

ANSI/WSC PST 2000 – 2005

Pressurized Water Storage Tank

**American National Standard/
Water Sciences Council**

ANSI/WSC PST 2000 – 2005

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American National Standard /
Water Systems Council Standard

Pressurized Water Storage Tank

Standard Developer
NSF International

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The NSF Canvass Committee on Pressurized Storage Tanks

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Foreword¹

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 (280 kPa), to be operated in ambient air temperatures up to 120 °F (49 °C), with maximum working pressures not less than 75 psig (520 kPa) and not greater than 150 psig (1000 kPa) and tank volumes not exceeding 120 gallons (450 L).

Most private 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.

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

In 1999, a group of WSC 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 this voluntary standard in November 2000.

This American National Standard was developed in 2005 by the NSF Canvass Committee on Pressurized Storage Tanks using the consensus process described by the American National Standards Institute.

Suggestions for improvement of this Standard are welcome. Comments should be sent to Secretariat, NSF Canvass Committee on Pressurized Storage Tanks, c/o NSF International, Standards Department, PO Box 130140, Ann Arbor, Michigan 48113-0140, USA.

The National Programs Office of the Water Systems Council can be contacted toll-free at 888-395-1033 or at www.watersystemscouncil.org. Pressurized Water Storage Tank Standard (PST-2000)

¹ The information contained in this Foreword is not part of this American National Standard (ANS) and has not been processed in accordance with ANSI's requirements for an ANS. As such, this Foreword may contain material that has not been subjected to public review of a consensus process. In addition, it does not contain requirements necessary for conformance to the Standard.

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Collaborating organizations

Water Systems Council

The Water Systems Council (WSC) is a national non-profit organization, dedicated to promoting the wider use of wells as modern and affordable safe drinking water systems and to protect ground water resources. WSC members include major manufacturers of the integral components of wells and other small drinking water systems, leading distributors of those components, and other drinking water professionals.

Founded in 1932, WSC is dedicated to protecting the public health and ground water resources through product excellence and informational services. WSC represents the manufacturing and engineering skill and water well knowledge of the nation's water tank, accessory and well supply manufacturers. WSC endeavors to work closely with industry and public health groups.

WSC is the only national organization solely focused on individual water wells and other private well-based water systems.

NSF International

NSF International, The Public Health and Safety Company™, a not-for-profit, non-governmental organization, is the world leader in standards development, product certification, education, and risk-management for public health and safety. For 60 years, NSF has been committed to public health, safety, and protection of the environment. While focusing on food, water, indoor air, and the environment, NSF develops national standards, provides learning opportunities through its Center for Public Health Education, and provides third-party conformity assessment services while representing the interests of all stakeholders. The primary stakeholder groups include industry, the regulatory community, and the public at large.

NSF is widely recognized for its scientific and technical expertise in the health and environmental sciences. Its professional staff includes engineers, chemists, toxicologists, and environmental health professionals with broad experience both in public and private organizations.

NSF has earned the Collaborating Center designations by the World Health Organization (WHO) for Food and Water Safety and Indoor Environment.

Serving manufacturers operating in 80 countries, NSF was founded in 1944 and is headquartered in Ann Arbor, MI USA. The NSF Mark is recognized for its value in international trade around the world and is respected by regulatory agencies at the local, state, and federal levels.

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ANSI/WSC Standard –

Pressurized Water Storage Tank Standard (PST-2000)

1 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 (280 kPa), to be operated in ambient air temperatures up to 120 °F (49 °C), with maximum working pressures not less than 75 psig (520 kPa) and not greater than 150 psig (1000 kPa) and tank volumes not exceeding 120 gallons (450 L).

2 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.

ASTM A1008/A1008M *Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability*¹

ASTM A1011/A1011M *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 – Drinking Water System Components – Health Effects³

3 Definitions and symbols

3.1 Definitions

3.1.1 circumferential: Perpendicular to the centerline axis of the tank.

3.1.2 composite materials: Composite materials are material structures that include, but are not limited to, fiber, laminates and particulate composites.

3.1.3 concave: The curved portion of the head that is outward in respect to the inside of the tank.

3.1.4 dome: The curved portion of the head.

3.1.5 head: The end of the tank that integrally includes the dome, knuckle radius and flange.

¹ ASTM International, 100 Barr Harbor Dr., West Conshohocken, PA 19428

² National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA

³ NSF International, P.O. Box 130140, Ann Arbor, Mi 48113-0140