



SLOVENSKI STANDARD
SIST ISO 17559:2005

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Hydraulic fluid power -- Electrically controlled hydraulic pumps -- Test methods to determine performance characteristics

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Transmissions hydrauliques -- Pompes hydrauliques à commande électrique --
Méthodes d'essai pour déterminer les caractéristiques de fonctionnement

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Ta slovenski standard je istoveten z: ISO 17559:2003

ICS:

23.100.10 Pã!æ|ã}^Á!| æ^Á Á [q !ã Pumps and motors

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INTERNATIONAL
STANDARD

ISO
17559

First edition
2003-11-15

**Hydraulic fluid power — Electrically
controlled hydraulic pumps — Test
methods to determine performance
characteristics**

*Transmissions hydrauliques — Pompes hydrauliques à commande
électrique — Méthodes d'essai pour déterminer les caractéristiques de
fonctionnement*

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 17559 was prepared by Technical Committee ISO/TC 131, *Fluid power systems*, Subcommittee SC 8, *Product testing*.

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Introduction

This International Standard is intended to unify testing methods of positive-displacement electrically and electronically controlled hydraulic pumps so as to allow comparison of the performance of different components.

Requirements for test installations, procedures and expression of results are described.

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Hydraulic fluid power — Electrically controlled hydraulic pumps — Test methods to determine performance characteristics

1 Scope

This International Standard specifies methods for determining the steady-state performance characteristics and dynamic performance characteristics of positive-displacement electrically and electronically controlled hydraulic pumps (hereafter referred to as “pump” or “pumps”), so as to allow comparison of the performance of different components.

Pumps covered by this International Standard have the capacity to affect changes in the output flow or pressure in proportion to the electrical or electronic input signals. These pumps can be of the load-sensing control type, servo-control type, or electrical variable displacement mechanism type, which control output flow and output pressure by feedback using electrical signals.

The accuracy of measurement is divided into three classes, A, B and C, which are explained in Annex A.

2 Normative references standards.iteh.ai

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 3448, *Industrial liquid lubricants — ISO viscosity classification*

ISO 4391, *Hydraulic fluid power — Pumps, motors and integral transmissions — Parameter definitions and letter symbols*

ISO 4406, *Hydraulic fluid power — Fluids — Method for coding the level of contamination by solid particles*

ISO 4409, *Hydraulic fluid power — Positive displacement pumps, motors and integral transmissions — Determination of steady-state performance*

ISO 5598, *Fluid power systems and components — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 5598 and the following apply.

3.1

electrically controlled hydraulic pump

variable displacement pump which is capable of controlling the pressure or flow rate, or the pressure and flow rate corresponding to an input signal

3.2

minimum flow command

minimum input flow command signal needed to maintain the maximum working pressure

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- 3.3 minimum controllable pressure**
minimum output pressure when the absolute value of the input pressure command signal is zero and the input flow command signal is maximum (see 7.2.4)
- 3.4 dead zone**
range wherein the output pressure or output flow being controlled by the input signal does not vary when the absolute value of the input signal increases from zero or decreases to zero
- 3.5 load volume**
gross volume of working fluid in the main pipelines from the outlet of the pump to be tested to the inlet of the loading valve
- 3.6 pressure compensation**
condition in which the output flow starts to decrease by the variable displacement control mechanism when the output pressure approaches a set pressure
- 3.7 deadhead pressure**
output pressure without flow

4 Symbols

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4.1 The physical quantity letter symbols and their suffixes used in this International Standard (see Table 1), are fully explained in ISO 4391.

Units are given in Table 1 and Annex A.

4.2 Graphical symbols used in Figures 1 and 2, showing test circuit diagrams, conform to ISO 1219-1 and ISO 1219-2.

Table 1 — Symbols and units

Quantity	Symbol	Dimension ^a	SI unit
Power	P	$M L^2 T^{-3}$	W
Pressure, differential pressure	$p, \Delta p$	$M L^{-1} T^{-2}$	MPa
Flow rate	q	$L^3 T^{-1}$	dm ³ /min
Rotational speed	n	T^{-1}	min ⁻¹

^a M = mass, L = length, T = time.

5 Test installation — General requirements

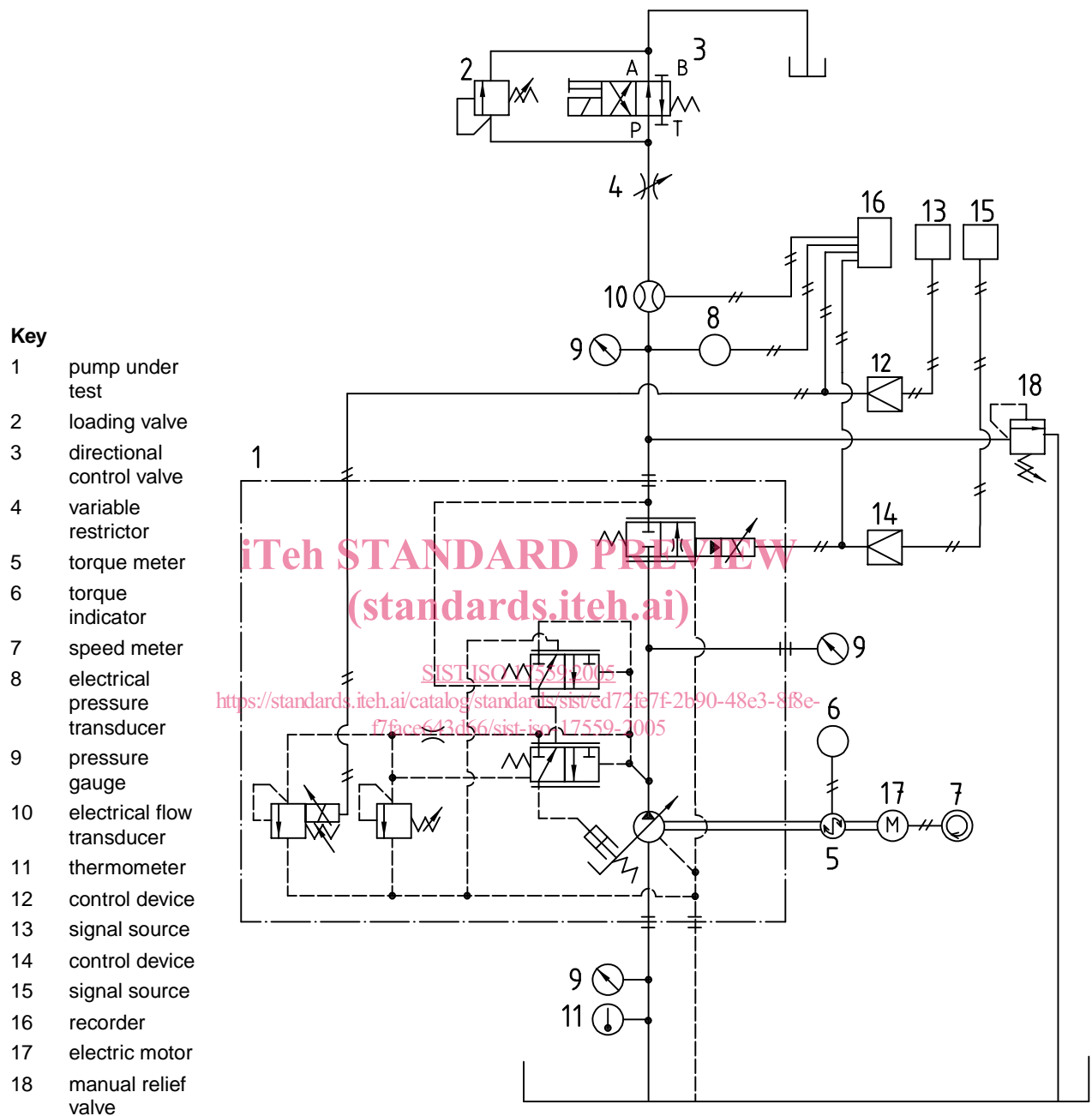
5.1 General

5.1.1 Unless otherwise specified, install the pump with the output shaft horizontal and the drain port facing upwards.

5.1.2 Use a hydraulic test circuit conforming to Figure 1 for test pumps having a pressure control valve to control the pressure in the pressure-compensation state and a flow control valve to control the output flow.

5.1.3 Use a hydraulic test circuit conforming to Figure 2 for test pumps that utilize electrical input signals to control the pressure in the pressure-compensation state and either the position or angle of the mechanism to vary the displacement of the pump.

5.1.4 For applications where the pump will be part of a closed-loop control system it may be necessary to perform a frequency response test. Subclause 8.5 describes a pump test method. The need for the test should be agreed between the customer and manufacturer.



NOTE Details of the pump control valves are for illustration only.