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

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**Hydraulic fluid power - System - Method to relate the
cleanliness of a hydraulic system to the cleanliness of the
components and hydraulic fluid that make up the system**

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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 equivalent to ISO /T R10686:2013 "Cleanliness of hydraulic transmission hydraulic system and the cleanliness and

Hydraulic Oil Pollution Degree Theoretical Correlation Method", the type of document is adjusted from ISO technical report to my country's national standardization guiding technology

document:

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

--- In order to coordinate with the existing standard, the name of the standard is changed to "System cleanliness of hydraulic transmission system and the cleanliness of the components that make up the system

degree and oil pollution degree theoretical correlation method":

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

Introduction

The initial cleanliness level of a hydraulic system can affect its performance and service life:

Particulate contamination that occurs after system fabrication and assembly such as

If not removed, it will circulate in the system and cause damage to system components: In order to reduce the possibility of such damage, oil fluid, hydraulic transmission system

Internal surfaces and system components are cleaned to specified grades:

Theoretically, the final cleanliness of a hydraulic system that has been installed is such that it can be cleaned from particulate contamination from the components that make up the system and from the oil that enters the system:

The sum of pollutants is predicted:

In turn, the required cleanliness level of each individual component and fluid added to the system can be adjusted according to the desired cleanliness level of the final system

Make predictions: This document provides the theoretical basis for this forecasting approach:

System cleanliness and composition of hydraulic transmission system

Component cleanliness and oil contamination theory for the system

Association method

1 Scope

This document describes the following common methods:

a) Correlate the cleanliness of the system with the cleanliness and oil contamination of the components that make up the system;

b) Predict the final cleanliness of the hydraulic system filled with oil after installation, the final cleanliness prediction is based on each component in the system

cleanliness and contamination of the oil used;

c) Calculate and manage the contamination degree requirements of the components, components and oils that make up the system, so as to achieve the ultimate target cleanliness of the system

(RCL):

The method specified in this document is applicable to the prediction of particles of any size and can also be used in other fluid systems than hydraulic transmissions:

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

3 Terms and Definitions

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

3:1

Wetted surface area $wettedsurfacearea$

When the system is in normal operation, the oil contact surface area of the component or system after contacting the system oil:

Note: The symbols AC or AS represent the wetted surface area of the component or system respectively:

Example:

For a hydraulic oil pump with two gears (see Figure 1), the wetted surface area can be calculated as the internal surface area of the pump body (both end covers and casing with inlet and outlet ports) plus

The sum of the outer surfaces of the upper two gears:

Fig:1 Schematic diagram of wetted surface area of external gear hydraulic gear pump