



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

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Replacing GB/T 20663-2017

Accumulators

蓄能压力容器

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Foreword

This document is drafted in accordance with the provisions of GB/T 1.1-2020 "Directives for standardization - Part 1: Rules for the structure and drafting of standardizing documents".

structural adjustments and editorial changes, the following main technical changes have been made with respect to GB/T 20663-2017:

- c) all steel pipe standards have been updated, and duplex stainless steel pipe material has been added to the shell materials (see 5.2, Table 3; 5.2, Table 2 of the 2017 edition);
- d) general design requirements have been added (see 6.1);
- e) fatigue assessment has been added (see 6.12);
- manufacture have been added (see 8.4);

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. The issuing body of this document shall not be held responsible for identifying patent rights.

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This document was first issued in 2006, first revised in 2017, and the present revision is the second revision.

1 Scope

This document specifies the requirements for materials, design, manufacture, technical performance and test methods, inspection rules, marking, packaging and transport of accumulator pressure vessels (except where a specific type of accumulator is expressly designated, hereinafter referred to as "accumulators").

This document is applicable to the design, manufacture and inspection of accumulators.

This document is not applicable to the design, manufacture and inspection of accumulators made of non-metallic materials.

2 Normative references

corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies to this document.

3 Terms, definitions and symbols

3.1 Terms and definitions

3.1.1 accumulators

Hydraulic energy-storage pressure vessels in which the liquid and the gas are separated by an isolating internal component (bladder, diaphragm, piston, etc.), and in which, making use of the compressibility of the gas, pressure is applied to the liquid at the liquid end by the gas pressure within the gas chamber. Accumulator consisting of a shell and a rubber bladder, in which the liquid and the gas are separated by the flexible rubber bladder. Note: The shell is an integrated component consisting of a seamless steel tube and the

approximately hemispherical closure heads formed at both of its ends by hot forming (spinning, forging). which the liquid and the gas are separated by the flexible rubber diaphragm. Note: The connection methods between the upper shell (end cover) and the lower shell are: connection by welding, by self-thread or by an external ring-shaped lock nut. Highest pressure that the accumulator can reach under normal operating conditions.

3.2 Symbols

4 General principles

4.1 Classification, composition and parameters

4.1.1 Classification

Accumulators are classified into the following types:

— diaphragm accumulators, including threaded-connection diaphragm accumulators and welded diaphragm accumulators;

4.1.2 Composition

liquid-end assembly components and separating internal parts. Its boundary scope is the end face of the first threaded joint where the accumulator is connected by threads to external piping or equipment, the first flange sealing face for flange connection, the groove connection by special connecting parts or pipe fittings.

4.1.3 Parameters

4.1.4 Working medium

The liquid-end working media of accumulators are petroleum-based hydraulic oil, fire-resistant oil, emulsion, water and water-based solutions; the gas chamber charging medium is nitrogen or another inert gas.

4.2 Structural types and their designation methods

support ring, gas valve, bladder, etc. Its typical structural types are classified as type A, type AB and type B; the structural types, part and component names and product designation method are given in Annex A, and the typical structural diagrams are shown in Figure A.1. include the upper shell, lower shell, annular lock nut, gas-end assembly components, liquid-end assembly components, diaphragm, etc.

4.3 Classification of volume grades and pressure grades

4.4 Failure modes