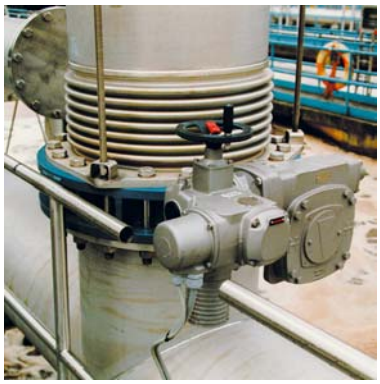
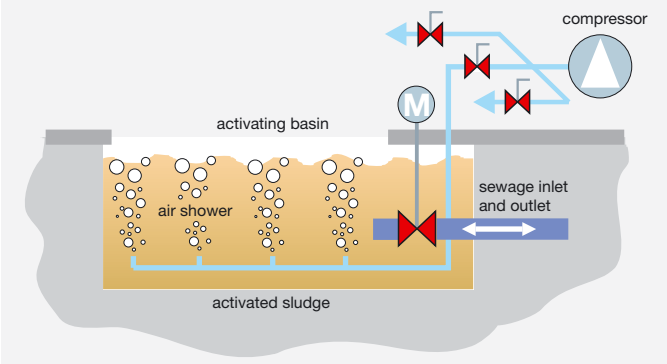
Sewage clarification plant / Sewage activating basin



During regeneration, compressed air is added to the settling basin beneath the surface. The intermediate and end valves used are metal butterfly valves. In addition to manually operated valves, automatic valves with motorized actuators are used. Sizes are from DN 80 to 1000 mm.

Application

Domestic sewage is discharged into the presettling basin where it is mechanically cleaned first. Then the prepurified sewage is conveyed to the activating basin. In the first phase, the nitrification phase, oxygen is added in the form of compressed air to support the growth of oxygen consuming bacteria to form what is known as 'activated sludge'. In a second phase, the denitrification phase, no oxygen is added making the previously strongly multiplied bacteria suffer from oxygen deficiency. They now have to utilise other oxygen compounds. Thus the chemical compounds of the nitrogen oxides are cracked and rendered harmless. In the last phase the sewage is placed into the final sedimentation tank where the remaining matters are precipitated by adding ferric chloride. In this process the heavier substances settle and the lighter substances float at the top and are skimmed off. Then the clarified water can be passed into rivers.



Plant technology

There are several large air pumps in a compressor house from where the air, which is compressed to 4 to 6 bar, is brought together in a collecting main and transported to the settling basin through a piping system. At the border of the basin the collecting main opens into a manifold from where it discharges into the sewage along the basin. Under the surface the compressed air is distributed in the whole basin by nozzles. Each pipe section and the individual feeding conducts are closed by butterfly valves. The compressor pipes and main distributors are equipped with motorized butterfly valves, the individual distribution pipes with manually operated butterfly valves. The sewage inlet and outlet is controlled by butterfly valves installed under water. Their gear is flooded and the motorized actuator is mounted outside the basin.

Solution

GEMÜ wafer-type butterfly valves in cast iron/epoxy coated (400 µm) with stainless steel discs and nitrile packing ring (NBR/Perbunan) in sizes DN 80 to 1000 mm. The butterfly valves up to DN 125 are manually operated by means of a lever, the larger sizes are motorized (AUMA SA series). They have a LUG design, those larger than DN 400 are in double flange design (U). The flange class is PN 10 (DIN).

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