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

GB/T 28782.1-2023

**Hydraulic fluid power - Measurement techniques - Part 1:
General principles**

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1. Structure and Drafting Rules of Standardization Documents"

Drafting.

This document is Part 1 of GB/T 28782 "Hydraulic Transmission Measurement Technology". GB/T 28782 has released the following parts.

---Part 1. General principles;

---Part 2. Measurement of average steady-state pressure in closed circuits.

This document is modified to adopt ISO 9110-1:2020 "Hydraulic Transmission Measurement Technology Part 1. General Measurement Criteria".

Compared with ISO 9110-1:2020, this document has made the following structural adjustments.

---5.2~5.8 corresponds to 5.1.1~5.1.7 in ISO 9110-1:2020;

---7.7.1 and 7.7.2 correspond to the suspended section and 7.7.1 of 7.7 in ISO 9110-1:2020;

---8.2.2~8.2.4, 8.2.5, and 8.3 correspond to 8.2.1.1~8.2.1.3, 8.2.2, and 8.3.1 in ISO 9110-1:2020;

---10.2 and 10.3 correspond to 10.1.1 and 10.1.2 in ISO 9110-1:2020;

---Appendix A corresponds to Appendix C in ISO 9110-1:2020, among which A.2.1~A.2.14 corresponds to ISO 9110-1:2020

C.2.1~C.2.14; Appendix C corresponds to Appendix A in ISO 9110-1:2020.

The technical differences between this document and ISO 9110-1:2020 and their reasons are as follows.

---Replaced ISO 5598 (see Chapter 3) with normatively cited GB/T 17446 to adapt to my country's technical conditions and improve reliability

operability;

---Replaced ISO 7870-1 (see Chapter 9) with normatively quoted GB/T 17989.1 to adapt to my country's technical conditions and improve

High operability;

---Replaced ISO 7870-2 (see Chapter 9) with normatively quoted GB/T 17989.2 to adapt to my country's technical conditions and improve

High operability;

---Replaced ISO /IEC Guide98-3 (see 10.1, Appendix B) with normatively quoted GB/T 27418 to adapt to my country's

technical conditions to improve operability.

The following editorial changes have been made to this document.

---Deleted the terminology database address maintained by ISO and IEC for standardization;

---Change formula (2a) to formula (2), formula (2b) to formula (3), and the subsequent formula numbers will be postponed.

Please note that some content in this document may be subject to patents. The publisher of this document assumes no responsibility for identifying patents.

Introduction

As a key technology in the development and production of hydraulic components and hydraulic systems, hydraulic transmission measurement technology is an important tool for verifying product performance indicators and reliability.

important means of sex, lifespan, etc. Only through quantification can the performance characteristics of hydraulic components and systems provide a basis for action or decision-making.

GB/T 28782 "Hydraulic Transmission Measurement Technology" aims to unify the measurement technology in hydraulic transmission and consists of two parts.

constitute.

---Part 1.General principles. The purpose is to identify general guidelines for measuring hydraulic component performance parameters under static or steady-state operating conditions.

---Part 2.Measurement of average steady-state pressure in closed circuits. The purpose is to determine the average steady-state pressure in the hydraulic transmission circuit program of.

Hydraulic transmission measurement technology

Part 1.General principles

1 Scope

This document specifies general guidelines for measuring performance parameters of hydraulic components under static or steady-state operating conditions.

This document gives the sources and principles for the assessment of uncertainties in the calibration and measurement of systems containing hydraulic components.

This document is suitable for assessing actual requirements and uncertainties of measurement system capabilities, or for establishing a system that meets target uncertainties.

2 Normative reference documents

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

For undated referenced documents, only the version corresponding to that date applies to this document; for undated referenced documents, the latest version (including all amendments) applies to

this document.

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

GB/T 17989.1 Control Charts Part 1.General Guidelines (GB/T 17989.1-2020, ISO 7870-1.2014, MOD)

GB/T 17989.2 Control Charts Part 2.General Control Charts (GB/T 17989.2-2020, ISO 7870-2.2013, MOD)

GB/T 27418 Evaluation and expression of measurement uncertainty (GB/T 27418-2017, ISO /IEC Guide98-3.2008, MOD)

3 Terms and definitions

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

3.1

data reduction errors

Errors arising from the processing of test data to final results (such as computer resolution, numerical rounding, and model curve fitting and interpolation)

value uncertainty).

3.2

indicated value indicated value

A quantity value given by a measuring instrument or measuring system.

3.3

parallax parallax

When the tip of the pointer is not on the same plane as the meter scale, the observer's line of sight is not perpendicular to the meter surface and not directly aligned with the pointer.

resulting in reading errors.

3.4

reading ability readability

The ability of an observer to identify the value displayed by an instrument.

3.5

uncertainty model uncertainty model

A chart, graph or equation showing the relationship between an indication value (3.2) and the measured value of a measured parameter.