

# LAPIS-EX

## boiler scale removing device



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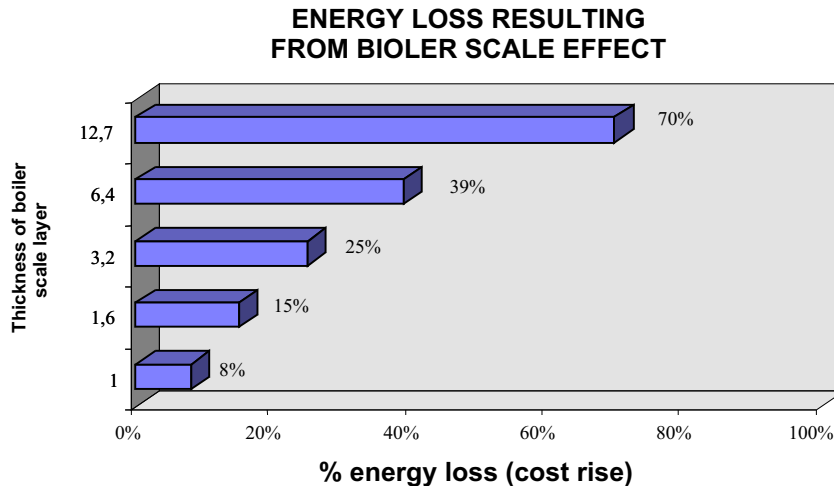


## DESCRIPTION

Lapis-ex is an electronic device whose principle of operation is based on the use of changeable electromagnetic field, powered by permanent current supply. It is intended to prevent problems of calcium carbonate (boiler scale) forming on the inside of water pipes. Lapis-ex prevents boiler scale sediment from forming through the process of changing its crystal structure.

Boiler scale affecting water supply systems causes loss of energy and pressure drop.

Lapis- ex successfully eliminates this problem and saves considerable amounts of heat as well as energy.



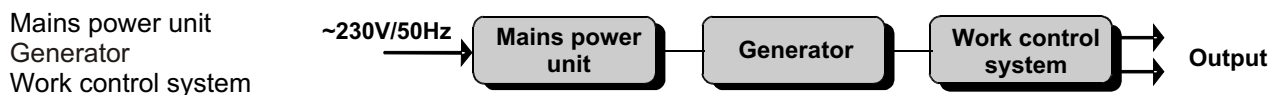
Lapis-ex has the following functions:

**cleaning function:** causes washing out of boiler scale after by softening and dissolving of the sediment

**protective function:** prevents forming of sediment and its settling on the inside of water pipes

## KOMPONENT PARTS

Lapis- ex consists of three main parts



All component parts are placed in a casing made of the ABS material of 120 mm x 65 mm x 40 mm with a metal part for fixing the whole unit in position.

1.5m length of double insulation power lead with a plug, go out of the left side of the casing.

On the right side, there are two banana plug sockets for connecting the output leads.

On the front cover there are two photodiodes: yellow and red. The yellow one indicates correct functioning of the unit, the red one indicates current supply. Lapis- ex is filled with encapsulating compound which gives it protection against harmful weather conditions.



## APPLICATION

Lapis-ex is a device friendly to the environment. It is ideal for a wide variety of water supply systems as it does not come into direct contact with water nor does it change the chemical composition of water.

In order to achieve required effects Lapis- ex should be kept in permanent state of operation.

### Lapis-ex protects against boiler scale:

- local water supply systems
- water heat exchangers and boilers
- water heaters
- water supply pipes distributing water to housing estates
- central heating systems
- water supply systems of laundries, hospitals, bakeries, sugar factories, hotels, swimming pools etc.

### Advantages of using Lapis-ex:

- prevents the process of settling of boiler scale
- dissolves boiler scale sediments already formed on the inside of water pipes
- no repairs of water pipes required
- saves energy and heat
- no contact with water
- no chemicals required
- low running costs
- safe and easy installation

Compared with other methods of boiler scale removing the using of Lapis- ex has proved to be cheaper and less difficult to operate. Lapis- ex is a self- contained device which does not require the use of any other apparatus. It requires less effort in installation and operation, it is friendly to the environment and what is most important, it is effective.

## ACCESSORIES

The complete set consists of:

- recycleable cardboard box,
- Lapis-ex device with a power lead,
- two metal screws 0 6 mm.
- two insulated leads (0,75 mm<sup>2</sup>) of 1m in length- each one is ended with a banana plug on one end, and a connector pin on the other,
- two adhesive film insulation bands of 35mm in width and 450mm in length,
- two aluminium foil conducting bands of 25mm in width and 450mm in length,
- two metal band clips of 60mm - 145mm,
- user's manual and guarantee certificate.



## INSTRUCTION FOR INSTALLATION

Lapis-ex should be installed in a place where there is no risk of damage resulting from hitting or flooding.

In order to avoid the risk of an electric shock or fire basic industrial safety rules must be observed.

Avoid any squeezing, pulling or stretching of the power lead and keep it safe from any other sort of damage.

In case of damage to the power lead, switch off the mains power supply immediately.

Fix Lapis-ex to the wall using metal screws. Place it near the pipe which is to be treated.

Install both band clips on the supply pipe so that the water is treated before it reaches the subsequent elements of the whole system.

If the system has a water pump, Lapis- ex should be installed closely to where the water flows out of the pump.

In order to increase the effectiveness of Lapis- ex, it is recommended to put in approx.

1m length of pipe bigger in inside diameter than the rest of the pipeline. For example, use a section of 120mm in diameter for a pipe of 80mm (maximum inside diameter of the pipe - 150mm).

### **For installation of Lapis- ex follow these steps:**

- remove the insulation layer from 200mm length of pipe, clean and prepare it for installation of Lapis-ex,
- wind two adhesive film insulation bands on the prepared length of pipe within the distance of 120mm from each other (measured from the middle of each band)- the bands are not required if the pipe is made of plastic,
- wind the aluminium foil bands on top of the insulation bands,
- place the metal band clips on top of the aluminium foil bands.
- fix Lapis- ex to the wall using the metal screws,
- connect the metal band clips to Lapis- ex using two insulated leads,
- connect the power lead to mains power supply (~230V/ 50-60Hz),
- make sure that both photodiodes have lit.

If the red photodiode does not light, check the connection of the power lead.

If the yellow photodiode does not light, make sure that any of the metal band clips does not touch the metal pipe.

In case of short- circuiting the metal band clips while Lapis- ex is working, there is no danger of an electric shock or damage to the device. The way the component parts have been encased ensures correct functioning of the unit which requires no servicing.

The producer takes no responsibility for the device being used in ways or for purposes other than those specified.



## SERVICING

Lapis-ex requires no servicing if installed according to the user's manual.

A visual inspection is recommended to be performed periodically.

## TECHNICAL DATA

Voltage	~230V/50-60Hz
Power input	<10mA
Pipe size	Max. 150 mm
Flow	1,5 m / s
Dimensions	120 x 65 x 40mm
Insulation class	□
Classification of product	□

Lapis-ex has been ascribed to the SWW 0719-149 group, whereas according to the norm of PKWiU to the 29.24.12- 30.39 group. According to Dz.U.Nr 5 issued on 28 th January 2000, item 53 Lapis-ex is no subject to certification or attestation

## DIAGRAM

