ECOLACTICA

ST Global Resources Ltd.

Biotechnology
for cleaning heating systems
and thermal equipment

“EcoLactica” technology is a new life to your equipment

Existing on the market solutions

General description of the technology

The EcoLactica technology using bio composition BIZ-1 (hereinafter - BIZ-1) effectively and safely allows to clean equipment and systems from these deposits practically to the factory state. The technology of sediment removal with the help of BIZ-1 was patented in 2003 and currently has no analogues in the world. BIZ-1 is manufactured by EcoLactica Ltd, a trademark of ECOLACT.

BIZ-1 is a product of highly-productive modified lactic acid bacteria and is intended for technical purposes. Bio organic composition BIZ-1 is a fermentation product and fermenting pure culture of lactic acid bacteria strains, which as a result of biochemical processes is hydrolyzed to monosaccharides, and generates more than 30 organic acids (formic, oxalic, citric, tartaric, butyric, lactic, propionic, succinic, malic and others). The resultant organic acids react with the layers of sediments and sludge, salts converted from the insoluble to soluble, are rinsed off with water. Cleaning of surfaces from deposits is carried out under conditions of circulation of the working solution along a closed loop.

The innovative biotechnology of EcoLactica makes it possible to solve the problems of efficient cleaning of equipment in oil refineries, oilfield infrastructure, raw heat exchangers, and pipelines. By applying various strains of bacteria, the BIZ-1 composition converts complex hydrocarbon chains from long to more simple, and heavy hydrocarbon fractions into light compounds. In this case, the product is obtained as a result of purification either for utilization or for further processing, depending on the task.

Advantages of using the BIZ-1 technology.

- high cleaning efficiency (plasticizes any kind of deposits, removing up to 98 - 100% of sediments);
- passivity to metals, plastics, rubber;
- the possibility of cleaning hard-to-reach areas, the ability to clean branched pipelines and small-diameter pipelines;
- a closed scheme for cleaning pipelines and boilers (without mechanical analysis of equipment);
- extends the service life of equipment and pipelines 2-3 times;
- increases heat transfer through the heat exchange surface;
- increases heat output (heat savings of 30-40% or more);
- reduces thermal stresses in metals caused by overheating;
- restores the capacity of pipelines and channels;
- reduces operating costs associated with the operation of pumps (reducing electricity costs by up to 50%);
- reduces the cost of fuel;
- Avoid overhauling the equipment;
- being environmentally friendly, does not harm the health of people and animals;
- the surface treated with bio-organic liquid is covered with a protective film that smooths out micro cracks, scratches, roughness, shells in the metal, as a result of which the process of re-formation of scale and iron oxides is noticeably slowed down;
- reduces the amount of greenhouse gas emissions into the atmosphere;
- does not need special disposal.

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Individual engineering decision based on biotechnology and innovative approach to cleaning

98% Effective

Safe

Eco-friendly

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	Time	Price	Safe for materials	Doesn't require special utilization	Eco-friendly	Forms protective film	Cleaning efficiency
Capital repair	🕒🕒🕒🕒	₽₽₽₽	✓	✓	✗	✗	100%
Biotechnological cleaning	🕒🕒	₽₽	✓	✓	✓	✓	98%
Mechanical cleaning	🕒🕒🕒	₽	✗	✓	✓	✗	90%
Chemical cleaning	🕒	₽₽	✗	✗	✗	✗	80%
Electro physical cleaning	🕒🕒🕒	₽₽	✗	✓	✓	✗	75%
Water flushing	🕒	₽	✓	✓	✓	✗	1%

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Boiler

- Steam
- Water-heating
- Exhaust heat boilers
- Economizers

Heat ex-changers

- Shell-and-tube
- Section-type
- Coiled
- Spiral-type
- Plate-type

Heating systems

- Open type
- Closed type
- Fan coils

Production

- Evaporators
- Oil coolers
- Turbine condensers
- Water-cooling towers
- Reactors
- Columns

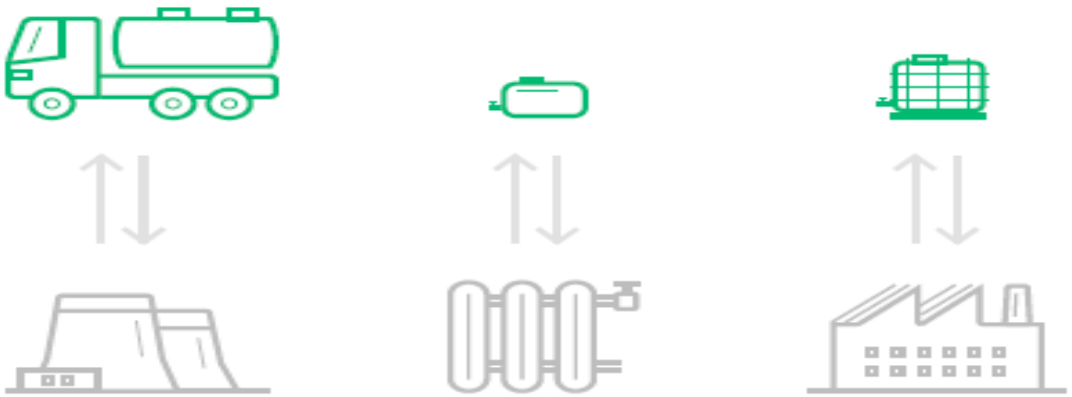
We select an optimum strain of bacteria according to type and thickness of deposits.

We issue individual regulations of work taking into account characteristics and requirements on an object.

Cleaning takes place without disassembling the equipment.

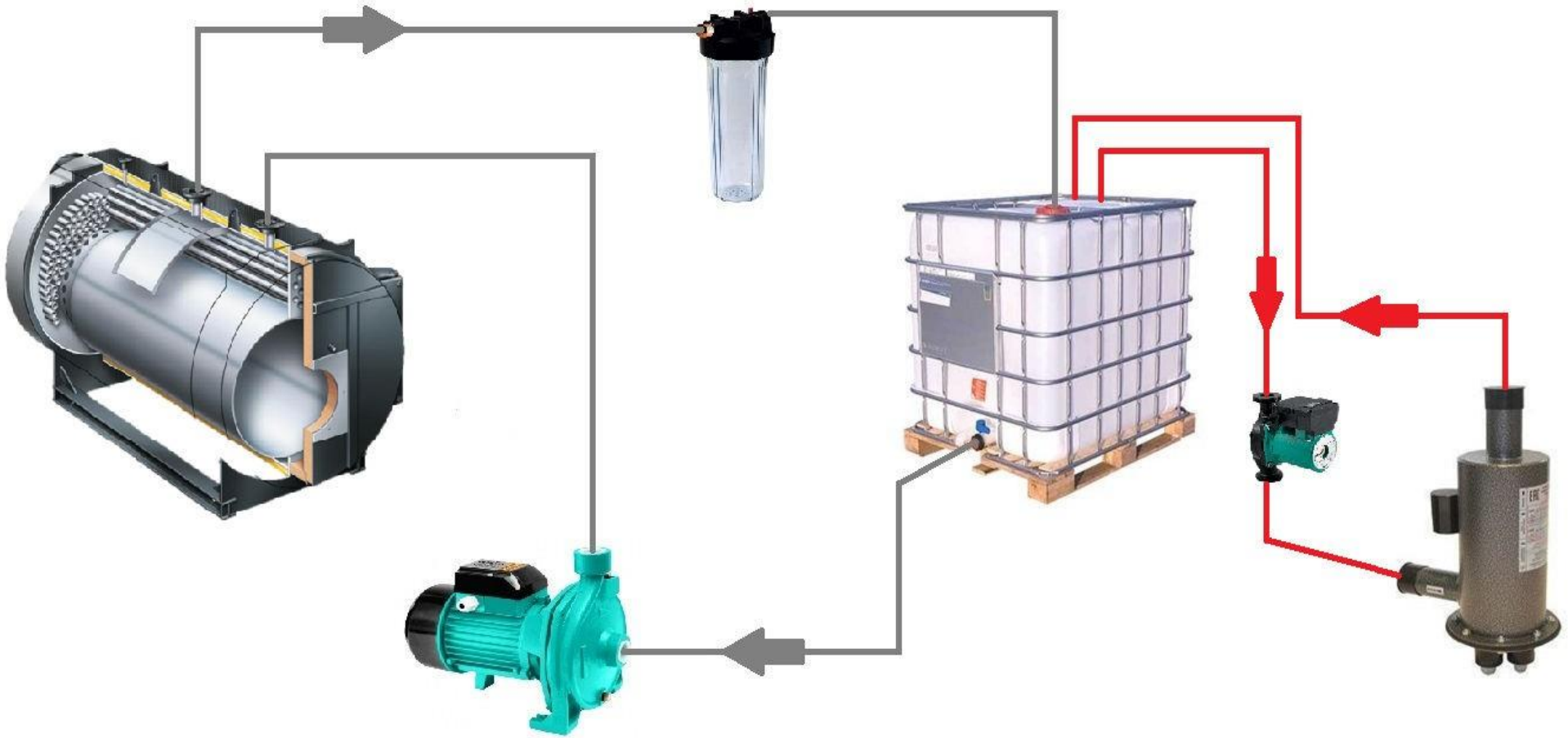
Bio solution circulates on the closed loop.

In the course of activity of bacteria cleaning from deposits takes place.

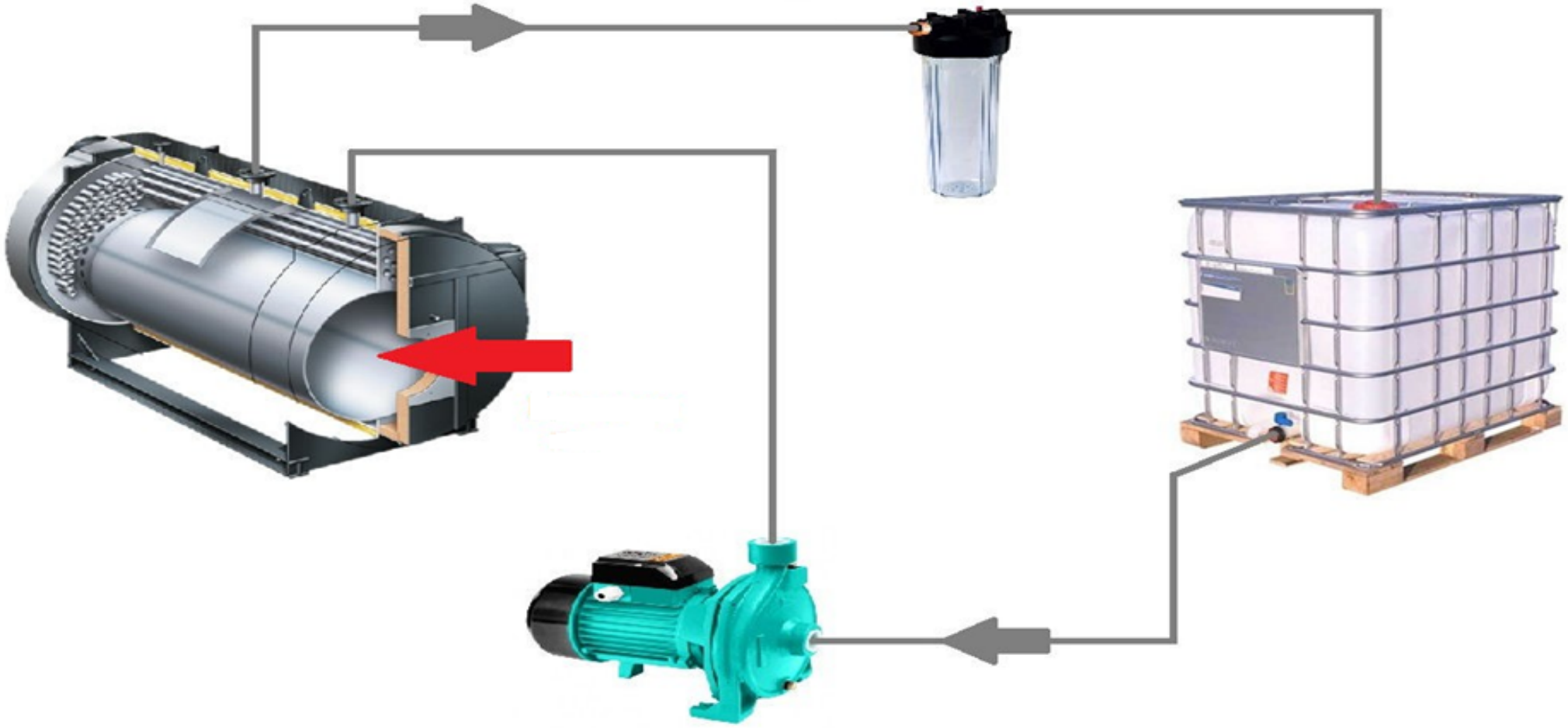


- Cleaning up to 98% of deposits from equipment
- Restoration of equipment working parameters up to passport values
- Increase of operation term for 2-3 times
- Decrease of service and operation costs of equipment
- Risk of capital repairs and replacement of the equipment decrease
- Keeping equipment and its components integrity

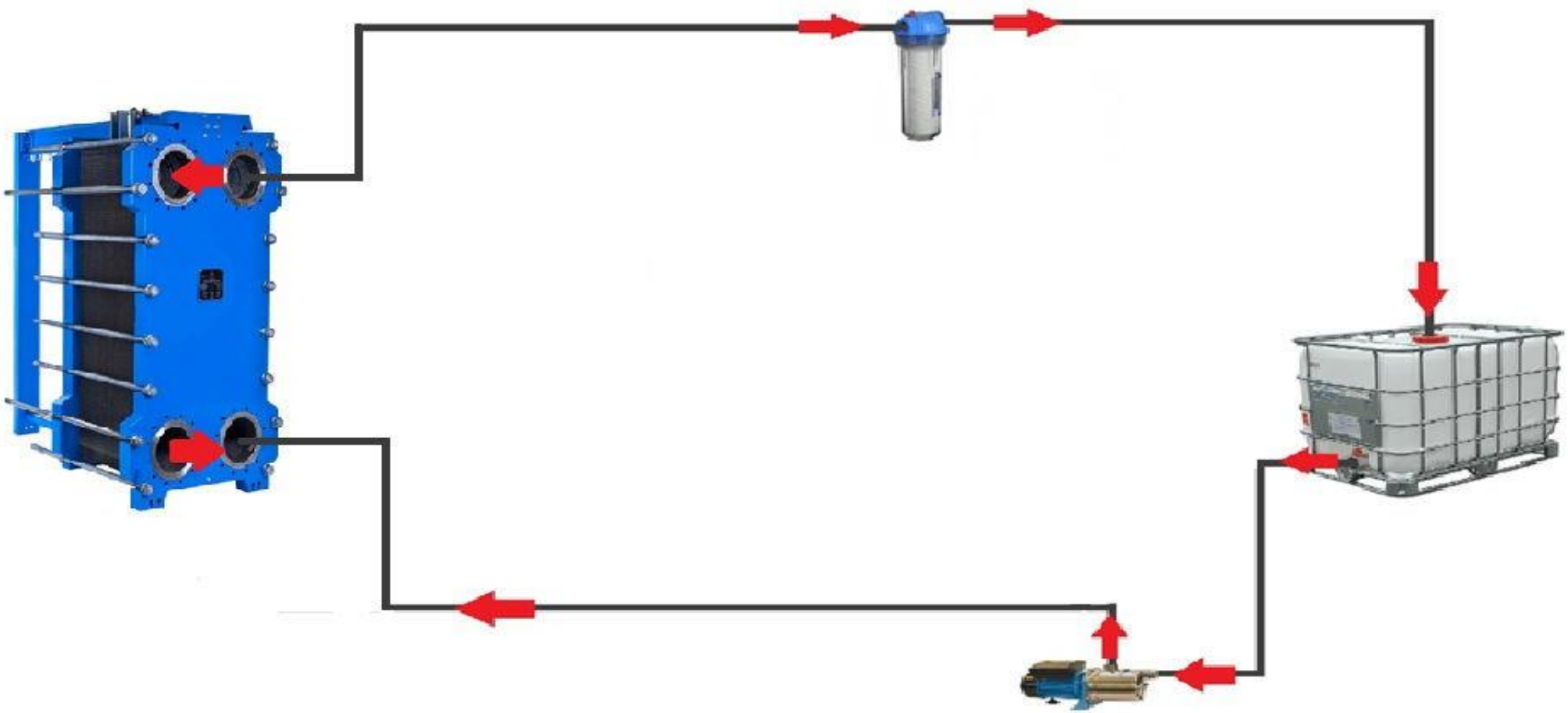
Scheme of cleaning the boiler with heating the working solution with an electric boiler



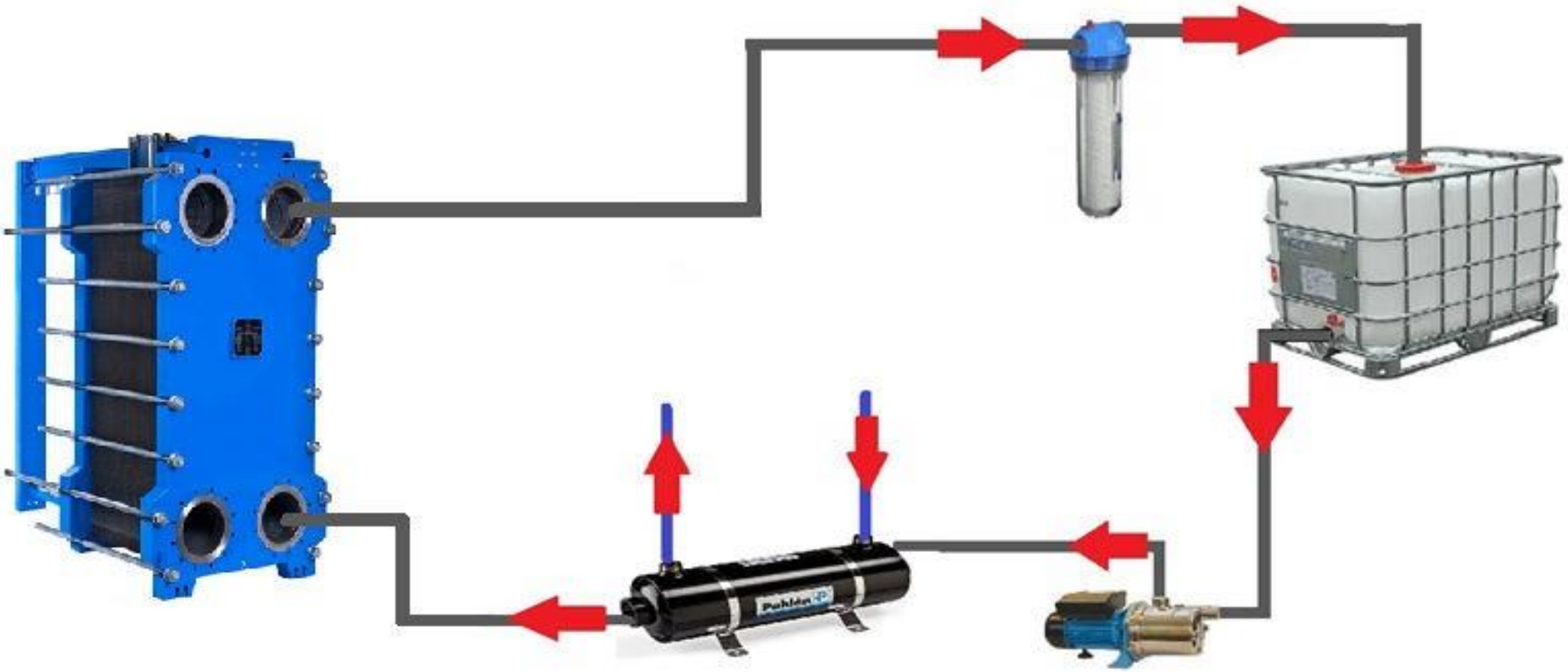
Scheme of boiler cleaning with heating of the working solution by the boiler



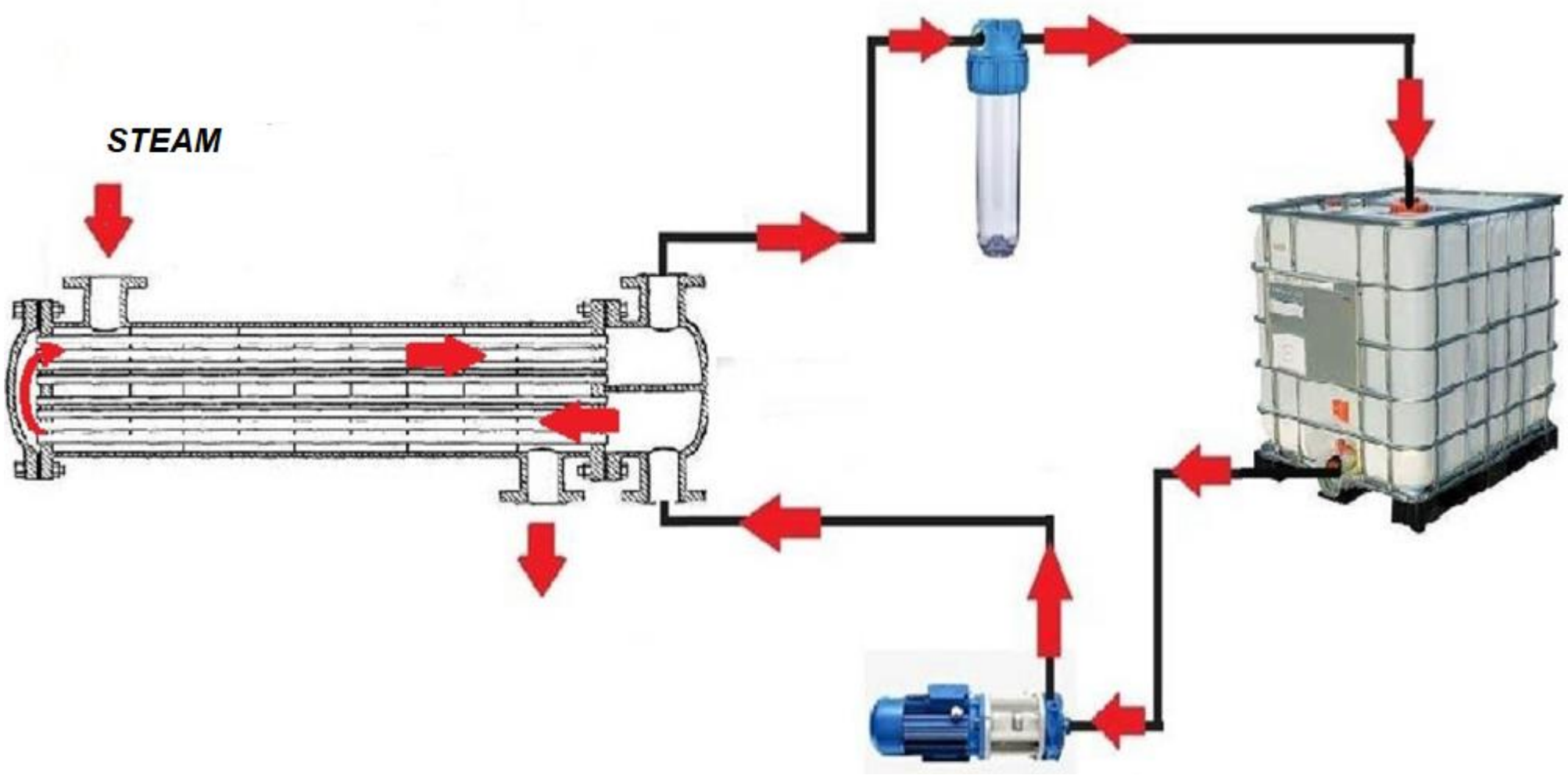
Heat exchanger cleaning scheme with heating of the working solution through the second circuit



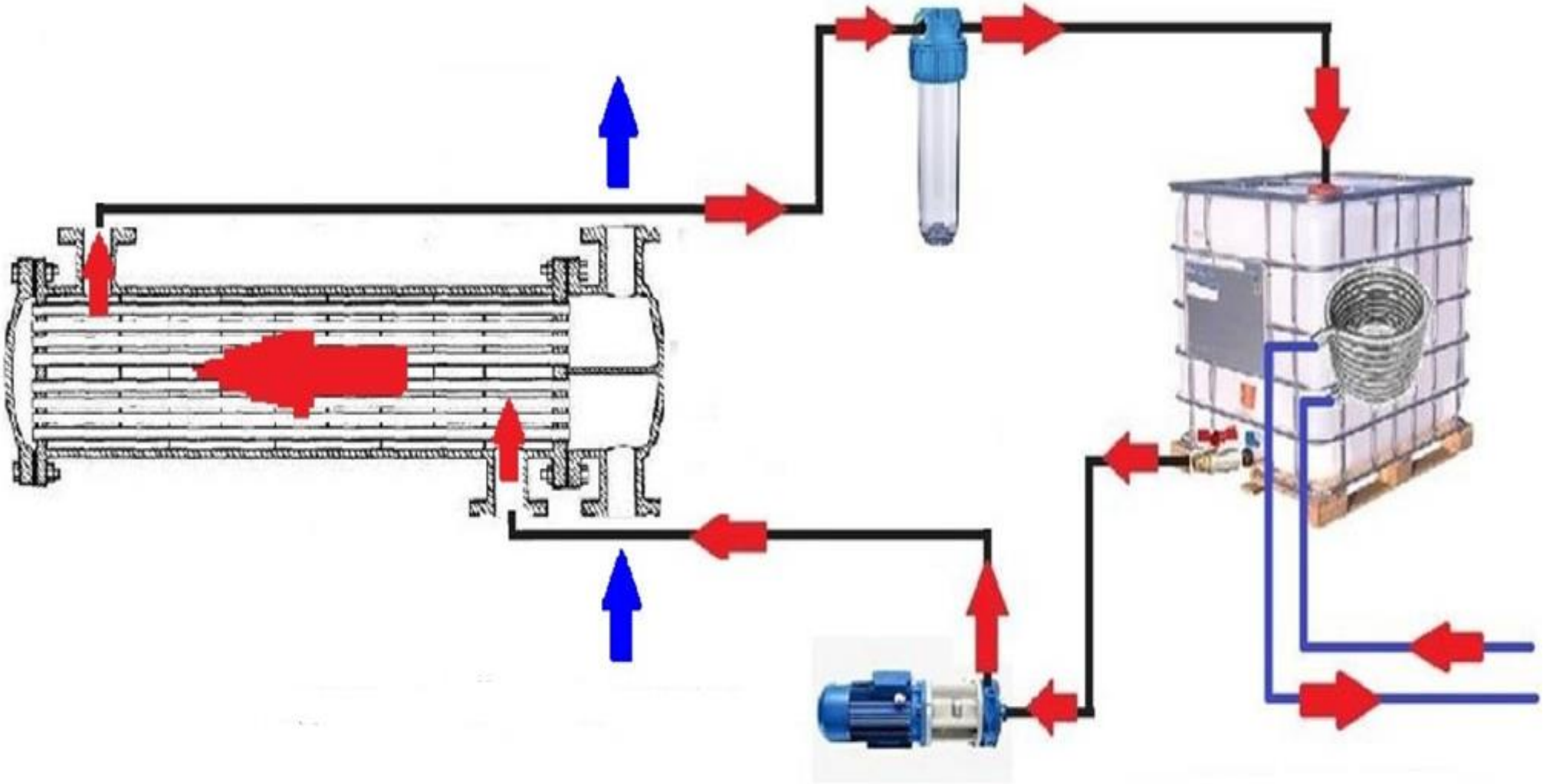
Heat exchanger cleaning scheme with working solution heating through a portable heat exchanger



Heat exchanger cleaning scheme with heating of the working solution through the second circuit



Scheme of cleaning the heat exchanger with heating the working solution from the electric boiler



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Cleaning biotechnology is

- The bio reagent consisting of strains of bacteria grown by a selection method
- Neutrality to metal, plastic, rubber laying and other materials
- Effective technology for cleaning thermal equipment
- Developed by the scientists group
- Safe for human health and animals
- Environment friendly product

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CLEANING BIOTECHNOLOGY FOR INDUSTRIAL EQUIPMENT, THERMAL DEVICES AND HEATING SYSTEMS

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Plate heat Exchanger, EPCOR, Edmonton

1. Ethylene glycol side plate
2. Steam side plate
3. Water side plate

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Reverse Osmosis Membrane Cleaning

Before

After

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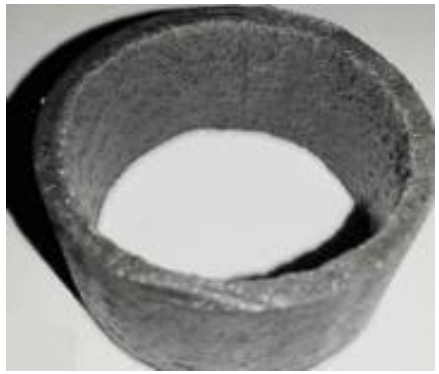
Tubular heat exchanger cleaning



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CLEANING BIOTECHNOLOGY

FOR INDUSTRIAL EQUIPMENT, THERMAL DEVICES AND HEATING SYSTEMS

Steam and water boilers

Heat Exchangers

Different markets effect

Heat production

- Increase in temperature of heat carrier at exit
- Decrease in thermal losses for up to 50%
- Decrease in fuel consumption for up to 30%
- Lack of costs of capital repairs and replacement of the equipment
- Decrease in payments for CO_2 emissions and emission of harmful gases to atmosphere for up to 25%.

Heat consumption

- Increase in temperature of heating devices for up to 20 °C
- Increase in thermal efficiency for up to 30%
- Reduction of client's expenses for heating

Industry

- Increase in production volume
- Reduction of prime cost of the made production
- Increase in thermal efficiency for up to 40%

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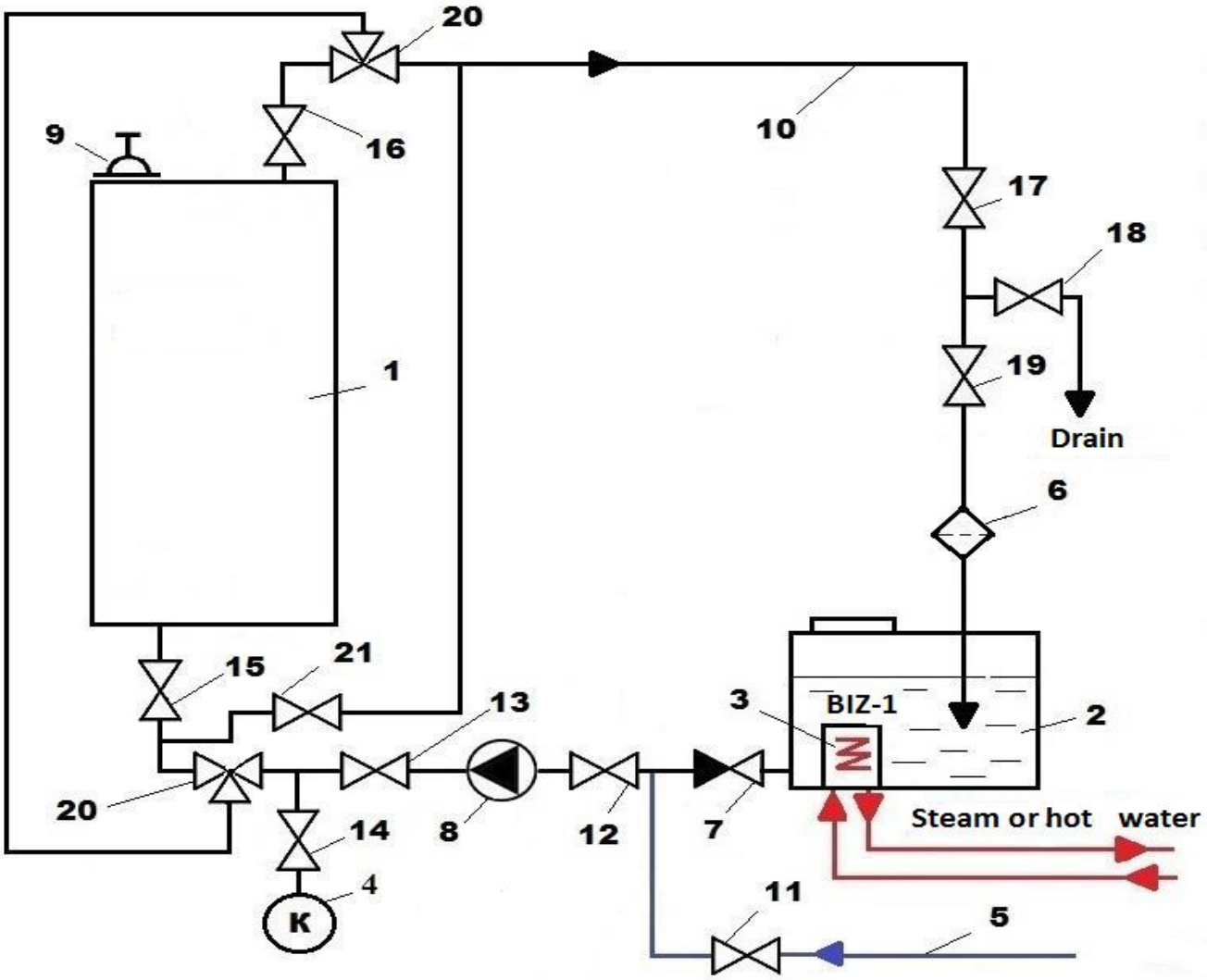
Schematic diagram.



1. Cleaning object
2. BIZ-1 Solution
3. Heater
4. Air Compressor
5. Make-up Solution
6. Filtration Unit
7. Return valve
8. Pump
9. Air valve
10. Connecting hoses
11-19. Shutdown valves
20. Three way valve
21. Return line valve

Operating Temperature:50-70 degree C. Ratio: solution BIZ-1 to water: 5-10%.

North America Contact Information

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