

TRADE STANDARD

JB

OF THE PEOPLE'S REPUBLIC OF CHINA

中华人民共和国行业标准

Steel welded atmospheric pressure vessel

钢制焊接常压容器

JB/T4735-1997

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NOTE

This book is the English translation of Code for design of extinguisher distribution in buildings GBJ140-90. In the event of any inconsistency between the Chinese-language text of the Code and the Present English-language text of the Code, the Chinese-language text shall be taken as ruling.

Preface

This standard is one of the state standard project under the "1988-1995" plan for making and revising the state standard, which plan was made by the national technical committee of pressure vessel standardization and approved by the state administration of technical supervision (the number 134[1989] document). And then it is revised as an industry standard in accordance with the information about rectifying the current standard. Whole making procedure include the following steps:

- i. In 1990, complete the outline and the first draft.
- ii. In 1991, complete the exposure draft after inquiring opinion in our industry.
- iii. In 1993, complete the preliminary drafts for examination and approved by the national technical committee of pressure vessel standardization after discussion.
- iv. Since 1994, the secretary department of the national technical committee of pressure vessel standardization has invited specials to have meeting to revise the preliminary examination draft for several times, then complete the formal draft.
- v. In 1996, the national technical committee of pressure vessel standardization has examined this standard by letter.

This standard was made on the base of implementing of related standard and construction practice for more than 10 years and referred the similar abroad standard. The major reference standards and technical document are as follows:

- a. GB150-89: steel pressure vessel,
- b. GBJ128-90: the construction and accept criterion for shaft cylinder steel welded oil tank ,
- c. JB2880-81: the technical condition for steel welded atmospheric pressure vessel,
- d. SH3046-92: the design criterion for shaft cylinder steel welded storage tank of petrochemical,
- e. SH3048-93: the design stipulation of shock-resistant for petrochemical steel equipment,
- f. USA API620: the recommending stipulation of design and construction for large scale welded low-pressure storage tank,
- g. USA API650: steel welded oil tank,
- h. JAPAN JIS B 8270-93: pressure vessel (basic standard)-the third kind of vessel,
- i. SHJ505-87: construction and fixing regulation of oil refining chemical industry.

This standard was intended to ensure vessels are safety, it was made on the base of the design principle, material choosing condition and manufacturing practice for the vessels that design pressure is lower than 0.1Mpa, degree of vacuum is lower than 0.02Mpa and design temperature is lower than 35°C. On the base of meeting the requirement of this standard, the strength, stability and stiffness of vessel should be ensured.

This standard was made on the principle of taking the advantage of advanced international and abroad standards, try to made it was advanced in technical, reasonable in economic, safety and coordinate with our factual condition.

This standard was managed by the design committee of the national technical committee of pressure vessel standardization, and put proposal by the national technical committee of pressure vessel standardization.

This standard was drafted by Beijing petrochemical construction company of china

petro-chemical corporation, Beijing design institute of china petro-chemical corporation, Plan institute of china petro-chemical corporation, Luoyang petrochemical construction company, Hefei general mechanical institute of the mechanical ministry, China textile design institute, china Huanqiu chemical construction corporation and Sichuan design institute of china petro-chemical corporation.

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Chapter 2: Referenced Document—Lan wenqing

Chapter 3: General introduction—Lan wenqing

Chapter 4: Materials—Teng mingde

Chapter 5: Inner pressure cylinder—Cao mengzheng

Chapter 6: External pressure cylinder and external pressure spherical shell—Lan wenqing

Chapter 7: End plate cover—Cao mengzheng

Chapter 8: Flat cover—Fu fuxing

Chapter 9: Open hole and reinforcing for open hole—Zhang youyu

Chapter 10: Flange—Xing zhaoxin, Xu yaokang

Chapter 11: Shaft vessel support--Shaft cylinder storage tank—Ding guanbao

Chapter 12: Shaft cylinder storage tank—Cao mengzheng

Chapter 13: Rectangular vessel— Xing zhaoxin, Xu yaokang

Chapter 14: Cylinder silo—Zu rongqi

Chapter 15: Manufacture, examine and accept—Gu zhenming, Cao mengzhen, Zu rongqi, Liu yaxin

Appendix A Supplemental provisions of materials (mandatory information)—Teng mingde

Appendix B High temperature performance of steel (nonmandatory information) --Teng mingde

Appendix C Calculation of shock-resistance for shaft cylinder storage tank(nonmandatory information)—Cao mengzhen

Appendix D The design of dome with rib (nonmandatory information)—Cao mengzhen

Appendix E Basic requirements for the basement design of shaft cylinder storage tank(nonmandatory information)— Cao mengzhen

Appendix F Manufacture and check for T-joint and corner welded joint specimens of storage tank(nonmandatory information)— Cao mengzhen

Appendix G Detail drawings of structure node(nonmandatory information)—Zhang youyu

Appendix H Open hole and reinforcing of level cleaning open hole(nonmandatory information)—Lan wenqing

Since the date that this standard entering into implementation, the former JB2880-81"technical specification of steel welded atmospheric pressure vessel" will be annuled.

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JB/T4375-1997

Subject

This standard covers design, manufacturing, checking and accepting requirement for steel welded atmospheric pressure vessel (thereafter shorten as vessel, includes cylinder vessel, shaft cylinder storage tank, rectangle vessel and cylinder silo).

The design calculation for horizontal atmospheric vessel should be accordant with the regulation of GB150-89 "steel pressure vessel", the allowable stress value may be chosen according to article 3.6 in this standard.

1 Scope

1.1 This standard is suited for the vessel listed in table 1-1

Table 1-1 Scope of application for all kinds of vessel

Type of vessel	Design pressure P_D	Design temperature t_D (°C)	Volume limitation
Cylinder	$-0.02\text{MPa} < P_D < 0.1\text{Mpa}$	$-20 < t_D \leq 350^*$	$\geq 500\text{L}$
Shaft cylinder storage tank	$-500\text{Pa} \leq P_D \leq 2000\text{Pa}$	$-20 < t_D \leq 250$	200~10000m ³
Cylinder silo		<100	No limitation
Rectangle vessel	Connected with air	Normal temperature	~

Note: The vessel which, although it's design temperature less than or equal to -20°C , is accordant with "low temperature and low stress working condition" stipulated in GB150 and the design temperature can increase to higher than -20°C after adjusting, and austenitic high alloy steel vessel may be designed, manufactured, checked and accepted in accordance with this standard.

1.2 This stand is not suited for the vessel listed below:

- a. The vessel directly heated by flame,
- b. The vessel under nuclear radiation,
- c. The vessel contain high toxicity or high dangerous medium,
- d. The vessel embed underground directly,
- e. The gas cabinet may be able to rise and fall.
- f. The vessel moved frequently,
- g. The vessel with less than 500L calculation volume.

2 Normative references

The following standards contain provision which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standard are subjected to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

- GB150-89 Steel pressure vessels
- GB196-81 General purpose screw threads-basic dimensions
- GB197-81 General purpose screw threads-tolerances and fits

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