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

GB/T 38178.1-2025

**Hydraulic fluid power - Mounting dimensions for single rod
cylinders, 10 MPa series - Part 1: General series**
(English Translation)

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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 Part 1 of GB/T 38178. GB/T 38178 has been published in the following parts.

--- Installation dimensions of 10 MPa series single-rod cylinders for hydraulic transmission.
Part 1: Common series;

--- Installation dimensions of 10 MPa series single-rod cylinders for hydraulic transmission.
Part 2: Short stroke series.

This document is modified to adopt ISO 10762:2015 "Installation dimensions of hydraulic transmission 10 MPa (100 bar) series single-rod cylinders".

The technical differences between this document and ISO 10762:2015 and their reasons are as follows.

--- The scope of application of the standard has been increased (see Chapter 1) to meet the requirements of GB/T 1.1-2020;

--- ISO 5598 (see Chapter 3) has been replaced by the normative reference GB/T 17446 to adapt to my country's technical conditions and improve the reliability of the product.

Operability;

--- ISO 3320 (see Chapter 5, 8.3) has been replaced with the normative reference GB/T 2348 to adapt to my country's technical conditions and improve Operability;

--- Changed the requirements for cylinder diameter (see Chapter 5) to adapt to my country's technical conditions and improve operability;

--- The stroke limit deviation is presented in the form of a table, and the limit deviation of the stroke $S > 8000$ is added (see Chapter 6, Table 15).

Adapt to the technical conditions of our country;

--- Added requirements for the type and size of piston rod ends (see 8.2) to adapt to my country's technical conditions and improve operability;

--- ISO 4395 (see 8.2) has been replaced by the normative reference GB/T 2350 to adapt to my country's technical conditions and improve operability.

Acting nature.

--- Added four specifications of cylinder diameters and related data. 90mm, 110mm, 140mm and 180mm (see Table 1 to Table 13).

Adapt to my country's technical conditions and improve operability;

--- ISO 6149-1 (see Table 2) was replaced by the normative reference GB/T 2878.1 to adapt to my country's technical conditions and improve operability.

Sex;

--- Added GB/T 2878.1 oil port thread tolerance "6H" (see Table 2) to adapt to my country's technical conditions and improve operability;

--- ISO 273 (see Figures 3 and 4) has been replaced by the normative reference GB/T 5277 to adapt to my country's technical conditions and improve operability.

Sex;

--- Added the tolerance value "max" of ZB (see Table 3, Table 8~Table 10 and Table 13) to adapt to my country's technical conditions and improve operability.

Sex;

--- Added the flange thickness "GF" size and data of rectangular front and rear cover types (see Figure 3, Table 3, Figure 4 and Table 4) to adapt to my country's technical Technical conditions to improve operability;

---The size of "XG" with a cylinder diameter of.200 is changed from "72.5" to "72" (see Table 9) to adapt to my country's technical conditions and improve operability;

---The "TL" size of cylinder diameter 50 is changed from "15" to "16" (see Table 10) to adapt to my country's technical conditions and improve operability;

--- Added requirements for oil port location and size, size code marking and installation size tolerance determined by stroke (see 4.2~ 4.4);

--- ISO 6099 (see 4.3, Chapter 7) has been replaced by the normative reference GB/T 9094 to adapt to my country's technical conditions and improve Operability;

---Added the installation dimension limit deviation determined by stroke $S > 8000$, deleted the limit deviation value of the installation dimension "ZB", and changed the limit deviation value of the installation dimension "SS" (see Table 14) is to adapt to the technical conditions of our country;

The following editorial changes were made to this document.

--- In order to coordinate with the existing standards, the name of the standard is changed to "Installation Dimensions of Hydraulic Transmission 10MPa Series Single Rod Cylinders Part 1 Points. Ordinary Series";

---The drawing was redrawn according to my country's mechanical engineering drawing standards;

--- Added notes to Tables 1 to 13;

--- Added cylinder diameter "90mm" in the footnote of Table 1;

--- Changed the footnotes of Table 3, Table 8~Table 10 and Table 13;

--- Deleted the word "boss" in the installation type of MT1 and MT4 to be consistent with GB/T 9094;

--- Deleted the "Swing angle Z" column in Table 7 and stated it in the paragraph inside the table.

Introduction

In a hydraulic fluid power system, power is transmitted and controlled by pressurized fluid in a closed circuit.

A hydraulic actuator that converts pressure energy into mechanical energy to achieve linear motion. The moving components include pistons, piston rods, etc.

GB/T 38178 is intended to determine the installation dimensions of 10MPa series single-rod cylinders and consists of two parts.

--- Part 1: Ordinary series. The purpose is to determine the installation dimensions of 10MPa series ordinary single-rod cylinders.

--- Part 2: Short stroke series. The purpose is to determine the installation dimensions of 10MPa series short stroke single rod cylinders.

Hydraulic transmission 10MPa series single rod cylinder Installation dimensions Part 1:
General series

1 Scope

This document specifies the installation dimensions of the 10MPa series hydraulic single-rod cylinders to meet interchangeability requirements.

This document is applicable to hydraulic single-rod cylinders (hereinafter referred to as hydraulic cylinders) with a nominal pressure of 10MPa and a cylinder diameter of 40mm~200mm.

NOTE: This document provides basic guidelines only and does not restrict its technical application, allowing manufacturers to use it flexibly in the design of hydraulic cylinders.

2 Normative references

The contents of the following documents constitute essential clauses of this document through normative references in this document.

For referenced documents without a date, only the latest version (including all amendments) applies to this document.

This document.

GB/T 2348 Fluid transmission systems and components - Cylinder diameter and piston rod diameter (GB/T 2348-2018, ISO 3320:2013, MOD) GB/T 2350 Fluid transmission systems and components Piston rod thread types and dimension series (GB/T 2350-2020, ISO 4395.

2009,MOD)

GB/T 2878.1 Hydraulic transmission connections - Ports and stud ends with metric threads and O-ring seals - Part 1: Ports (GB/T 2878.1-2011,ISO 6149-1:2006,IDT) GB/T 5277 Fasteners - Through holes for bolts and screws (GB/T 5277-1985, eqvISO 273.1979) GB/T 9094 Fluid transmission system and component cylinder installation dimensions and installation type codes (GB/T 9094-2020, ISO 6099.

2018, IDT)

GB/T 17446 Fluid power systems and components vocabulary (GB/T 17446-2024, ISO 5598:2020, MOD) ISO 1179-1 Pipe fittings for hydraulic power and general purposes with ISO 228-1 threads, with resilient seals or metal-to-metal

3 Terms and definitions

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