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GB/T 38175-2019

Hydraulic fluid power - Filter elements - Determination of resistance to flow fatigue using high viscosity fluid

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Foreword

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

This standard uses the translation method equivalent to ISO 23181.2007 "Hydraulic transmission filter with high viscosity hydraulic oil to measure flow fatigue resistance

Force".

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

--- GB/T 786.1-2009 Fluid transmission systems and components - Graphical symbols and circuit diagrams - Part 1.

According to the processed graphical symbols (ISO 1219-1.2006, IDT);

---GB/T 3141-1994 Industrial liquid lubricant ISO viscosity classification (eqvISO 3448.1992);

---GB/T 14039-2002 Hydraulic transmission oil solid particle pollution level code (ISO 4406.1999, MOD);

--- GB/T 14041.1-2007 Hydraulic fluid filter Part 1. Structural integrity verification and determination of initial bubble point

(ISO 2942.2004, IDT);

Hydraulic fluid filter - Part 2. Test methods for compatibility of materials and liquids (ISO 2943.1998,

IDT);

--- GB/T 14041.3-2010 Hydraulic fluid filter - Part 3. Test method for resistance to crushing (rupture) (ISO 2941.2009,

IDT);

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---GB/T 17446-2012 Fluid drive system and component vocabulary (ISO 5598.2008, IDT).

This standard was proposed by the China Machinery Industry Federation.

This standard is under the jurisdiction of the National Hydraulic and Pneumatic Standardization Technical Committee (SAC/TC3).

This standard was drafted. Jiujiang Qisuo Precision Electromechanical Technology Co., Ltd., Beijing University of Chemical Technology, Hefei Jiyuan Suiyi Hydraulic Technology Co., Ltd.

Limited Company, Liming Hydraulic Co., Ltd., Aviation Industry (Xinxiang) Measurement Technology Co., Ltd.

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Introduction

In hydraulic systems, power is transmitted and controlled by means of pressurized liquid in a closed circuit. The liquid is both a lubricant and a moving

Force transfer medium. The filter controls the degree of contamination of the liquid by filtering out particulate contaminants. The filter element is a porous one that performs the actual filtration process

element.

In addition to the design, the factors affecting the efficiency of the filter to remove pollutants are sensitive to unstable working conditions that cause fatigue and damage.

Sexually relevant.

The flow fatigue test procedure using high viscosity liquids specified in this standard is applicable to filter elements that require subsequent tests, for example

After the fatigue test is performed to meet the customer's requirements, it is still necessary to pass the test several times. In addition, this standard can also utilize high viscosity liquids

The specified differential pressure is generated to simulate the situation when the hydraulic equipment is cold-started.

The fatigue resistance of the filter element obtained by this standard is not necessarily the same as the result obtained by GB/T 17488-2008.

Hydraulic drive filter is determined by high viscosity hydraulic oil

Flow fatigue tolerance

1 Scope

This standard specifies a test method for determining the fatigue resistance of hydraulic filter elements using high viscosity liquids. Make the pressure difference generated by the

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filter element

The control waveform reaches a predetermined maximum differential pressure and the filter element is tested for flow fatigue tolerance under consistent periodic flow changes.

The method established by this standard is used to test the ability of the filter element to withstand the damage caused by the alternating pressure difference caused by the periodic flow changes in the system.

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.

ISO 1219-1 Fluid transmission systems and components - Graphical symbols and circuit diagrams - Part 1. General use and data processing

Graphical symbols
(Fluidpowersystemsandcomponents-Graphicsymbolsandcircuitdiagrams-Part 1.

Graphicsymbolsforconventionaluseanddata-processingapplications)

ISO 1219-2 Fluid transmission systems and components - Graphical symbols and diagrams - Part 2. Circuit diagrams (Fluid powersystems

andcomponents-Graphicsymbolsandcircuitdiagrams-Part 2.Circuitdiagrams)

ISO 2941 Hydraulic Transmission Filters for Resistance to Cracking (Fracture) Characteristics (Hydraulicfluidpower-Filterele-

ments-Verificationofcolapse/burstpressurerating)

ISO 2942 Hydraulic Drive Filter Structural Integrity Verification and Initial Bubbling Point Determination (Hydraulicfluidpower-

Filterelements-Verificationoffabricationintegrityanddeterminationofthefirstbubblepoint)

ISO 2943 Hydraulic fluid filter material and liquid compatibility test method (Hydraulicfluidpower-Filterele-

ments-Verificationofmaterialcompatibilitywithfluids)

ISO 3448 Industrial Liquid Lubricants ISO Viscosity Classification (Industrialliquidlubricants-ISO viscosityclassifica-

Tion)

ISO 4406 Hydraulic Transmission Fluid Solid Particle Pollution Rating Code Method

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(Hydraulicfluidpower-Fluids-Method

Forcodingthelevelofcontaminationbysolidparticles)

ISO 5598 Fluid Power System and Component Vocabulary
(Fluidpowersystemsandcomponents-Vocabulary)

3 Terms and definitions

The following terms and definitions defined by ISO 5598 apply to this document.

3.1

Filter element flow fatigue tolerance filterelementresistancetoflowfatigue

The filter element resists the ability to cause structural damage due to periodic flow changes in the system.

3.2

Maximum assembly pressure difference maximumassemblydifferentialpressure

deltapA

The sum of the pressure difference between the filter housing and the maximum differential pressure of the filter element.

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