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GB/T 14039-2002

Replacing GB/T 14039-1993

Hydraulic fluid power - Fluids - Method for coding the level of contamination by solid particles

液压传动 油液 固体颗粒污染等级代号

(ISO 4406:1999, MOD)

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Foreword

This standard is modified to adopt ISO 4406:1999 "Hydraulic fluid power - Fluids - Method for coding the level of contamination by solid particles" (English version), which is a revision of GB/T 14039-1993 "Hydraulic fluid power - Fluids - Method for coding the level of contamination by solid particles".

From the date of publication, this standard replaces GB/T 14039-1993.

This standard made the following revisions when adopting ISO 4406:1999:

- In "2 Normative references" and the corresponding references in the text, USE GB/T 18854-2002 to replace "ISO 11171:1999" in ISO 4406:1999. GB/T 18854-2002 revises and adopts ISO 11171:1999;

- In this standard, USE GB/T 14039-1993 to replace "ISO 4406:1987" as mentioned in ISO 4406:1999. GB/T 14033-1193 equivalently adopts ISO 4406:1987;

- In the "References" of this standard, USE "GB/T 17489-1998" to replace the "ISO 4021:1992" in ISO 4406:1999. GB/T 17489-1998 equivalently adopts ISO 4021:1992.

- For ease of use, make the necessary editorial changes to ISO 4406:1999 in accordance with GB/T 1.1-2000.

The main modification contents of this standard to GB/T 14039-1993 are as follows:

- For the use of automatic particle counter as calibrated according to GB/T 18854-2002, USE the particle concentration code of three size ranges: ≥ 4 μm (c), ≥ 6 μm (c), ≥ 14 μm (c) to indicate the contamination level of fluid;

- CANCEL the original code 0.9; ADD five codes: 25, 26, 27, 28, more than 28; INCREASE the total number of codes from 26 to 30;

- ADOPT the same standard name as the Chinese translation of ISO 4406:1999.

Appendix A of this standard is normative.

This standard was proposed by the China Machinery Industry Federation.

This standard shall be under the jurisdiction of the National Hydraulic and Pneumatic Standardization Technical Committee (CSBTS/TC 3).

Drafting organizations of this standard: China University of Mining and

Hydraulic fluid power - Fluids - Method for coding the level of contamination by solid particles

1 Scope

This standard specifies the code used to determine the level of solid particle contamination in the fluid of hydraulic system.

2 Normative references

The provisions in following documents become the provisions of this Standard through reference in this Standard. For the dated references, the subsequent amendments (excluding corrections) or revisions do not apply to this Standard; however, parties who reach an agreement based on this Standard are encouraged to study if the latest versions of these documents are applicable. For undated references, the latest edition of the referenced document applies.

GB/T 18854-2002 Hydraulic fluid power - Calibration of liquid automatic particle counters (ISO 11177:1999, MOD)

ISO 4407:1991 Hydraulic fluid power - Fluid contamination - Determination of particulate contamination by the counting method using a microscope

ISO 11500:1997 Hydraulic fluid power - Determination of particulate contamination by automatic counting using the light extinction principle

3 Description of code

3.1 General

The purpose of the code is to convert the number of particles in a unit volume of fluid into a wider range of grades or codes, to simplify the reporting of particle count data. The code of contamination level for the fluid consists of the code. For each level of code increased, the number of particles is typically doubled.

According to the original code of GB/T 14039-1993, the contamination level of fluid is expressed by the particle concentration code of two size ranges of > 5 μm and > 15 μm. However, considering that the automatic particle counter uses different calibration standards, the above particle size has been changed in this standard. The report sizes after changing are 4 μm (c), 6 μm (c), 14 μm (c),

3.4.3 The second code is determined by the number of particles ≥ 6 μm (c).

3.4.4 The third code is determined by the number of particles ≥ 14 μm (c).

3.4.5 These three codes shall be written in order, separated by a slash.

For example: code 22/18/13, wherein the first code 22 indicates that the number of particles ≥ 4 μm (c) per ml of fluid is between 20000 and 40000 (including 40000); the second code 18 indicates that number of particles ≥ 6 μm (c) per ml is between 1330 and 2500 (including 2500); the third code 13 indicates that the number of particles ≥ 14 μm (c) is between 40 and 80 (including 80).

3.4.6 When applying, it may use the two symbols "*" (indicating too many particles to count) or "-" (indicating that it does not need to count) to represent the code.

Example 1: */19/14 means that the number of particles ≥ 4 μm (c) in the fluid is too many to count;

Example 2: -/19/14 indicates that the number of particles ≥ 4 μm (c) in the fluid do not need to be counted.

3.4.7 When the original particle count value of one of the size ranges is less than 20, the "≥" symbol shall be marked in front of the code of the size range.

For example: code 14/12/ ≥ 7 means that in each millimeter of fluid, the number of particles ≥ 4 μm (c) is between 80 and 160 (including 160); the number of particles ≥ 6 μm (c) is between 20 and 40 (including 40); the third code ≥ 7 means that the number of particles ≥ 14 μm (c) per millimeter of fluid is between 0.64 and 1.3 (including 1.3), but the count value is less than 20. At this time, the credibility of the statistics is reduced. Due to the low level of confidence, the code of the 14 μm (c) part may actually be higher than 7, which means that the number of particles per millimeter of fluid may be greater than 1.3.

3.5 Determined of code by microscope count

3.5.1 It is counted according to ISO 4407.

3.5.2 The first code is determined by the number of particles ≥ 5 μm.

3.5.3 The second code is determined by the number of particles ≥ 15 μm.

3.5.4 In order to be consistent with the data report obtained by the automatic particle counter, the code consists of three parts, wherein the first part is denoted by the symbol "-".

For example: -/18/13.

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