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

GB/T 15623-1995

**Hydraulic fluid power -- Electrically modulated hydraulic control
valves -- Part 1: Test methods for four-port directional
flow-control valves
(English Translation)**

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Foreword

GB/T 15623 "Hydraulic transmission electric modulation hydraulic control valve" is divided into the following three parts.

--- Part 1. Test method for flow control valve in four-way direction;

---Part 2. Test method for flow control valve in three-way direction;

--- Part 3. Test method for pressure control valves.

This part is the first part of GB/T 15623.

This part is drafted in accordance with the rules given in GB/T 1.1-2009.

This part replaces GB/T 15623.1-2003 "Hydraulic drive electric modulation hydraulic control

valve - Part 1. Flow control in four-way direction Valve test method, compared with GB/T 15623.1-2003, the main technical changes are as follows.

- Added reference standard GB/T 19934.1, JB/T 7033-2007 (see Chapter 2);
 - Removed the term "electrically modulated hydraulic flow control valve" (2003 version 3.1), adding the term "electrically modulated hydraulic four-way directional flow Volume control valve" "input signal dead zone" "threshold" and "rated input signal" (see 3.1);
 - Modified the contents of "symbols and units" (see Table 1, Table 1 of the 2003 edition);
 - In the test conditions, the "hydraulic fluid temperature" and "supply pressure" (Table 2 of the 2003 edition) were deleted, and the "fluid viscosity grade" was added.
- And "pressure drop" (see Table 2);
- Modified the test circuit (see Figures 1 and 5, Figure 1 and Figure 2 of the 2003 version);
 - Increased the "resistance" and "dynamic range" requirements for meter accuracy (see 6.1 and 6.2);
 - Added cold and hot test of "coil resistance" (see 7.1 and 7.2);
 - Removed "throttle adjustment characteristic test" "output flow - load differential pressure characteristic test" and "pressure difference - oil temperature characteristic test" (2003 Versions 8.1.6, 8.1.7 and 8.1.11);
 - Removed the "durability test" and "environmental test" (Chapters 9 and 11 of the 2003 edition);

This part adopts the redrafting method to modify the ISO 10770-1:2009 "hydraulic drive electric modulation hydraulic control valve Part 1. Four Test method for flow control valve in the direction.

The structural adjustments in this section compared to ISO 10770-1:2009 are as follows.

- Add "8.1 Overview" in the original "Chapter 8 Performance Test", including the suspension segment, and the following article number is postponed.

The technical differences between this part and ISO 10770-1:2009 and their reasons are as follows.

---About the normative reference documents, this part has made technical adjustments to adapt to China's technical conditions, adjustments the situation is reflected in Chapter 2, "Regulatory References", and the specific adjustments are as follows.

- Replace ISO 1219-1 with GB/T 786.1 equivalent to the international standard;
- Replace ISO 3448 with GB/T 3141-1994 equivalent to international standards;
- Replace IEC 60617 with GB/T 4728.1 equivalent to the international standard;

- Replace ISO 6743-4 with GB/T 7631.2 equivalent to the international standard;
- Replace ISO 4406 with GB/T 14039 modified to adopt international standards;
- Replace ISO 5598 with GB/T 17446 equivalent to the international standard;
- Replace ISO 10771-1 with GB/T 19934.1 equivalent to the international standard;
- Replace ISO 9110-1 with JB/T 7033-2007 modified to international standards.
- Removed the term "electrically modulated hydraulic direction flow control valve" (see ISO 10770-1:2009 3.1.1) with the addition of the term "electrical adjustment" Hydraulic four-way direction flow control valve" (see 3.1.1);
- specifies that the mineral hydraulic oil should meet the L-HL of GB/T 7631.2 (see Table 2);
- For the accuracy of Chapter 6, the instrument temperature allows the system error to be "c) temperature. $\pm 2\%$ of ambient temperature", modified to "c) temperature Degree. $\pm 2\%$ of the measured temperature value, because the test temperature is more reasonable.

This section also made the following editorial changes.

- In Chapter 8, Figure 14, add the Y1 symbol to the curve to indicate the "amplitude ratio curve"; add the Y2 symbol to indicate "Phase lag curve".
- Removed the unit of pressure "bar".

This part was proposed by the China Machinery Industry Federation.

This part is under the jurisdiction of the National Hydraulic and Pneumatic Standardization Technical Committee (SAC/TC3).

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Introduction

The purpose of the GB/T 15623.1 is to improve the standardization of the valve test, and thus improve the consistency of the recorded valve performance data, so that this these data are used for system design without having to consider the source of the data.

Hydraulic transmission electric modulation hydraulic control valve Part 1. Test method for flow control valves in four-way direction

1 Scope

This part of GB/T 15623 specifies the test method for the performance characteristics of the electric modulation hydraulic four-way flow control valve.

This section applies to the electric modulation hydraulic four-way direction flow control valve.

Note: In the hydraulic system, the electric modulation hydraulic four-way flow control valve generally includes different types of products such as servo valves and proportional valves, which can be continuously transmitted through electrical signals.

Control flow and direction changes. Unless otherwise specified, "valve" means an electrically modulated hydraulic four-way flow control valve.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article.

Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 786.1 Fluid transmission systems and components - Graphical symbols and diagrams - Part 1 . diagrams for general purpose and data processing Shape symbol (GB/T 786.1-2009, ISO 1219-1:2006, IDT) GB/T 3141-1994 Industrial liquid lubricants ISO viscosity classification (eqvISO 3448.1992) GB/T 4728.1 Graphical symbols for electrical diagrams - Part 1. General requirements (GB/T 4728.1-2005, IEC 60617 Base, IDT) GB/T 7631.2 Classification of lubricants, industrial oils and related products (Class L) Part 2. Group H (hydraulic systems) (GB/T 7631.2-2003, ISO 6743-4.:1999, IDT) GB/T 14039 hydraulic transmission oil solid particle pollution level code (GB/T 14039-2002, ISO 4406:1999, MOD) GB/T 17446 fluid drive system and component vocabulary (GB/T 17446-2012, ISO 5598:2008, IDT) GB/T 19934.1 Hydraulic fluid power - Pressure-bearing shells - Part 1 . Test methods (GB/T 19934.1-2005, ISO 10771-1:2002, IDT) JB/T 7033-2007 General rules for hydraulic transmission measurement technology (ISO 9110-1.:1990, MOD)

3.1 Terms and definitions

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

3.1.1

Electric modulation hydraulic four-way direction flow control valve
electricallymodulatedhydraulicfour-portdirectionalflow-controlvalve A four-way valve that responds to continuously changing electrical input signals to control output flow and