

DISSOLVED AIR FLOTATION



DAF System at Purdom Power
Generation Plant in Tallahassee, FL

The Davco Products Dissolved Air Flotation (DAF) system separates and removes suspended and colloidal solids, as well as fats, oils, and grease from liquid. Designed to meet the needs of a wide variety of industrial markets including food processing, refining, metals, mining, pulp and paper, chemicals, tanning, and others, the DAF system is also used in municipal applications as a sludge thickener.

Advantages of Circular Tanks Over Rectangular Tanks

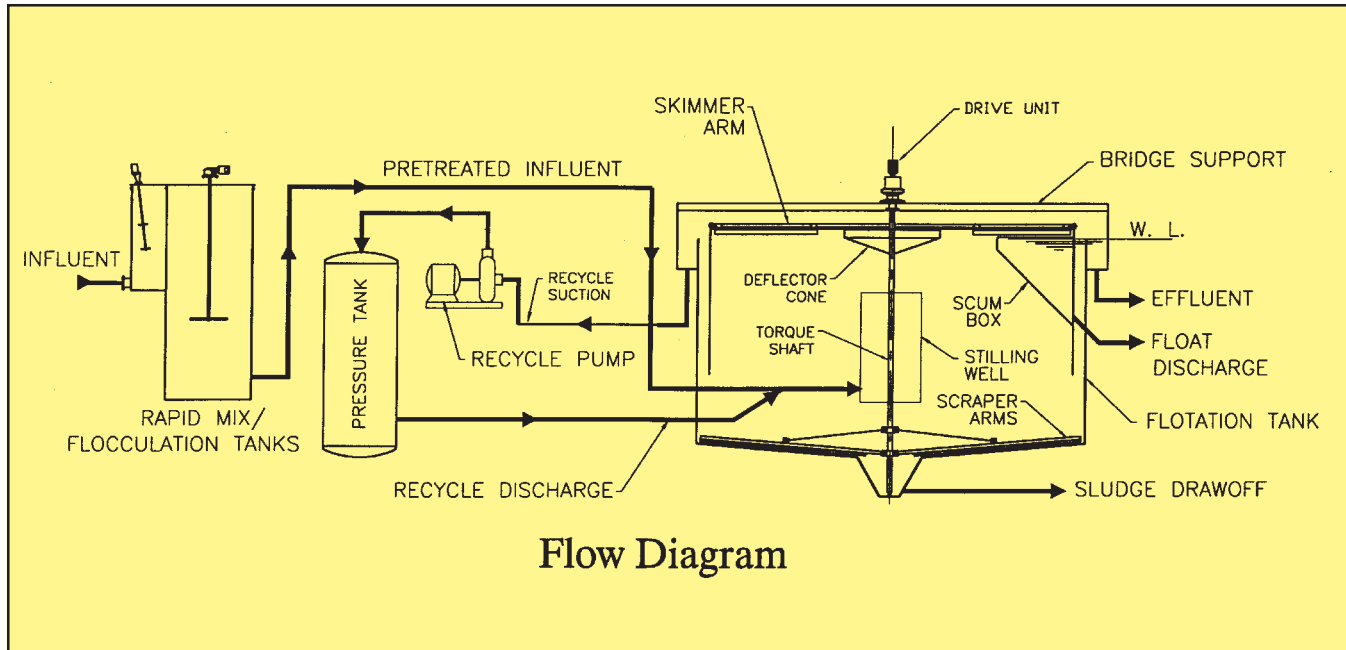
- Minimized maintenance due to fewer moving parts, no submerged bearings, sprockets, or chains.
- Flexible nozzle orientation.
- Lower installed costs.
- More complete separation due to varying velocity through the tank.

DESCRIPTION

Davco Products circular DAF units are available as packaged, modular, or field-erected systems. Packaged and modular units are available from 8 ft. to 20 ft. in diameter. Packaged units are prefabricated in the shop and shipped complete to the Customer. Modular units are prefabricated but are shipped to the jobsite in two or three sections to minimize field installation costs. Field erected units are partially assembled and then erected and painted at the jobsite. Internal components are also available for concrete flotation basins.

Davco Products standard DAF systems are fabricated of A-36 steel with wetted surfaces coated with coal tar epoxy. Stainless steel construction is available. The ASME code designed recycle pressurization tank operates under both air and water pressure. Davco Products offers field installation of the components and systems, providing the end user with true single source responsibility. Start-up and operator training are provided by a technical service representative who will train the customer's personnel on the safe, efficient and cost effective operation and maintenance of the equipment.

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FEATURES AND BENEFITS

The principal parts of a Dissolved Air Flotation system are a flotation unit, recycle/pressurization system, NEMA 3R control panel, interconnecting piping and valves. This system contains several features and additional benefits. The collector assembly in the flotation unit serves a dual purpose as a **bottom sludge scraper** and a **surface skimmer**. The collector assembly does not utilize difficult to maintain underwater bearings. Instead, it is suspended from a top mounted flange block bearing. The collector mechanism drive is coupled directly to a variable speed motor with protection against overload. The recycle/pressurization unit contains a pressure tank that provides optimum saturation of air into the recycle water; a recycle pump and an air injection system. Finally, the specially designed pressure

control valve releases the pressure immediately prior to discharge into the mixing well, preventing the premature release of dissolved air. Fine bubbles are released in the mixing well to attach to solid particles for flotation.

All working components requiring periodic maintenance, such as bearings, drives, etc., are located above water or outside the vessel for ease of maintenance.

OPTIONS

Several functional options for the DAF include:

1. Rapid Mix: When chemical dosing is necessary for solids coagulation, a high speed mixer and tank can be supplied.
2. Flocculator: To insure proper flocculation time following the rapid mix cycle, a flocculation tank with a variable speed flocculator can be provided.
3. Chemical Feed System: Single or

multiple chemical feed system(s) may be required for the conditioning of an industrial waste liquid or for sludge thickening. Chemical feed systems can be supplied based on the design requirements of the project.

4. Float holding tank: The float holding tank can be used for float handling or float conditioning prior to discharge.

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