

AutoFlot®

Mechanical Induced Gas Flotation Separator

WHITTIER FILTRATION



Whittier Filtration combines product innovation with industry experience to provide economical and effective operation in a number of filtration and water treatment applications.

Whittier Filtration, a Veolia Water Solutions & Technologies company, offers AutoFlot®, a Mechanical Induced Gas Flotation (IGF) separator. In this apparatus froth flotation occurs, which is the selective separation of solids and free oil based on the degree of surface hydrophobicity. The addition of cationic or anionic polyelectrolytes causes particles to be selectively adsorbed. This will render one particle type hydrophobic while the other stays hydrophilic.

Hydrophobic particles will attach to small air bubbles added into a mixture of oil, fine solids and water, and will float to the surface as a froth and are skimmed into a launder. The introduction of air is performed by

a mechanical device or agitator that creates and distributes fine air or gas bubbles.

The intensity of agitation required will determine the results of the separation. AutoFlot® agitators are designed to impose the ideal intensity to each chamber, making our units highly efficient. This process of creating and dispersing bubbles is called mechanical induction.

The AutoFlot® tank is constructed to provide a total water retention time of

four minutes. The total volume of the tank is divided into four chambers, or cells; therefore, the hydraulic retention time is expressed as one minute per cell. The AutoFlot® unit includes inlet and outlet chambers.

IGF oil water separation units typically form part of a treatment train to reduce free oil and solids by 90-95% with maximum inlet concentrations of 200 mg/l of free oil and less than 100 mg/l of total suspended solids.



Solutions & Technologies

WHITTIER FILTRATION

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AutoFlot® Mechanical Induced Gas Flotation Separator

The AutoFlot® unit is a horizontal vessel. Each cell and outlet box is separated by a diaphragm. The diaphragms are metal plates welded to the sides of the vessel and are open across the bottom and top for free water passage across the bottom and air/gas across the top. Positioned on each side of the vessel is a skimming compartment, also referred to as launder.

Mounted on top of and inside each cell is the rotating air induction mechanism. The mechanism's main components are a draft tube, shroud, and shaft with a specially constructed impeller. The entire mechanism assembly is bolted and sealed to the top of the vessel. Standard metallurgy is 316/316L stainless steel. We possess the flexibility to accommodate to any special requirement; for example, we have also built mechanisms in monel. Each mechanism is belt driven by its own electrical motor.

Mounted within each of the launders is a skimming shaft that runs the full length of the vessel. On each shaft and at each cell are a series of adjustable skimming paddles. Typically, there will be six paddles in the first cell and four in each of the three remaining cells. Externally mounted electrical motors drive the skimming mechanisms. Each cell and the outlet box are equipped with a pair of fast opening doors. These doors can be opened to offer visual observance of the flotation and skimming operation. External to the vessel the flotation system may include piping, associated valves, instrumentation, control panel, and a chemical (polymer) feed system.

The AutoFlot® separator may be a self-contained system with its own controls, or it could be equipped with transmitters to send signals to a control panel that oversees a complete treatment system.



AUTOFLOT® Model	Capacity in bpd	Capacity in m3/hr
Model 7	7,200	52
Model 11	10,971	73
Model 17	17,143	114
Model 26	25,714	170
Model 38	37,714	250
Model 55	54,857	364
Model 79	78,857	523
Model 117	116,571	773
Model 171	171,429	1136