemblies - External leakage classification for hydraulic systems

3 Terms and definitions

The terms and definitions given in ISO 8330 apply to this document.

4 Apparatus

4.1 Pressure-application apparatus

It is capable of applying an internal pulsating pressure to the test piece at a rate of 1 Hz ± 0.25 Hz using a hydraulic fluid circulating through the test hose, while the fluid is maintained at the required test temperature. Each pressure cycle shall be within the tolerances shown in Figure 2 (for high-pressure test) or Figure 3 (for low-pressure test). The nominal rate of pressure rise for high-pressure test is given by Formula (1) in Figure 2. The rate of pressure rise for low-pressure test shall be such that the pulse remains within the wave form envelope (refer to Figure 3).

4.2 Graphical recorder, digital-storage facility or oscilloscope

It is capable of measuring the pressure cycle to ensure that the wave form is within the envelope shown in Figure 2 or Figure 3. The recorder shall have a natural frequency of more than 250Hz and shall be critically damped to give a response which is flat to within 5% at up to 0.6 times the natural frequency.

5 Test fluid

Select a test fluid preferably with a kinematic viscosity from 32 mm^2/s to 100 mm^2/s at 40 °C (i.e. from grade ISO VG 32 to ISO VG 100 as specified in ISO 3448), and circulate it at a rate sufficient to maintain a uniform fluid temperature within the test pieces. Other fluids may be used as agreed upon between the customer and the manufacturer.

6 Test temperature

The test temperature is normally specified in the referring hose standard. When the test temperature is not defined in the hose standard, the following temperatures are the preferred temperatures:

85°C, 100°C, 120°C, 125°C, 135°C, 150°C.

The test fluid shall be circulated through the test pieces at the specified or chosen temperature with a tolerance of ±3°C. Cooling or heating of the test chamber shall not be permitted, except when referring standards require testing with synthetic-base test fluids at a temperature more than 150 °C. When such higher temperatures are required, the test fluid need not be circulated, provided both the fluid and the test

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