The RF Series flotation unit is a low-built, open tank separator for dissolved air assisted separation of free and/or flocculated solids from water/wastewater.

The process water or wastewater enters the RF Series unit via a distribution manifold to evenly spread the flow across the entire width of the system. As the water passes through the manifold, it is injected with a side stream of clarified recirculation water. This recirculated stream contains air dissolved under pressure by a special multistage turbine pump. When this super saturation of dissolved air is released into the raw wastewater at atmospheric pressure, the air comes out of solution and forms bubbles of 30-50 micron in diameter. These small bubbles attach to equally sized or larger solids particles (floc) and give them buoyancy to float to the surface of the tank.

Each unit is equipped with a duplex aeration/recirculation system and pneumatic control system. Two recirculation pumps are installed; one for the operation of the unit and the other as an installed ready-to-go standby. The pneumatic control panels contain the pressure switches, solenoid valves, pressure gauges and rotameter necessary for aeration system control and maximized efficiency.

The DAF system utilizes an aeration header equipped with multiple aeration lines that allow for homogeneous distribution of the micro-bubbles into the water or wastewater being treated. The aeration header is also equipped with a bleed-off valve to prevent any undissolved air from entering the separator. If a flocculator is installed in conjunction with the flotation unit, part of the recycle flow can be diverted to the flocculator to introduce air bubbles into the water/wastewater during floc formation prior to the DAF. The water leaves the distribution manifold and enters the main body of the unit where it is evenly dispersed across the width of the unit. Fast rising particles go immediately to the surface, while slower rising floc is separated in the open tank polishing zone. Settling solids are separated in a 90 degree cross flow plate pack zone.

The flocculated solids accumulate in a floating surface layer on the top of the DAF system tank. This floating layer is removed from the unit with a unique dewatering/skimming device. The sludge/water interface is within a specially designed static dewatering grid which allows the floating sludge to partially dewater before it is sliced off the top by skimming blades. The thickness of the floating layer may be adjusted by entering the raising or lowering height of the outlet weir. This simple adjustment allows one to obtain the optimum level of float dewatering prior to removal from the DAF unit.

**ADVANTAGES:**
- High solids loading rates
- Micro air bubble flotation
- Highly concentrated skimmings
- Full length skimmer system with static dewatering grid
- Large effective separation surface
- Laminar flow in plate packs
- Concentrated settled solids with automatic discharge
- Single point settled solids accumulation with auger system
Heavy rejects sink to a "V" bottom where they are concentrated and conveyed by a shaftless auger system to a drain valve that is periodically opened using a timer and an automatic, pneumatically controlled valve. The valve is opened for a short period of time (i.e. 5-10 seconds) and the head of the water in the DAF tank flushes any collected settled solids from the drain by gravity. The DAF system continues to run throughout this automatic process.

The clarified water flows to the end of the unit, under a baffle and spills over an adjustable weir along the end of the system. A portion of this clarified water will be drawn into the recycle system and returned to the system inlet for mixing with the incoming waste stream. The RF Series DAF is capable of running in either manual or automatic modes. The automatic mode allows for the system to utilize pre-set start-up and shutdown sequences to allow for unattended efficient control.

The system controls consist of a NEMA 4X stainless steel electrical control panel and a separate pneumatic control panel. These panels work together and can be tied into ancillary equipment controls for automatic system operation. The NEMA 4X stainless steel electrical control panel comes complete with motor starters with fuse protection, switches, disconnect and terminal connections to tie into existing equipment.

For more information contact us to discuss your system requirements.

*Capacity and influent may vary due to solids loading.