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**Hydraulic fluid power - Filter element test methods - Service life
evaluation**

液压传动 滤芯试验方法 实际寿命评定

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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 is required. Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents. This document was proposed by the China Machinery Industry Federation. This document is under the jurisdiction of the National Hydraulic and Pneumatic Standardization Technical Committee (SAC/TC 3). This document was drafted by: Aviation Industry (Xinxiang) Measurement Technology Co., Ltd., Liming Hydraulics Co., Ltd., Zhejiang Zhenhang Industrial Group Co., Ltd. Co., Ltd., Beijing Europ Filtration Technology Development Co., Ltd., Jiujiang Qisuo Precision Electromechanical Technology Co., Ltd., Xinxiang Pingfei Hydraulic Co., Ltd., Beijing University of Chemical Technology, Xinxiang Wanhe Filtration Technology Co., Ltd. The main drafters of this document are. Feng Lan, Zheng Yuan, Liu Guojun, Du Lipeng, Xiong Liyuan, Geng Cong, Yang Miao, Liu Yong, Lü Jizhong, Li Fangjun, Wang Xinxiang and Ye Ping.

Hydraulic filter is one of the components with the highest maintenance frequency in the fluid transmission system. There are two main maintenance methods. one is to clean the hydraulic filter. The first step is to replace the filter element (hereinafter referred to as the filter element). Whether cleaning or replacing the filter element, the same problem is faced, that is, how to determine the best time to clean or replace the filter element. The actual life of the filter element or the cleaning interval of the filter element can be used to maintain the filter in a timely, accurate and economical manner, thereby ensuring that the filter protects The hydraulic system can work safely and reliably. Scientific evaluation of the actual life of the filter element can provide guidance for users to use and maintain the filter rationally, reliably and economically. It is particularly important to carry out this work to ensure the reliability, safety and economy of the equipment's hydraulic system. The life of the filter

element is determined by the time when the pressure difference rises to the recommended replacement pressure difference. During the use of the filter, under normal circumstances, The pressure difference gradually increases with the increase of working time. The test conditions are designed in the laboratory with reference to the actual working conditions. By adding test dust, the pressure difference can be The test time corresponding to different pressure differences is measured. Based on the principle of equal pressure difference, the corresponding relationship between the actual life of the filter element and the test life can be established. This document provides a theoretical basis for the assessment of the actual life of hydraulic filter elements, and provides guiding procedures and methods for carrying out the assessment work. Hydraulic transmission filter element test method Actual life span assessment

1 Scope

China's national guidance document on evaluating the service life of hydraulic filter elements. The problem it addresses is one every hydraulic system operator has: a filter element is tested in a laboratory under a standard multi-pass procedure with a defined contaminant at a defined rate, and that gives a dirt holding capacity in grams - but nobody in the field knows how many grams a day their machine generates, so the number does not answer the question actually being asked, which is how long the element will last. Changing elements too early wastes money on a component that is not cheap; changing them too late means the bypass valve opens and unfiltered oil circulates, which is worse than having no filter because the accumulated contaminant is released at once. This document describes the theoretical correspondence between an element's actual life and its test life, and applies to establishing a mathematical model relating the two, to systems whose oil viscosity, flow rate and solid contamination are broadly stable, and to obtaining an element's operating parameters in service and evaluating its actual life against laboratory data.

This document describes the theoretical correspondence between the actual life of the filter element and the test life. This document applies to. Establish a mathematical model of the actual life and test life of the filter element; The system oil viscosity, flow rate and solid particle contamination are basically stable; - Obtain the working parameters of the filter element in use and evaluate its actual lifespan in combination with laboratory data. -

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document. For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies. in this document.

GB/T 14041.1 Hydraulic filter element Part

3 Terms and definitions

The terms and definitions defined in GB/T 17446 and the following apply to this document.

3.1 Test life The filter element is subjected to multiple tests according to GB/T 18853. If the structural integrity of the filter element meets the requirements, the filter element is tested from the beginning to the pressure. The time it takes for the pressure difference to rise to the limit pressure difference.

3.2 Actual service life The cumulative pressure difference from the beginning of use to the pressure difference rising to the limit pressure difference under specific use conditions and when the structural integrity of the filter element meets the requirements. Meter usage time.

Note. Specific use conditions refer to the use conditions determined through consultation with the user based on the common working conditions of the filter element.

4 General

There is a functional relationship between the actual life of the filter element and the test life, which can be verified through experiments.