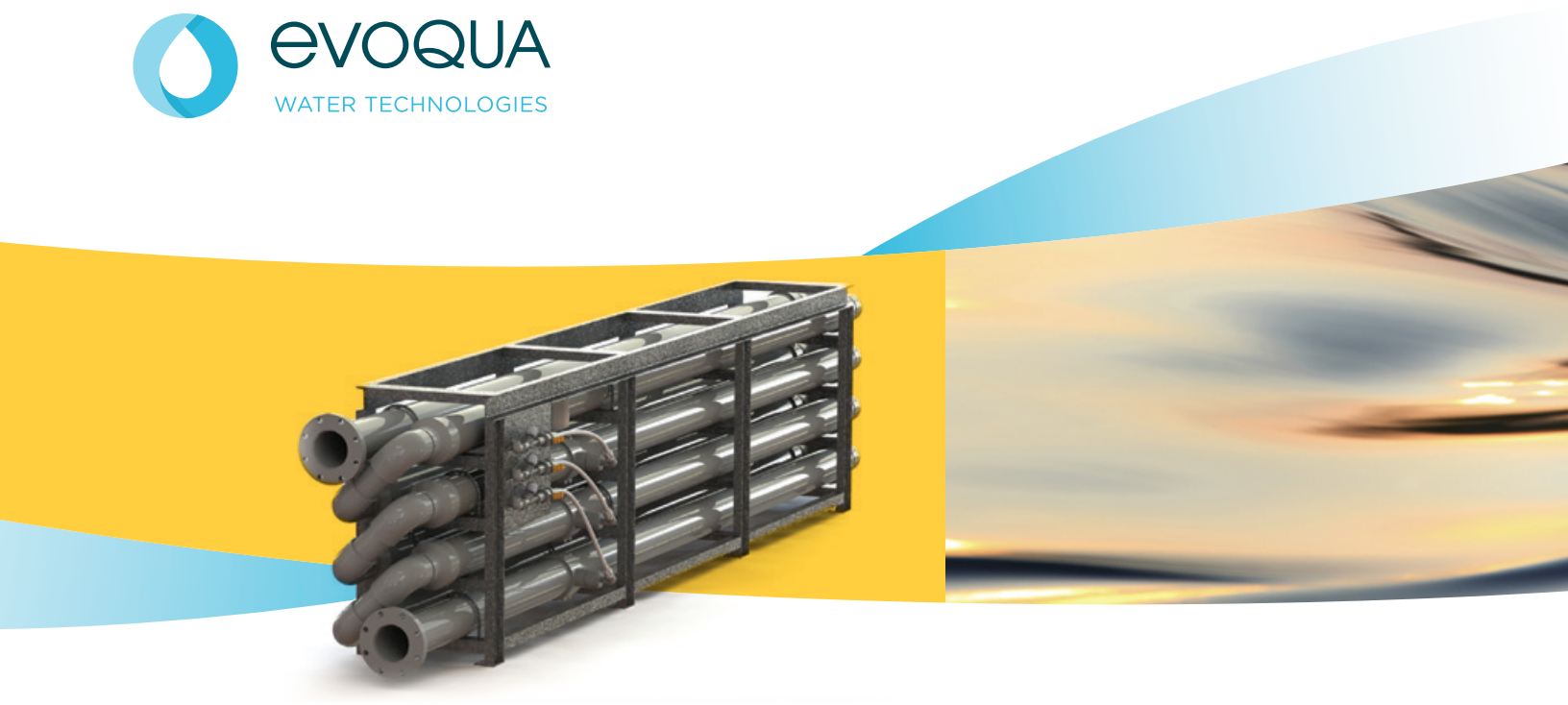
evoqua
WATER TECHNOLOGIES

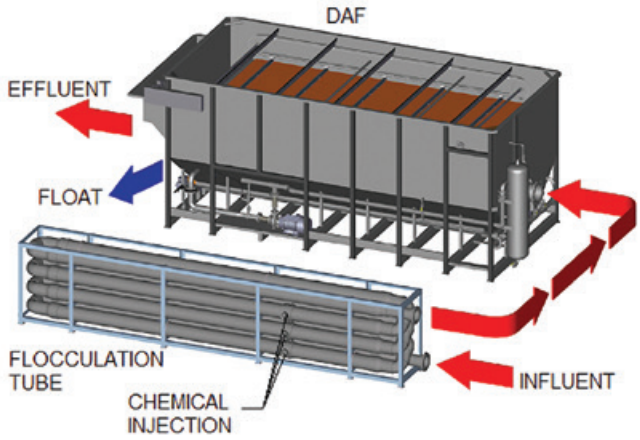


FT-SERIES FLOCCULATION TUBE SYSTEMS

DESCRIPTION

Evoqua's FT-Series Flocculation (Floc) Tube systems are hydraulic flocculators that use the energy of the wastewater flow to mix the wastewater with chemicals, encouraging coagulation and flocculation. Floc tubes are commonly used prior to dissolved air flotation (DAF) systems. The floc tube is constructed from PVC, CPVC or Stainless Steel pipe, with each unit having pipe of two different sizes to improve performance over a wider range of flows. The larger of the two pipe sizes is used in the straight pipe runs to provide gentle mixing and increase the hydraulic retention time. The turns are constructed using the smaller pipe size to increase mixing and backmixing.

Another important feature of FT-Series floc tube systems is that they are constructed from smooth wall pipe with no internal parts. Therefore, they are virtually clog-free, in contrast with other manufacturers' floc tubes featuring static mixers. This can be very important in industries that may have large solids, rags, gloves, or other debris in the wastewater.



APPLICATIONS

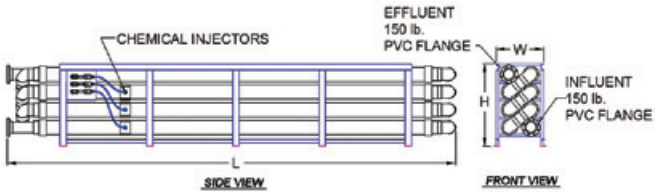
FT-Series Floc Tube systems are used for a variety of applications where chemicals are mixed with waste streams to facilitate coagulation and flocculation prior to a separation process:

- RT-Series Dissolved Air Flotation (DAF) Systems
- Fine Screening
- Belt Filter Presses
- Gravity Belt Thickeners

THE FT-SERIES

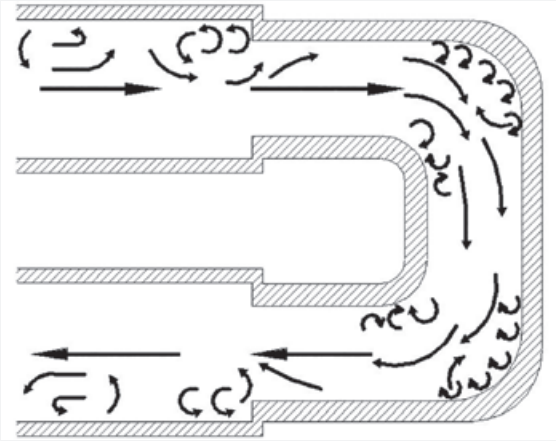
The table below lists the recommended flow ranges and dimensions of standard floc tubes. Alternate configurations can be designed if needed. Models FT-43 and smaller use Schedule 80 PVC pipe, while larger models use Schedule 40 PVC pipe. Floc tubes for higher temperature flows can be constructed with CPVC or 304 or 316 stainless steel piping. Standard frames are constructed from galvanized carbon steel and may be provided in stainless steel if desired. The units come with a standard of three injector ports complete with check valves and shut-off valves. The units can be customized with additional injectors and sampling ports with various orientations.

				Dimensions		
Model	Pipe Size	Minimum Flow	Maximum Flow	Length L	Width W	Height H
FT-21	2″ x 11/2″	20	50	90″	24″	23″
FT-32	3″ x 2″	40	110	114″	24″	32″
FT-43	4″ x 3″	90	200	140″	24″	32″
FT-64	6″ x 4″	160	450	207″	27″	43″
FT-86	8″ x 6″	350	800	282″	32″	50″
FT-108	10″ x 8″	600	1300	293″	36″	64″
FT-1210	12″ x 10″	900	2000	299″	43″	71″



THEORY OF OPERATION

Most of the mixing action in the floc tube is achieved in the turns, pipe restrictions, and expansions, as shown in the figure below. The restriction and expansion of pipe size causes additional turbulence and numerous eddies in the flow pattern. These eddies, when combined with the changes in flow direction at the elbows, disrupt the velocity gradient and flow patterns, providing significant radial mixing as well as axial backmixing. Backmixing helps to distribute pulsed chemicals more evenly while providing the agitation necessary for effective flocculation. In addition, some radial and axial mixing is achieved in the straight sections due to the turbulence of the fluid in the pipe. Evoqua floc tubes are sized so that flow in the straight sections is well into the turbulent flow regime (N_{Re}>50,000).



CONTACT EVOQUA FOR INFORMATION ON OTHER WASTEWATER TREATMENT PRODUCTS INCLUDING:

- RT-Series Dissolved Air Flotation (DAF) Systems
- Hellbender® Mix Tank Systems
- Hellbender® DAF Pumps and Whitewater Systems
- pH Control Systems

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