American National Standard

ASSE 1099-2022/ WSC-PST-2000/2022

Performance Requirements for

Pressurized Water Storage Tanks

ASSE Board Approved: July 2022
ANSI Approved: August 2022
ICS Codes: 91 140 60

General Information

It is generally required by jurisdictions that in order to demonstrate conformity to this standard by a third-party, that the products are certified and listed. Listings are offered by ASSE International, Water Systems Council, and others.

ASSE International and Water Systems Council
Mokena, Illinois

ASSE International
Product Listing Information

Information on how to certify and list products is found at *www.asse-plumbing.org* under the Product Certification menu. Products are applied to be listed, tested at an ASSE International recognized laboratory or by a laboratory that is an ILAC-MRA signatory, the factory is audited, and the application materials are evaluated by ASSE staff and reviewed by the ASSE Seal Control Board. Periodic retesting is required, including modifications potentially affecting conformance with the standards. The ASSE Seal may then be placed on the product to demonstrate conformity under ASSE's ISO 17065 process.

Foreword

This foreword shall not be considered a part of the standard; however, it is offered to provide background information.

In 1999, a group of Water System Council members comprised of leading U.S. manufacturers of pressurized water storage tanks for water wells met to define and promote, through voluntary written standards, minimum performance and construction requirements for pressurized water storage tanks for service in water well systems. The Water Systems Council Board of Directors approved the voluntary standard in November 2000.

This Standard became an American National Standard in 2005 developed by the NSF Canvass Committee on Pressurized Storage Tanks using the consensus process described by the American National Standards Institute (ANSI). Subsequently, the standard was approved through the ANSI process by the NSF Joint Committee on Water Systems Council made up of industry, consultant/user, and public agency members.

In 2021 a revision was co-developed with Water Systems Council and ASSE International. Subsequently, a new revision 2022 was published to clarify the language and to revert the requirements for composite tanks to the 2016 addition. The language as writing in the 2021 edition inadvertently change the requirements which prevented testing of composite tanks. The 2022 revision serves as a correction to that error.

It is the purpose of this Standard to prescribe minimum performance and construction requirements for pressurized storage tanks for service in water well systems with a maximum factory pre-charge pressure of 40 psig (276kPa) or with exception as stated in DOT issued allowance, to be operated in ambient air temperatures up to 120°F (49°C), with maximum working pressures not less than 75 psig (517 kPa) and not greater than 150 psig (1034 kPa) and tank volumes not exceeding 120 gallons (454 L).

Most private well water systems are powered by an electric motor and incorporate a closed pressure tank. The three essential components of such a system are pump, tank, and control. The functions of a water pressure storage tank are threefold: (1) to protect and prolong the life of the pump by preventing rapid cycling of the pump motor (most motor manufacturers recommend pump cycle rates of under 300 for each 24-hour period and not more than 15 starts per hour for up to 3/4 hp, and not more than 7-1/2 starts per hour for greater than 3/4 hp motors); (2) to provide water under pressure for delivery between cycles; and (3) to provide additional water storage under pressure to assist the pump in meeting the total demands of a system if the pump or well is incapable of supplying the required capacity.

ASSE 1099/WSC PST-2000/2022 Pressurized Water Storage Tank Standard can be used by regulatory agencies when developing codes for pressurized storage tanks.

ASSE International considers product performance standards to be of great value in the development of improved plumbing systems. ASSE standards are developed in the interest of consumer safety.

The working group that developed this standard was set up within the framework of the Product Standards Committee of ASSE International.

Recognition is made of the time volunteered by members of this working group and of the support of manufacturers who also participated in meetings for this standard.

This standard does not imply ASSE International's nor the Water System Council's endorsement of a product which conforms to these requirements.

Compliance with this standard does not imply acceptance by any code body.

It is recommended that these devices be installed consistent with local codes by qualified and trained professionals.

This standard was promulgated in accordance with the ASSE Procedures for Standards Development as approved by the American National Standards Institute (ANSI).

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1.0 General

1.1 Application

This standard covers Pressurized Water Storage tanks. These tanks collect and store underground water under pressurized conditions to provide cold water supply to single or multiple premises.

1.2 Scope

This standard prescribes minimum performance and construction requirements for pressurized storage tanks for service in water well systems with a maximum factory pre-charge pressure of 40 psig (276 kPa), or with exception as stated in DOT issued allowance to be operated in ambient air temperatures up to 120°F (49°C), with maximum working pressures not less than 75 psig (517 kPa) and not greater than 150 psig (1034 kPa) and tank volumes not exceeding 120 gallons (454L).

1.3 Reference Documents

The following documents contain provisions that, through reference, constitute provisions of this ANSI/WSC Standard. All documents are subject to revision, and parties are encouraged to investigate the recent editions of the documents indicated below. The most recent published edition of the document shall be used for undated references.

ASTM A1008/A1008M – 21 Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability1

ASTM A1011/A1011M – 18 Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability[1]

Code of Federal Regulations, Title 49, Part 173.306(g), Transportation[2]

NSF/ANSI 61 - 21. Drinking Water System Components – Health Effects[3]

NSF/ANSI 372 - 21. Drinking Water System Components – Lead Content[3]

[1] ASTM International, 100 Barr Harbor Dr., West Conshohocken, PA 19428 <www.astm.org>
[2] National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA <www.ntis.gov>
[3] NSF International, P.O. Box 130140, Ann Arbor, Mi 48113-0140 <www.nsf.org>