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

GB/T 2879-2024

Replacing GB/T 2879-2005

**Hydraulic fluid power - Cylinders - Dimensions and tolerances
of housings for single-acting piston and rod seals in
reciprocating applications
(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 replaces GB/T 2879-2005 "Dimensions and tolerances of dynamic seal grooves for hydraulic cylinder pistons and piston rods" and is compatible with GB/T 2879-Compared with 2005, in addition to structural adjustments and editorial changes, the main technical changes are as follows.

- a) The applicable piston rod diameter and cylinder diameter have been changed (see Chapter 1, Table 3, Chapter 1, Table 4 of the 2005 edition);
- b) The terms and definitions have been changed (see Chapter 3, Chapter 3 of the 2005 edition);
- c) Added symbols A, B, c0, E, F, Ra, Rmr, Rz, Rdeltac, W, X (see Chapter 4);
- d) The meanings of some symbols have been changed (see Chapter 4, Chapter 4 of the 2005 edition);
- e) Added piston seal groove cylinder diameter size series (see Table 1);
- f) The radius dimensions of some piston seal groove corners have been changed (see Table 1, Table 2 of the 2005 edition);
- g) Added requirements for surface roughness measuring instruments (see 7.1.2);
- h) Added the requirements for surface roughness value (see 7.2);
- i) The requirement that the ends of the bores of hydraulic cylinders conforming to ISO 6020-2 should be rounded has been deleted (see 9.4 of the 2005 edition).

This document is modified to adopt ISO 5597:2018 "Hydraulic transmission hydraulic

cylinder reciprocating piston and piston rod one-way seal groove Dimensions and Tolerances.

Compared with ISO 5597:2018, this document has many structural adjustments. See the attached table for the comparison of the structural number changes of the two documents.

Record A.

The technical differences between this document and ISO 5597:2018 and their reasons are as follows.

--- ISO 5598 (see Chapter 3) was replaced by the normative reference GB/T 17446 to adapt to my country's technical conditions;

--- Replaced ISO 6020-2 (see 5.4.1.3, Figure 2, Table 2, 5.4.2.3, Figure 4, Table 4) with the normative reference JB/T 12706.2 to apply According to the technical conditions of our country;

--- The symbols V and Y are deleted, and their corresponding values are changed to be marked in the figure (see Chapter 4 of ISO 5597:2018) for convenience application;

--- Added symbols Ra, Rmr, Rz (see Chapter 4) to improve the symbols.

The following editorial changes were made to this document.

--- Changed some symbols to distinguish them from the footnote symbols of the figure;

---The cylinder diameter range of small-section sealing ring groove is changed from 25mm~200mm to 25mm~220mm, which is an errata.

Introduction

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

The function of the one-way seal is to maintain the fluid pressure. The one-way seal is used together with the hydraulic cylinder piston and piston rod sealing groove.

GB/T 2879-2023

Hydraulic transmission cylinder Reciprocating piston and piston rod one-way seal Groove dimensions and tolerances

1 Scope

This document specifies the dimensions and tolerances of the one-way seal grooves for pistons and piston rods of reciprocating hydraulic cylinders, applicable cylinder diameters and piston rods.

The diameter size range is as follows.

---Cylinder diameter 16mm~500mm;

---Piston rod diameter 6mm~450mm.

This document also specifies the dimensions and specifications of the small cross-section seal grooves applicable to the 16MPa series single-rod cylinders specified in JB/T 12706.2.

Small cross-section seals require smaller tolerances for cylinder and piston rod diameters. The applicable cylinder and piston rod diameters are as follows.

---Cylinder diameter 25mm~220mm;

---Piston rod diameter 12mm~140mm.

This document does not provide the structural design of the seal ring. The structural type of the seal ring varies from manufacturer to manufacturer. The structure and material of the seal ring and the built-in anti-extrusion components are determined by operating conditions such as temperature and pressure.

This document applies only to the groove dimensions of the product and not to the performance characteristics of the product.

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 to this document.

GB/T 3505-2009 Product Geometry Specification (GPS) Surface Structure Profile Method Terms, Definitions and Surface Structure Parameters (ISO 4287:1997, IDT) GB/T 17446 Fluid power systems and components vocabulary (GB/T 17446-2024, ISO 5598:2020, MOD) JB/T 12706.2 Installation dimensions of 16MPa series single-rod cylinders for hydraulic transmission Part 2: Cylinder diameter 25mm~220mm Compact series (JB/T 12706.2-2017, ISO 6020-2:2015, MOD)

3 Terms and definitions

The terms and definitions defined in GB/T 3505-2009 and GB/T 17446 apply to this document.

4 Symbols

The following symbols apply to this document.

A---Surface roughness of groove side;

B---Surface roughness of groove bottom;

C---Axial length of installation lead-in angle;

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