

ICS 49.080

CCS V 38



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

GB/T 42434-2023

**General specification for aerospace variable delivery, pressure
compensated, hydraulic pumps**

Issued on: May 23, 2023

Implemented on: December 1, 2023

**Issued by: State Administration for Market Regulation, China National
Standardization Administration**

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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 modified to adopt ISO 8278:2016 "General Requirements for Aerospace Series Constant Pressure Variable Hydraulic Pumps":

Compared with ISO 8278:2016, this document has more structural adjustments: For the comparison list of structural number changes between the two documents, see

Appendix A:

The technical differences between this document and ISO 8278:2016 and their reasons are as follows:

- a) Added the scope of application of "military or civilian" (see Chapter 1);
- b) The requirements for the degree of contamination of hydraulic oil have been added (see 4:2:1 and Chapter 6);
- c) Deleted the "rated output pressure value should be specified in the special specification" in the rated output pressure requirements, refer to ISO 6771 for pressure

Grade requirements" (see 4:2:2, see 5:2:1 of ISO 8287:2016);

- d) The specific index of "the maximum permissible pulsation amplitude of the output pressure should not exceed ± 2.1 MPa or specified in the special specification" has been added
- requirements (see 4:2:4);
- e) Added unloading requirements (see 4:2:11:6);
- f) Replaced ISO 3601-1 (see 4:3:2) with the normative referenced GB/T 3452:1;
- g) The description of the requirements for the use of non-standard seals and electric pump protection rings for commercial aircraft and military Type III systems has been deleted (see 4:3:2, see
- 6:3 of ISO 8287:2016);
- h) Deleted "should not use lead type locking wire seal" (see 4:3:6, see 6:7 of ISO 8278:2016);
- i) Replaced ISO 2093 with the normatively referenced GB/T 12599 (see 4:5:2:2);
- j) Change "low temperature" to "extreme operating temperature", so that the extreme operating temperature test includes not only low temperature but also high temperature (see 4:9
- and 5:4:3:10:2);
- k) Replaced ISO 2669 (see 4:9) with normative reference HB6167:16;
- l) The control accuracy of the inlet temperature of the test bench is required to supplement the temperature tolerance when it exceeds 107°C (see 5:2);
- m) Added pressure pulsation test conditions for rotational speed change (see 5:4:3:6);
- n) Added checking the filter every (50 $\pm$ 10)h to monitor product oil contamination (see 5:4:3:8:4:2);
- o) A description of the test sample requirements for additional durability tests has been added (see 5:4:3:8:13);
- p) The temperature corresponding to the requirements of 4:9 "environmental adaptability" - altitude, humidity, fluid sensitivity, mold, salt spray, sand dust, knot
- Ice, working shock, steady-state acceleration and other verification methods (see 5:4:3:10 and 5:4:3:12);
- q) The chapter "Packaging, Transportation and Storage" has been added, and the five-year storage period requirements have been clarified (see Chapter 6):

The following editorial changes have been made to this document:

- a) In order to coordinate with existing standards, change the name of the standard to "General Specifications for Aircraft Constant Pressure Variable Hydraulic Pumps";
- b) Delete the term and definition "rated durability" that is not used in the text, and delete the terms and definitions used only once in the text

Means "maximum case oil return pressure", "maximum instantaneous case oil return pressure" and "first article inspection" to meet the requirements of GB/T 1:1-2020;

- c) Deleted Note 2 in "Purchaser" in terms and definitions, and the buyer and supplier negotiate to determine the writer of the special specification;
- d) Delete the conversion content using the psi pressure unit in the original text, and convert kPa to MPa;
- e) Deleted the "relationship between the maximum recommended value of rated speed and hydraulic pump displacement" expressed in American units in the original text, and only retained its

Graph expressed in metric units:

Please note that some contents of this document may refer to patents: The issuing agency of this document assumes no responsibility for identifying patents:

1 Scope

This document specifies the basic requirements, verification methods, packaging, transportation and storage:

This document applies to constant pressure variable hydraulic pumps in military or civil aircraft hydraulic systems with a rated working pressure of 35MPa and below:

2 Normative references

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

For documents, only the version corresponding to the date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to

this document:

GB/T 3452:1 O-shaped rubber seal rings for hydraulic and pneumatic use Part 1: Dimension series and tolerances (GB/T 3452:1-

2005, ISO 3601-1:2002, MOD)

GB/T 12599 Technical specifications and test methods for tin plating on metal coatings
(GB/T 12599-2002, ISO 2093:

1986, MOD)

GB/T 30206:1 Vocabulary for aerospace fluid systems Part 1: General terms and definitions
related to pressure (GB/T 30206:

1-2013, ISO 8625-1:1993, IDT)

GB/T 30206:2 Aerospace fluid system vocabulary Part 2: General terms and definitions
related to flow (GB/T 30206:

2-2013, ISO 8625-2:1991, IDT)

GB/T 30206:3 Vocabulary for aerospace fluid systems Part 3: General terms and definitions
related to temperature (GB/T 30206:

3-2013, ISO 8625-3:1991, IDT)

GB/T 30213 Aircraft hydraulic accessories identify signs of hydraulic oil applicable to
accessories (GB/T 30213-2013, ISO 3323:

1987, IDT)

HB6167:15 Environmental conditions and test methods for airborne equipment of civil
aircraft Part 15: Sound and vibration test (HB6167:15-

2014, ISO 2671:1982, IDT)

HB6167:16 Environmental conditions and test methods for airborne equipment of civil
aircraft Part 16: Acceleration test (HB6167:16-

2014, ISO 2669:1995(E), MOD)

ISO 7320 Dimensions of threaded and sealed joints for aerospace fluid systems
(Aerospace-Couplings, threaded and

sealed, for fluid systems - Dimensions)

ISO 8078 Sulfuric acid procedure for anodizing unpigmented coatings of aluminum alloys
for aerospace applications (Aerospace

ISO 8079 Sulfuric acid process for anodizing aluminum alloys with colored coatings for
aerospace applications (Aerospace