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The invention relates to installations for reduction of carbonate hardness caused by magnesium and calcium salts in the water and can be used for preventing formation of scale onto the inner surface of pipelines, in the heat supply systems.

The installation for automatic control of the water softening electromagnetic process includes a boiler (1), joined through a pipeline (2) with an electrochemical block (3) with rectifying device (4). Onto the pipeline (2) there are placed an electromagnetic coil (5), a pulse generator (6), a pH measuring transducer (7). The outlet of the pipeline (2) is connected to a heat exchanger (8), onto which it is installed a ultrasonic sensor (9). The heat exchanger (8) is joined through a pipeline (10), onto a branching of which it is installed an electromagnetic valve (11), a water electrical conduction sensor (12) connected to a conductivity apparatus (13) with degasser (14), in the lower part of which it is placed a ferromagnetic spherical packing (15), and on the outside thereof there is installed a solenoid (16) connected to an adjustable alternate-current source (17). The upper part of the degasser (14) is placed into an expansion tank (18) connected to a vacuumization system, including an ejector (19), a capacity (20) and a circulating pump (21), the expansion tank (18) is connected to an overflow pipeline (22), onto which it is placed a photoelectric sensor (23) connected to a turbidimeter (24), the outlet of the pipeline (22) is connected to a mechanical filter (25) with a floating granular charge, the outlet of the filter is connected to a return pipeline (26) equipped with an electromagnetic valve (27) connected to the second branching of the pipeline (10), equipped with a valve (28), as well as to the inlet (29) of the boiler (1). The installation also comprises a pH control unit (30), including a comparator (31) and a pH value control device (32), an electrical conduction control unit (33), including a comparator (34) and an electrical conduction value control device (35), a turbidity measuring unit (38), including a comparator (39) and a particle concentration control device (40), a scale formation control device (36), as well as a summing member (37), connected to devices (4, 36 and 39), the device (31) being connected to the generator (6) and the sensor (7), the device (34) – to the generator (6) and the conductivity apparatus (13), the device (39) – to the device (24) and the member (37), and the device (36) – to the sensor (9), the valve (28) and the summing member (37).

Claims: 1
Fig.: 1