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GB/T 37162.4-2023

Hydraulic fluid power - Monitoring the level of particulate contamination of the fluid - Part 4: Use of the light extinction technique

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foreword

This document is in accordance with the provisions of GB/T 1:1-2020 "Guidelines for Standardization Work Part 1: Structure and Drafting Rules for Standardization Documents" drafting:

This document is part 4 of GB/T 37162 "Monitoring of Particle Pollution Degree of Hydraulic Transmission Fluids": GB/T 37162 has been issued

The following sections:

--- Part 1: General;

--- Part 3: Utilize membrane blocking technology;

--- Part 4: Application of shading technology:

This document is equivalent to ISO 21018-4:2019 "Monitoring of Particle Pollution Degree of Hydraulic Transmission Liquid Part 4: Application of Shading Technology" use":

The following minimal editorial changes have been made to this document:

--- Deleted Note 2 in 3:2;

--- Deleted the redundant heading 5:1 in the international standard;

---Added 6:5:2:3 Note 5 on the sampling volume when using bottle sampling to meet the current application status in my country;

--- Added note in 7:3:1:

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Please note that some contents of this document may refer to patents: The issuing agency of this document assumes no responsibility for identifying patents:

Introduction

In hydraulic systems, power is transmitted by means of pressurized fluid in a closed circuit: The fluid is both a lubricant and a power transmission

medium: The presence of solid particle pollutants in the liquid will not only affect the lubricating performance of the hydraulic oil, but also cause the wear of the components: liquid

The degree of particle contamination in the body is directly related to the performance and reliability of the system, so it should be controlled within the allowable range of the system:

GB/T 37162 aims to provide a unified and consistent procedure for instruments that monitor the contamination of hydraulic systems, and is proposed to consist of four parts:

--- Part 1: General: The purpose is to specify methods and techniques for monitoring the degree of particulate contamination in hydraulic systems:

--- Part 2: Calibration and verification procedures for on-site pollution monitors: The purpose is to specify calibration standards for monitoring the degree of particle contamination in hydraulic systems:

standards, verification methods and procedures:

--- Part 3: Using membrane blocking technology: The purpose is to specify the use of filter blocking technology (also known as mesh blocking method or pore blocking

Technology) On-line or off-line semi-quantitative monitoring method of liquid particle pollution:

--- Part 4: Application of shading technology: The purpose is to specify the use of shading technology (also known as light blocking method or shading method) online or offline

Methods for monitoring particle contamination levels:

Quantitative determination of particulate pollutants requires accurate acquisition of representative liquid samples and accurate determination of their contamination levels: Pollution Monitoring Technology

This understanding has facilitated the development of in-line (i:e:, directly connected to the system) instruments that reduce the errors in measurement results that come with bottle sampling: Particle Pollution Monitor

The PCM was therefore developed and widely used:

Instruments using this technology have been widely used in industry, so it is necessary to

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develop this document to standardize the operating procedures: This document specifies

Procedure for assessing the degree of contamination of hydraulic fluids by instruments using the shading technique: This document also includes procedures for proper calibration and verification of proper operation of the instrument:

To ensure the consistency of instrument measurement results:

Monitoring of Particle Pollution Degree of Hydraulic Transmission Liquid

Part 4: Application of shading technology

1 Scope

This document specifies methods for on-line or off-line monitoring of particle contamination using shading techniques (also known as light shading or shading methods), and also specifies

Procedures are established for laboratory and field calibration of instruments and for verifying correct use of instruments:

The methods specified in this document are suitable for monitoring:

--- Cleanliness of the hydraulic system;

--- flushing process;

--- Auxiliary equipment and test bench:

This method is only applicable to single-phase liquid systems:

2 Normative references

The contents of the following documents constitute the essential provisions of this document through normative references in the text: Among them, dated references

For documents, only the version corresponding to the date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to

this document:

Note: GB/T 17489-1998 Hydraulic Particle Contamination Analysis Extract liquid samples from working system pipelines (idtISO 4021:1992)

Note: GB/T 17446-2012 Fluid Power System and Component Vocabulary (ISO 5598:2008, IDT)

ISO 11500:2008 Hydraulic transmission adopts the automatic particle counting method of the shading principle to determine the particle pollution degree of liquid samples (Hydraulic

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Note: GB/T 37163-2018 hydraulic transmission adopts the automatic particle counting method of the shading principle to determine the particle pollution degree of liquid samples (ISO 11500:2008,

MOD)

3 Terms and Definitions

The terms and definitions defined in ISO 5598 and the following apply to this document:

ISO and IEC maintain terminology databases for standardization at:

---IEC Electronics Open Platform: http://www:electropedia:org

---ISO online browsing platform: http://www:iso:org/obp

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