6.1.1.1 The working pressure of a pressure service filter shall be 50 psi (345 kPa) or greater. The design burst pressure of a pressure service filter tank shall be at least four times the working pressure (i.e., minimum safety factor = 4:1).

6.1.1.2 The filter tank and its integral components shall not rupture, leak, burst, or sustain permanent deformation when subject to the following conditions in accordance with Section N-2.1:

   — a hydrostatic pressure equal to 1.5 times the working pressure for 300 s;
   — 20,000 consecutive low-high pressure cycles; and
   — a hydrostatic pressure equal to two times the working pressure.

   NOTE — As noted in Annex N-2, leaking from integral components such as valves and fittings that may occur when the hydrostatic pressure is increased to two times the working pressure does not constitute nonconformance to this requirement.

Filter tanks designed, constructed, evaluated, and stamped with the appropriate Code Symbol Stamp, in accordance with the ASME Boiler and Pressure Vessel Code, shall be exempt from this requirement.

6.1.1.3 The filter tank shall have an appropriate pressure warning that is permanent, easy to read, and securely attached to the filter tank. The warning shall be visible when viewing the pressure relief valve.
12 Flow-through chemical feeding equipment

This section contains requirements for adjustable output rate flow-through chemical feeders and auxiliary components used for dispensing chemicals by a flow-through process in public and residential swimming pools or spas / hot tubs. Flow-through chemical feeders without adjustable output rates and gaseous feeding equipment are not covered under this section.

12.1 General

Parts of the feeder requiring cleaning and maintenance shall be accessible.

12.2 Chemical resistance

Flow-through chemical feeders exposed to the applicable chemicals per Section N-7.1 for a test period of 100 d shall show no signs of erosion or structural deformation.

12.3 Hydrostatic pressure

Flow-through chemical feeders shall show no evidence of rupture, leakage, burst, or permanent deformation when subjected to a hydrostatic pressure 1.5 times the manufacturer’s maximum pressure rating (see Section N-7.2). The unit tested shall be one that has been exposed in accordance with the chemical resistance test per Section N-7.1 for a test period of 100 d.

12.3.1 Air release

If the feeder permits accumulation of air in the top of the unit, the unit shall have an automatic air release at the top of the unit that will open when the maximum pressure rating is reached. A manual air release valve shall also be provided.

12.3.2 The feeder shall have an appropriate pressure warning that is permanent, easy to read, and securely attached to the feeder. The warning shall be visible when viewing the pressure relief valve.

12.4 Motors

Motors, if provided, shall be continuous duty and shall conform to the requirements of Article 430 of NFPA 70 (NEC).

12.5 Output rate

12.5.1 The flow-through chemical feeder shall have an output rate control mechanism that is adjustable in at least four increments over the full operating range. The mechanism for regulating the output rate shall be readily accessible when the feeder is installed in accordance with the manufacturer's instructions.

Chemical feeders designed for one output rate or intended for use with a separate automated controller shall be exempt from this requirement.

12.5.2 The uniformity of output for a flow-through chemical feeder shall be tested and evaluated at settings of the output rate control mechanism equivalent to 50% and 100% of the rate of maximum chemical output recommended by the manufacturer. Chemical feeders designed for one output rate shall be evaluated at 100% of the maximum chemical output. The output of a flow-through chemical feeder shall be
within ± 20% of the output specified by the manufacturer at each test setting of the output rate control mechanism. For each test setting, the output of the flow-through chemical feeder shall be repeatable within ± 10% when tested in accordance with Section N-7.3.

12.6 Protection against overdosing

The manufacturer shall provide printed materials warning the user of the potential for elevated chemical concentrations and hazardous gas introduction into the pool or spa. At a minimum, the printed materials shall describe the conditions that may result in such potentially hazardous conditions, such as backwash and periods of no flow in the recirculation system. The steps to be taken during installation or operation to prevent such conditions shall be included. Feeders designed to be self-draining shall be exempt from this requirement.

12.7 Flow-indicating device

12.7.1 Flow-through chemical feeders shall be provided with a flow-indicating device on the unit, or the installation instructions shall provide for the installation of a flow-indicating device for the full range of flow rates. Flow-through chemical feeders operated by an automated controller shall be exempt from this requirement.

12.7.2 When the chemical output of a flow-through chemical feeder is specified relative to the flow rate of water through the feeder (i.e., \( X \text{ gal/min [m}^3]\text{/hr} \) through the feeder = \( Y \text{ lb/d [kg/d]} \) chemical output), the chemical feeder shall be supplied with a flow-indicating device (or instructions for installing such a device) for the full range of flow rates specified by the manufacturer.

12.7.3 Head loss

The manufacturer shall make available a head loss claim at the maximum and minimum settings for systems installed in the main line. The actual head loss shall not exceed the claimed head loss by more than 10%.

12.8 Operation and installation instructions

The manufacturer shall supply the following operation and installation instructions with each flow-through chemical feeder:

- diagrams and a parts list to facilitate the identification and ordering of replacement parts;
- installation, operation, and maintenance instructions;
- model number of the unit;
- caution statement to address potentially hazardous conditions due to chemical overdosing (see Section 12.6); and
- caution statements regarding the recommended use chemicals (prominently displayed).

12.9 Data plate

The data plate on flow-through chemical feeders shall be permanent; easy to read; and securely attached, cast, or stamped onto the feeder at a location readily accessible after installation. The data plate shall contain the following information:
— manufacturer's name and contact information (address, phone number, website, or prime supplier);
— feeder model (serial number optional);
— maximum output rate;
— recommended use chemical(s); and
— a caution statement indicating that the use of chemicals other than those recommended by the manufacturer may be hazardous.

The data plate shall indicate whether a flow-through chemical feeder is designed for swimming pool applications only or spa / hot tub applications only. A flow-through chemical feeder that is designed for both applications is exempt from this requirement.