

ICS 23.020.10
J 74



National Standard of the People's Republic of China

GB 12337—1998

Steel Spherical Tanks

Issued on 1998-12-08

Enforced on 1999-12-01

Issued by China State Bureau of Quality and Technical Supervision

Contents

Foreword

1	Scope.....	1
2	Normative Standards.....	2
3	General Requirements.....	3
4	Materials.....	9
5	Construction.....	17
6	Calculation.....	20
7	Fabrication.....	36
8	Assembly Welding, Testing and Inspection, and Acceptance.....	40
Annex A (normative)	Spherical Tank under Low Temperature Service.....	50
Annex B (normative)	Classification of Field Soil Categories and Near-Seismic, Far-Seismic.....	54
Annex C (informative)	Types and Dimensions of Butt Weld Groove for Spherical Shell.....	56

Foreword

This Standard is the revised edition of GB 12337—90. As a comprehensive National Standard, this edition covers the design calculations of spherical shell, support columns and tie rods etc., the requirements for materials, the regulations for construction elements, and the requirements for fabrication, assembly welding, testing and inspection, and acceptance of steel spherical tank (abbreviated spherical tank, hereinafter). The formulation of this Standard was based upon the implementation of GB 12337—90 *Steel Spherical Tank*, in conjunction with the successful practical experiences, the investigative analyses, the experimental verification and the advanced aspects of appropriate International Codes. This Standard is further substantiated, improved and enhanced in accordance with the requirements of safety application. All works dealing with the design, fabrication, assembly welding, testing and inspection, and acceptance of spherical tanks shall fully comply with the applicable requirements of this Standard, and also be necessary to meet the corresponding provisions of GB 150—1998.

The main variations of this Standard relative to GB 12337—90 are listed as follows:

- modifying the corresponding contents with respect to GB 150—1998;
- adding two new attaching construction types: the direct support column type and the U-section column type;
- improving the buckling calculation and verification of support columns;
- adding the requirements for fabrication and assembly welding of high-strength and high-toughness steels;
- providing the corresponding contents of automatic welding;
- transferring the calculation cases from this Standard text to the Standard Interpretation.

Annexes A and B of this Standard are normative.

Annex C of this Standard is informative.

This Standard shall be used in lieu of GB 12337—90 beginning with the date of implementation.

This Standard is prepared and directed by the China National Standardization Committee on Pressure Vessel (abbreviated CNSCPV).

Lanzhou Petroleum Machinery Research Institute has the leading duty of formulating this Standard. The participating Units for formulating are listed below:

Chemical Spherical Tank United Engineering Co., Dalian Boiler-Pressure Vessel Inspection Institute, Beijing Petro-Chemical Engineering Co. of SINOPEC, Lanzhou Petro-Chemical Design Institute of SINOPEC and Lanzhou Petro-Chemical Machinery Works.

The major formulating members are: Liu Fulu, Yao Yujing, Liu Yien, Liu Hongbo, Zhang Jie, Yu Minmin and Sun Jie.

The participating members are:

China Petro-Chemical Planning and Engineering Institute of SINOPEC

Shou Binan
Huang Xiurong
Gu Zhenming
Wang Weiguo
Ye Qianhui

China General Petro-Chemical Mechanical Engineering Co.
Construction Co-Ordination Bureau
China State Bureau of Quality and Technical Supervision

Zhang Zhongkao
Liang Zhixun
Song Hongming
Zhang Jianrong

Beijing Petro-Chemical Engineering Co. of SINOPEC

Li Shiyu

This Standard was firstly issued on 25 May, 1990 and the first revision was made in March 1998.

The China National Standardization Committee on Pressure Vessel (CNSCPV) has the authority to provide official interpretations of this Standard.

Steel Spherical Tanks

1 Scope

This Standard specifies all applicable requirements for the design, fabrication, assembly welding, testing and inspection, and acceptance of carbon steel and low alloy steel spherical tanks (abbreviated spherical tanks, hereinafter).

1.1 This Standard is applicable to column supported spherical tanks of orange-petal type or mixed-petal type with design pressure not greater than 4MPa.

1.2 This Standard is applicable to the design temperature range identical with the allowable application temperatures of steels used.

1.3 The following spherical tanks are exempted from the scope of this Standard:

- (a) spherical tank subject to nuclear radiation;
- (b) spherical tank subject to relative motion (e.g. installed on truck or ship);
- (c) spherical tank having nominal capacity less than 50m³;
- (d) spherical tank requiring fatigue analysis;
- (e) spherical tank constructed of jacketed shells.

完整版本请在线下单

或咨询：

TEL: 400-678-1309

QQ: 19315219

Email: info@lancarver.com

<http://www.lancarver.com>

线下付款方式：

1. 对公账户：

单位名称：北京文心雕语翻译有限公司

开户行：中国工商银行北京清河镇支行

账 号：0200 1486 0900 0006 131

2. 支付宝账户：info@lancarver.com

注：付款成功后，请预留电邮，完整版本将在一个工作日内通过电子 PDF 或 Word 形式发送至您的预留邮箱，如需索取发票，下单成功后的三个工作日内安排开具并寄出，预祝合作愉快！
