



SLOVENSKI STANDARD

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Specifikacija za napeljave za pitno vodo v stavbah - 5. del: Delovanje in vzdrževanje

Specification for installations inside buildings conveying water for human consumption - Part 5: Operation and Maintenance

Technische Regeln für Installationen innerhalb von Gebäuden für Wasser für den menschlichen Gebrauch - Teil 5: Betrieb und Wartung

Spécifications techniques relatives aux installations d'eau destinée à la consommation humaine à l'intérieur des bâtiments - Partie 5: Exploitation et maintenance

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Specifications for installations inside buildings conveying water for human consumption - Part 5: Operation and maintenance

Spécifications techniques relatives aux installations d'eau
destinée à la consommation humaine à l'intérieur des
bâtiments - Partie 5: Exploitation et maintenance

Technische Regeln für Trinkwasser-Installationen - Teil 5:
Betrieb und Wartung

This European Standard was approved by CEN on 19 November 2011.

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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EN 806-5:2012 (E)**Foreword**

This document (EN 806-5:2012) has been prepared by Technical Committee CEN/TC "Water supply", the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by August 2012, and conflicting national standards shall be withdrawn at the latest by August 2012.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document is intended for the use of engineers, architects, surveyors, contractors, installers, water suppliers, consumers and regulatory inspectors.

This standard has been written in the form of a practice specification. It is the fifth part of the European Standard "Specifications for installations inside buildings concerning water for human consumption" consisting of five parts as follows:

— *Part 1: General;*

— *Part 2: Design;*

— *Part 3: Pipe sizing — Simplified method;*

— *Part 4: Installation;*

— *Part 5: Operation and maintenance.*

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1 Scope

This European Standard specifies requirements and gives recommendations for the operation and maintenance of potable water installations within buildings and for pipework outside buildings but within the premises in accordance with EN 806-1.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references the latest edition of the referenced document (including any amendments) applies.

EN 806-1:2000, *Specifications for installations inside buildings conveying water for human consumption — Part 1: General*

EN 806-2, *Specifications for installations inside buildings conveying water for human consumption — Part 2: Design*

EN 806-4:2010, *Specifications for installations inside buildings conveying water for human consumption — Part 4: Installation*

EN 1487, *Building valves — Hydraulic safety groups — Tests and requirements*

EN 1488, *Building valves — Expansion groups — Tests and requirements*

EN 1489, *Building valves — Pressure safety valves — Tests and requirements*

EN 1490, *Building valves — Combined temperature and pressure relief valves — Tests and requirements*

EN 1491, *Building valves — Expansion valves — Tests and requirements*

EN 1567, *Building valves — Water pressure reducing valves and combination water pressure reducing valves — Requirements and tests*

EN 1717:2000, *Protection against pollution of potable water in water installations and general requirements of devices to prevent pollution by backflow*

EN 12729, *Devices to prevent pollution by backflow of potable water — Controllable backflow preventer with reduced pressure zone — Family B - Type A*

EN 12897, *Water supply — Specification for indirectly heated unvented (closed) storage water heaters*

EN 13076, *Devices to prevent pollution by backflow of potable water — Unrestricted air gap — Family A - Type A*

EN 13077, *Devices to prevent pollution by backflow of potable water — Air gap with non-circular overflow (unrestricted) — Family A - Type B*

EN 13078, *Devices to prevent pollution by backflow of potable water — Air gap with submerged feed incorporating air inlet plus overflow — Family A, type C*

EN 13079, *Devices to prevent pollution by backflow of potable water — Air gap with injector — Family A - Type D*

EN 13433, *Devices to prevent pollution by backflow of potable water — Mechanical disconnect, direct actuated — Family G, type A*

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- EN 13434, *Devices to prevent pollution by backflow of potable water — Mechanical disconnecter, hydraulic actuated — Family G, type B*
- EN 13443-1, *Water conditioning equipment inside buildings — Mechanical filters — Part 1: Particle rating 80 µm to 150 µm — Requirements for performances, safety and testing*
- EN 13443-2, *Water conditioning equipment inside buildings — Mechanical filters — Part 2: Particle rating 1 µm to less than 80 µm — Requirements for performance, safety and testing*
- EN 13959, *Anti-pollution check valves — DN 6 to DN 250 inclusive family E, type A, B, C and D*
- EN 14095, *Water conditioning equipment inside buildings — Electrolytic treatment systems with aluminium anodes — Requirements for performance, safety and testing*
- EN 14367, *Non-controllable backflow preventer with different pressure zones — Family C, type A*
- EN 14451, *Devices to prevent pollution by backflow of potable water — In-line anti-vacuum valves DN 8 to DN 80 — Family D, type A*
- EN 14452, *Devices to prevent pollution by backflow of potable water — Pipe interrupter with atmospheric vent and moving element DN 10 to DN 20 — Family D, type B*
- EN 14453, *Devices to prevent pollution by backflow of potable water — Pipe interrupter with permanent atmospheric vent DN 10 to DN 20 — Family D, type C*
- EN 14454, *Devices to prevent pollution by backflow of potable water — Hose union backflow preventer DN 15 to DN 32 — Family H, type A*
- EN 14455, *Devices to prevent pollution by backflow of potable water — Pressurised air inlet valves DN 15 to DN 50 — Family L, type A and type B*
- EN 14506, *Devices to prevent pollution by backflow of potable water — Automatic diverter — Family H, type C*
- EN 14622, *Devices to prevent pollution by backflow of potable water — Air gap with circular overflow (restricted) — Family A, type F*
- EN 14623, *Devices to prevent pollution by backflow of potable water — Air gaps with minimum circular overflow (verified by test or measurement) — Family A, type G*
- EN 14652, *Water conditioning equipment inside buildings — Membrane separation devices — Requirements for performance, safety and testing*
- EN 14743, *Water conditioning equipment inside buildings — Softeners — Requirements for performance, safety and testing*
- EN 14812, *Water conditioning equipment inside buildings — Chemical dosing systems — Pre-set dosing systems — Requirements for performance, safety and testing*
- EN 14897, *Water conditioning equipment inside buildings — Devices using mercury low-pressure ultraviolet radiators — Requirements for performances, safety and testing*
- EN 14898, *Water conditioning equipment inside buildings — Active media filters — Requirements for performances, safety and testing*
- EN 15092, *Building valves — Inline hot water supply tempering valves — Tests and requirements*
- EN 15096, *Devices to prevent pollution by backflow of potable water — Hose union anti-vacuum valves — DN 15 to DN 25 inclusive Family H, type B and type D — General technical specification*

EN 15161, *Water conditioning equipment inside buildings — Installation, operation, maintenance and repair*

EN 15219, *Water conditioning equipment inside buildings — Nitrate removal devices — Requirements for performance, safety and testing*

EN 15848, *Water conditioning equipment inside buildings — Adjustable chemical dosing systems — Requirements for performance, safety and testing*

EN ISO 3822-1, *Acoustics — Laboratory tests on noise emission from appliances and equipment used in water supply installations — Part 1: Method of measurement (ISO 3822-1:1999)*

EN ISO 3822-2, *Acoustics — Laboratory tests on noise emission from appliances and equipment used in water supply installations — Part 2: Mounting and operating conditions for draw-off taps and mixing valves (ISO 3822-2:1995)*

EN ISO 3822-3, *Acoustics — Laboratory tests on noise emission from appliances and equipment used in water supply installations — Part 3: Mounting and operating conditions for in-line valves and appliances (ISO 3822-3:1997)*

EN ISO 3822-4, *Acoustics — Laboratory tests on noise emission from appliances and equipment used in water supply installations — Part 4: Mounting and operating conditions for special appliances (ISO 3822-4:1997)*

3 Terms and definitions

For the purposes of this document, the terms, definitions and graphical symbols given in EN 806-1:2000 and EN 1717:2000 apply.

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4 General

Installations shall be operated and maintained in such a manner as to avoid adversely affecting the quality of potable water, the supply to consumers and the equipment of the water supplier.

Installations shall be checked at regular intervals for safety and performance. Appropriate procedures shall be adopted to maintain the performance of the system at the level specified in EN 806-2, EN 1717 and the individual product standards referenced in Annex A.

The system shall be operated in accordance with the original design conditions, e.g. temperature, pressure.

Responsibility for operation, inspection and maintenance is subject to local and national requirements (e.g. qualified personnel).

5 Documentation

In order to enable the correct operation and maintenance, all information relevant to the installation shall be readily available.

Manufacturer's documentation (e.g. Technical Product Information (TPI)) related to the operation and maintenance of appliances shall be available, retained and followed.

The commissioning report shall be part of the documentation.

The maintenance shall be recorded and stored in such a way that the data is auditable.

EN 806-5:2012 (E)**6 Operation**

Installations and appliances shall be operated in such a manner as to ensure their reliable performance. Unless otherwise specified in the relevant operating instructions, the following shall apply:

- Stop valves and servicing valves shall always be in their fully open or closed position and actuated at regular intervals to ensure they remain operational.
- All spare parts shall be readily available and fit for purpose. Original manufacturers' spare parts are preferred.
- Valves and parts, which are subject to noise control requirements, shall only be replaced by valves and parts that are at least acoustically equivalent.
- Draw-off fittings shall not to be used to connect hoses, unless suitable backflow protection is provided (see EN 1717).
- The connection of appliances can influence water quality. It is recommended that any connection and modifications are undertaken by suitably qualified personnel.
- The connection of appliances and apparatus (e.g. washing machines and dishwashers) shall be suitably protected against backflow in accordance with EN 1717.
- Hoses (e.g. garden hoses) shall only be connected to draw-off points provided for this purpose which are specifically designed for hose connection and are fitted with suitable backflow protection.
- The air inlet openings of valves (e.g. anti vacuum valves, air gaps) shall not be closed or obstructed and shall be protected against possible flooding or contamination.
- The water contained in parts of the installation that are seldom used (e.g. pipes serving guest rooms, garages or cellar connections) shall be flushed at regular intervals, preferably once a week.
- Water pipes shall not bear external loads.
- Checks shall be made on the temperature of water in pipes, cold water cisterns, hot water storage vessels and the discharge from taps to ensure that they are within the limits as listed in EN 806-2.
- Particular attention shall be given to the function and servicing of safety and protection devices and to the location of stop valves. Local and national regulations shall apply.
- Hygienic aspects shall be observed especially where water conditioning equipment is installed.

7 Interruptions to operation and disconnection

Installations, which will not be operated within 7 days of their completion or are out of service for more than 7 days, shall either be shut off at the supply stop valve and drained or the water shall be flushed regularly.

Service pipes that are not commissioned immediately after completion or are to be disconnected temporarily, shall be shut off at the water main and those not used for a period of one year or more, should be disconnected from the water main.

Water installations located in areas where frost damage is likely and frost protection measures are not in place and operational, shall be drained in time to prevent such damage.

To avoid potential damage by water and water loss in the event of prolonged absence, it is recommended that the system is isolated at the supply stop valve in residential units and in the case of apartments, at the stop valve in the pipe entering the apartment.

8 Resumption of supply

After interruptions to the operation, it is usually sufficient for the individual draw-off fittings to be fully opened for a short period (approximately 5 min) to allow stagnant water to run off.

Systems which have been temporarily shut off and drained shall be thoroughly flushed before operation is resumed by the following procedure:

- The stop valves shall be partially opened, starting with the service stop valve. To prevent pressure surges and damage to the system, the pipes shall then be completely vented by slowly opening the taps. Following this, the stop valves shall be fully opened and the pipes shall be flushed (for flushing see EN 806-4:2010, 6.2).
- Once the system has been filled, flushed or cleaned and, if necessary, disinfected and the draw-off fittings are closed, all accessible pipes, connections and appliances shall be inspected for signs of leakage.
- Any water conditioning equipment with a regeneration process shall be restarted manually and other water conditioning equipment in accordance with the manufacturer's instructions.

Systems that have been out of service for a prolonged period, not commissioned or disconnected from the service pipe shall only be reconnected and/or operation restarted by the water supplier or a suitably qualified installer.

Any necessary disinfection shall be in accordance with EN 806-4:2010, 6.3.1.

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9 Damage and faults

9.1 Change in water quality

Where damage or malfunctions involve the risk of water pollution or produce changes in odour, taste or colour of the water, necessary corrective actions shall be taken.

In cases, where immediate action is necessary to prevent serious damage or contamination, the system shall be shut off at the service stop valve; the water supplier shall be informed.

In case of stagnation and when the water temperature does not comply with EN 806-2, there is an increased risk of bacteria growth, e.g. *Legionella*. Then necessary corrective actions shall be taken.

9.2 Insufficient water supply

In the case of insufficient supply of water, at least the following shall be checked:

- stop valves not fully opened;
- blocked filters;
- blocked spray outlets (e.g. by dirt or scale);
- defective pressure reducing valves;

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- too much water being drawn off at the same time from a number of discharge points;
- scaling of system components, in particular of those carrying hot water;
- change in supply pressure;
- pipe burst or frozen pipes.

9.3 Noise emission

In the case of noise emission, higher than expected, at least the following shall be checked:

- installation of valves not classified in accordance with EN ISO 3822 series;
- stop valves that are defective or not fully opened;
- water hammer, caused by rapid-closing or defective draw-off fittings, unsuitable valves, incorrect operation or installation or inadequate fixing;
- too high velocities due to high pressure or incorrect pipe sizing.

10 Alterations, extensions and refurbishment

Major alterations to and extensions of the installation, in particular extensions of the pipework servicing appliances, connection of systems and appliances, can be a potential source of potable water pollution. Therefore, prior to this work being undertaken notification shall be given to the relevant authority in accordance with local and national regulations. This work together with maintenance and replacement of safety devices and backflow prevention devices shall be carried out by the water supplier or a suitably qualified installer and shall be documented (see Clause 5).

Where pipework, fittings or appliances are to be replaced, continuity of earthing and equipotential bonding shall be maintained. Where pipework has been used for earthing, alternative earthing arrangements shall be made in consultation with the electricity supplier and in accordance with national or local regulations.

Colour or marking to aid tracing of the pipe system shall be maintained and protected.

11 Accessibility of installation components

Installation components which require regular inspection and servicing (e.g. water meters, check valves, filters, anti-vacuum valves, air gaps) or are installed for inspection and servicing purposes (e.g. pressure gauges), and all controls (e.g. on stop valves) shall be readily accessible for inspection, maintenance and operation. Access to these components shall not be obstructed by stored goods, furniture, cladding, floor coverings, etc.

12 Maintenance

Routine maintenance work on pipes and draw-off fittings, stop valves and appliances shall be in accordance with the manufacturer's instructions. Particular care shall be taken to ensure reliable operation of safety and backflow prevention devices. Where water conditioning equipment is installed, specific attention shall be paid to the hygienic aspects to prevent excessive bacterial growth.

Types of maintenance include:

- Inspection: The system shall be visually checked on a regular basis.