

WATER BLOCK**code 10.0041.00**

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1 GENERAL

1.1 Purpose

The present specification defines the features of the component being examined and the performance for which it is guaranteed.

1.2 Subject

The family of the Water Block valves 10.0041, in their different configuration, is the subject of this specification.

In case of differences between the data contained in this specification and those on ELTEK drawings, the latter will prevail.

1.3 Description

The Water Block valve is a safety overflow device which controls the flow of a volume of water between 5 and 50 litres.

Its function is to measure the number of litres of water that have passed through and, if this quantity exceeds that for which it was set, the Water Block intervenes and stops the flow.

The Water Block does not require external energy as it is operated by the water flowing through it.

2 STRUCTURAL FEATURES

2.1 Standards and reference documents

EN 60335-1

VDE 0730 teil 1 / 03.72

VDE 0730 teil 2 ZB / 06.81

CEI 107-31.

2.2 Ambient conditions

2.2.1 Operating conditions

The conditions under which a correct operation is guaranteed are:

- ambient temperature: $2^{\circ}\text{C} \div 60^{\circ}\text{C}$
- relative humidity : $30\% \div 95\%$
- temperature of fluid (water): $2^{\circ}\text{C} \div 70^{\circ}\text{C}$
- flow capacity : from 2 to 30 litres/min.
- water supply static pressure: max 10 bar

2.2.2 Limit conditions

The ambient conditions admissible when not in use are:

- ambient temperature: $-15^{\circ}\text{C} \div 75^{\circ}\text{C}$
- relative humidity: $30\% \div 95\%$

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2.3 Overall dimensions

According to ELTEK drawings.

2.4 Materials

The materials used in the construction of the component are in conformity with those indicated on ELTEK drawings; in particular, limitations are guaranteed for the following toxic materials: asbestos-free

max cadmium admitted in concentration < 50 p.p.m.

formaldehyde, emission limit according to class E1 directive DIN April 1980.

- NOTE FOR THE U.S.A. MARKET: the materials used are not suitable for the high concentration of disinfectants present in the American potable water.

3 MECHANICAL AND HYDRAULIC FEATURES

Unless otherwise specified, the following features refer to ambient conditions $T = 25 \pm 5^\circ\text{C}$ and relative humidity = 45 ÷ 75 %

3.1 Strength of the threads on housing

The threads on the housing, stressed through a twisting moment of 2000N/cm for 10 seconds with the aid of a steel nut, do not break or crack.

4 PHYSICAL / CHEMICAL CHARACTERISTICS

4.1 Resistance to limit ambient conditions

The Water Block device withstands the following test cycle without jeopardizing its operation and efficiency and maintaining the features of electric insulation/dielectric strength.

The device is mounted in the same manner as when in use and filled with water at ambient temperature and without air bubbles and left for:

- 96 hours at minimum ambient temperature and humidity;
- 96 hours at maximum ambient temperature and minimum humidity;
- 96 hours at maximum temperature and maximum humidity.

The maximum and minimum values are those indicated on paragraph 2.2.2

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4.2 Resistance to sudden thermal changes

The Water Block withstands, starting from normal ambient conditions, the following test cycle without jeopardizing its operation and efficiency and maintaining the features of electric insulation and dielectric strength:

- 24 hours at maximum temperature;
- stabilized at ambient temperature of $20 \pm 5^{\circ}\text{C}$;
- 24 hours at minimum temperature;
- stabilized at ambient temperature $20 \pm 5^{\circ}\text{C}$;

This was repeated 10 times (total 480 hours + time of transition between the two levels of temperature).

The maximum and minimum values are those indicated on paragraph 2.2.2

4.3 Resistance to humidity

According to paragraph 15.4 Standard EN 60335-1

4.4 Resistance to oxidation

According to paragraph 31 Standard EN 60335-1

5 HYDRAULIC FEATURES

5.1 Working pressure range

A correct operation is obtained at pressures between 2 and 100 N/cm² (0,2 - 10 bar)

5.2 Working flow rate range

A correct operation is obtained with flow rates between 2 and 30 litres/min.

5.3 Pressure drop and water hammering

In conformity with par. 22 Standard VDE 0730 Teil 2ZB

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6 PERFORMANCE

6.1 Characteristic curve

The device measures the volume of water flowing through.
The average characteristic curve in the flow rate range (from 2 to 30 litres/min) and at pressures from 0.2 to 10 bar is indicated in the attached diagram code 12.0010.00.
The average ratio of water flown through for each setting notch is 4,5 - 5 litres.

6.2 Tolerance of the system

Accuracy on the setting curve of water flow through:
number of setting notches : 10
increase for each notch : 4.5 - 5 litres
max. volume controlled : 45 - 50

6.3 Life

6.3.1 TEST WITH TAP WATER AT AMBIENT TEMPERATURE

The device operates correctly after 300,000 litres of water at a temperature of 20°C have flown through.

6.3.2 TEST WITH WATER AT A TEMPERATURE OF 70°C

The device operates correctly after 300,000 litres of water at a temperature of 70°C have flown through.
The hardness of the water used is about 70°d (German degrees) = 125°f (French degrees)

6.3.3 TEST WITH IRON PARTICLES ADDITIVE

The device operates correctly after 2,000 litres of water at a temperature of 20°C with a concentration of 0.2 mg/litre of iron particles 100µ in diameter.

6.3.4 TEST WITH SAND PARTICLES ADDITIVE

The device operates correctly after 2,000 litres of water at a temperature of 20°C with a concentration of 5 mg/litre of sand particles 200µ diameter max.

6.3.5 TEST WITH CHLORINE IONS ADDITIVE

The device operates correctly after 8,000 litres of water at a temperature of 20°C with a concentration of 1,000 mg/litre of active chlorine ions..

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