

1. -----IND- 2018 0647 FIN EN- ----- 20190107 --- --- PROJET

Ministry of the Environment Decree

on the essential technical requirements for check valves intended for water supply installation inside buildings

By Decision of the Ministry of the Environment, the following shall be laid down pursuant to § 117 c(3) of the Land Use and Building Act (132/1999), as amended by Act 958/2012:

§ 1

Scope of Decree

This Decree shall apply to the essential technical requirements for check valves intended for conveyance of drinking water and domestic hot water located in the building and property. This Decree shall cover check valves with a nominal size of DN 8–DN 50.

§ 2

Definition of check valve

Check valve means a valve in which the closure member automatically opens under the pressure of flow, allowing the water to flow through in a specific direction, and automatically closes to prevent backflow.

§ 3

Suitability for conveyance of drinking water

A check valve shall not release substances hazardous to health or water quality into water. Materials coming into contact with water shall be suitable for the conveyance of drinking water. If the metal parts are made of copper alloy with a lead content of not more than 0.2 per cent, testing is not required.

The concentration of lead leached from the check valve material into the test water shall not exceed five micrograms per litre when the material is tested in a 26-week leaching test under conditions similar to the actual operating conditions. The acidity (pH value) of test water shall be between 6.7–8.4, alkalinity value between 0.5–1.3 millimoles per litre and oxygen saturation value more than 70 per cent. Test water shall be allowed to stand for four hours before a water sample is collected.

Depending on the size of the check valve, the alternative product-specific requirement for the maximum allowable lead content leached from the metal parts of the check valve into the water may be as shown in Table 1, when the leaching has been tested over a ten-day test period. In the test, cadmium dissolved in the water shall not exceed two micrograms. Replaceable synthetic drinking water with the acidity value of 7.0 ± 0.1 shall be used as a test solution.

Table 1. Maximum allowable level of leached lead in a 10-day test.

Nominal size of check valve, DN	≤25	32	40	50
Lead content, µg	5	10	20	40

§ 4

Corrosion resistance of metal parts

The parts of a check valve that are in contact with the water shall be made of dezincification resistant brass, corrosion resistant copper alloy or molybdenum grade alloy stainless steel.

The maximum value of dezincification depth of the check valve shall not exceed 200 micrometres. The demonstration of dezincification is not required if the zinc content in the check valve composition does not exceed 15 per cent.

Stress corrosion cracking may not occur in the brass connector components of the check valve.

§ 5

Construction and operation

Contaminants that may be present in water shall not accumulate in the check valve flow paths, thereby preventing its operation.

A single check valve shall be constructed so that the closure member could be inspected and serviced without removing the check valve from the pipeline.

The surfaces of a check valve shall be smooth and shall not have sharp projections.

§ 6

Dimensions

For connection to the pipe, the structure and dimensions of the check valve's threaded connection ends or connectors shall match the threaded connection ends or pipe fittings measured in inches, which are used in the water supply installations, as shown in Table 2.

Table 2. Nominal size of check valve and corresponding pipe threads on the connection ends of the check valve measured in inches and thread length of the cylindrical internal thread.

Nominal size, DN	8	10	15	20	25	32	40	50	65	80	100
Thread size per inch	¼	⅜	½	¾	1	1¼	1½	2	2 ½	3	4
Thread length, mm	11.0	11.4	15.0	16.3	19.1	21.4	21.4	25.7	30.2	33.3	39.3
Minimum thread length ^{a)} , mm	8	8.5	10.5	12.0	13.5	15.5	15.5	19.0	20.0	21.0	23.0
a) Length of thread engagement of the cylindrical internal thread (designation symbol Rp)											

§ 7

Connection ends

For connection to the pipe, the structure and dimensions of the check valve's connection ends shall match the connection ends used in the water supply installations. Pipe threads measured in inches shall be used in the threaded fitting.

§ 8

Leak-tightness and resistance

A check valve shall be leak tight and reliable during planned service life, taking into account appropriate maintenance intervals and specific operating conditions.

A check valve shall be designed so that it is able to withstand constant water pressure of one megapascal and constant water temperature of 65 degrees Celsius, and briefly a temperature of 95 degrees Celsius at a water pressure of one megapascal. A check valve intended only for cold water shall withstand a constant water temperature of 40 degrees Celsius.

§ 9

Marking

The manufacturer shall permanently mark the check valves so that they are identifiable and traceable. The manufacturer shall mark check valve so that at least the manufacturer's identification, nominal size (DN) or thread size, pressure rating PN 10 or higher, dezincification marking “CR” or “DZR”, any temperature limitations, a marking showing shut-off valve operations in a check valve and shut-off valve, and the date of manufacture are readable on the markings.

§ 10

Empirical determination of technical characteristics

The manufacturer shall determine the technical characteristics by means of testing. Empirical determination shall be carried out in the Member Countries of the European Economic Area or Turkey using generally accepted procedure. Upon request, the report on the methods used for determining technical characteristics and the test results shall be provided to those undertaking a construction project or authority.

§ 11

Entry into force

This Decree shall enter into force on [date] [month] 20XX.

The provisions in effect at the time of the entry into force of this Decree shall be applied to the pending projects.

Helsinki, [date] [month] 20XX

Minister of the Environment, Energy and Housing

Senior Engineer