

INFILCO

SUPERPULSATOR® Clarifier



LOW ENERGY

HIGH-RATE
CLARIFIER

SOLIDS CONTACT
SYSTEM

LOW
MAINTENANCE

← Applications

- Drinking Water Clarification
- Membrane Pretreatment
- TOC and Color Removal
- Industrial Process Water
- Conventional Basin Retrofit



The Superpulsator® Clarifier combines basic chemical principles and proven clarification technology in a high-rate, solids contact clarifier that offers maximum efficiency. This unique design combines flocculation and clarification functions in one basin for optimal use of space. Vacuum generated flow pulsations create a homogeneous sludge blanket that results in excellent effluent quality at minimal operating costs.

MAIN FEATURES

- No submerged moving parts
- Optimal flocculation and chemical usage
- Corrosion resistant materials
- Low energy requirement

- Minimal operator attention
- High-rate, compact system



SEPARATION TECHNOLOGY - Superpulsator® CLARIFIER

The Superpulsator® Clarifier combines the principles of a sludge blanket and solids contact system into a single, high-rate, clarification unit. Capable of removing turbidity, color, TOC

and other constituents in both municipal and industrial water applications, the Superpulsator® treats billions of gallons of water per day in hundreds of installations throughout the world.



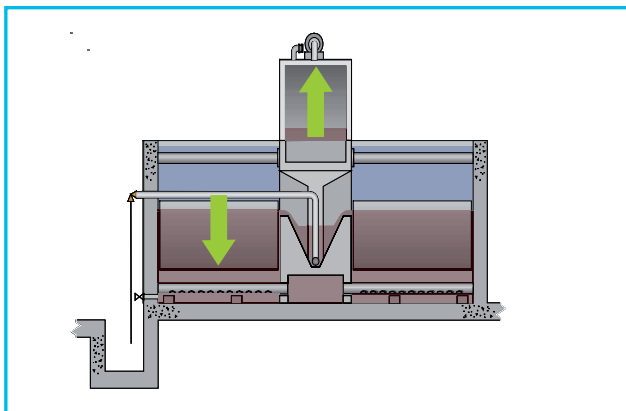
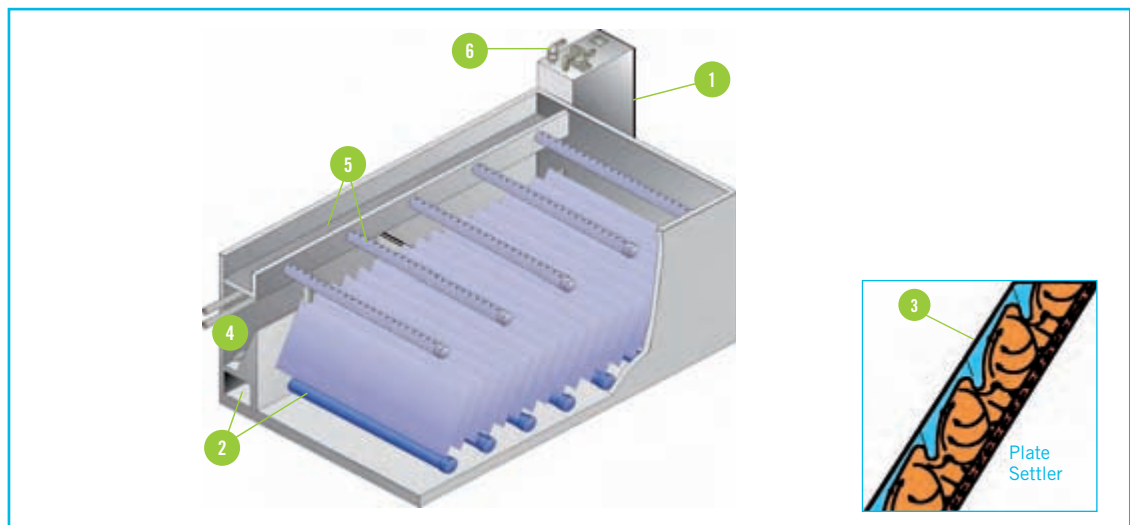
THE SLUDGE BLANKET PROCESS

- 1 **RAW WATER INLET:** Coagulated water from a rapid mix system is transferred to the SuperPulsator vacuum chamber.
- 2 **DISTRIBUTION:** The base of the vacuum chamber is open to a tapered distribution channel where coagulated water is uniformly distributed to a series of laterals. Orifices in the distribution laterals point downward to promote scouring of the basin floor and impart energy for flocculation.
- 3 **SETTLING PLATES:** Flocculated water is directed upward through a series of inclined settling plates spaced on 13 centers. A 10-ft high sludge blanket is retained from the basin floor and between the settling plates. The sludge mass is directed downward on the front side of the settling plates. Lighter particulate is circulated between the plates, promoting internal solids contact. The lighter solids are continually swept up by the downward moving slurry.
- 4 **SLUDGE REMOVAL:** An internal sludge concentrator collects sludge on a sludge blanket expansion. Each sludge collector header is opened upon a prescribed frequency and duration in the control panel. The operating head over the sludge pipes allows the sludge to be removed by gravity.
- 5 **COLLECTION:** Clarified water is collected uniformly across the length of the settling area. Submerged orifice laterals convey clarified water to a center collection trough.
- 6 **PULSING ACTION:** The heart of the system is a vacuum pump and vent valve assembly. A prescribed frequency and duration controls the vent valve atop the chamber, creating subtle pulsations of the sludge blanket in the settling area.

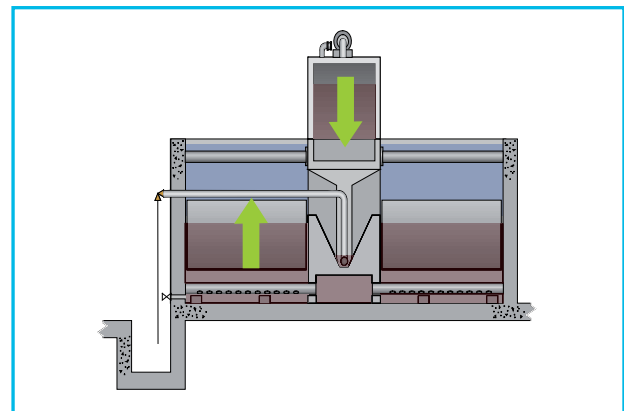
Pulling a Vacuum – With the vacuum chamber closed to atmosphere, the vacuum pumps draws a small column of water in the chamber. This pulls a small portion of the influent water from the settling area, resulting in a “contraction” of the sludge blanket.

Venting – With the vacuum chamber vented to atmosphere, the water level in the chamber drops, sending a small volume of water down the distribution chamber. The result is sludge blanket expansion.

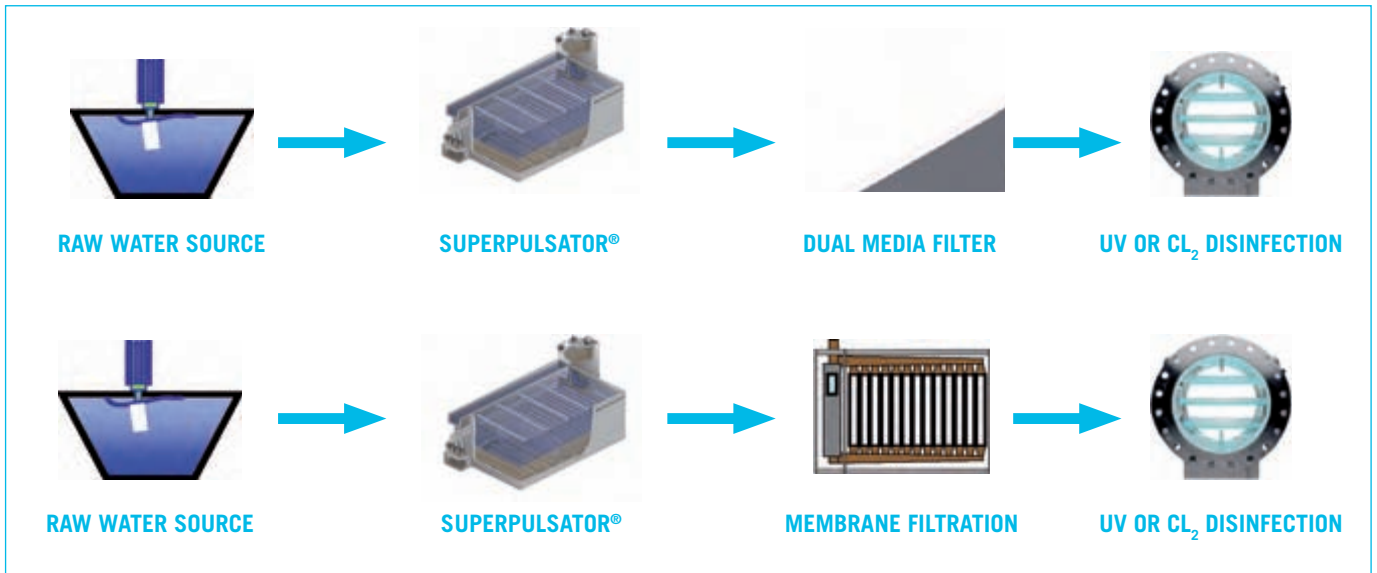
The net result is pulsing sludge blanket, combining flocculation, clarification and sludge collection into one compact system.



VACUUM
Blanket Contraction



VENTING
Blanket Expansion



APPLICATIONS OPTIONS

PERFORMANCE ADVANTAGES

- Clarified turbidity of < 1-2 NTU
- Ability to handle high raw solids (0 to 2000+ NTU)
- Up to 60% TOC removal
- Low energy requirement (~1 HP per MGD)
- No submerged moving parts
- Integrated flocculation/clarification in one unit
- Ability to add settling tubes for increased capacity
- Hundreds of installations in the Pulsator family

DESIGN SPECIFICATIONS

Superpulsator® Layout Option	Single Unit Capacity 2.0 - 4.0 gpm/ft ²
	MGD
SP Version I	0.5 to 4
SP Version II	4 to 10
SP Version III	7 to 20
SP Version IV	15 to 35

DESIGN OPTIONS

- Type “U” Model - Upgrade with settling tubes for additional capacity
- Package Systems - Six standard package units from 100 to 700 gpm (with or without filters)

Technical Features

- Flexible layout options
- Customize to any site plan
- Loading Rates: 2.0 to 4.0 gpm/ft²
- Polymer free at reduced loading rates
- Settling plate widths up to 20 feet
- Unit height 16 to 18 feet
- Retrofit existing sedimentation basins
- Retrofit circular clarifier basins
- Common-wall layout with our Greenleaf Filter

COMPLETE TREATMENT SOLUTIONS

Infilco Degremont offers an array of water, wastewater and industrial treatment solutions for any size client. Headworks, clarification, filtration, biological and disinfection systems are several of the product disciplines in our portfolio.

If interested in this product, check out some of the complementary SEPARATIONS products:

- AquaDAF® Clarifier
- Accelator® Clarifier/Softener
- Greenleaf Filter System
- Tetra™ Block Underdrains
- DensaDeg® Clarifier/Thickener

PILOTING SERVICES

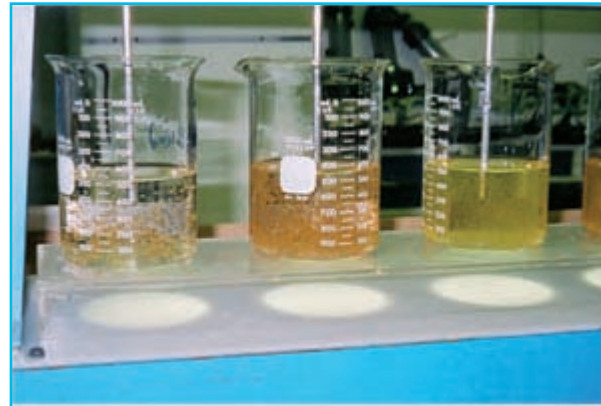
Infilco offers pilot systems and services for the equipment in this brochure as well as many of our other product offerings. Pilot studies are a practical means of optimizing physical-chemical and biological process designs and offer the client several benefits, such as:

- Proof of system reliability
- Optimal design conditions for the full-scale system
- Free raw water lab analysis
- Regulatory approval

If interested in a pilot study for your system, please contact us for a proposal.

With a variety of filtration and clarification products in our SEPARATIONS department, Infilco engineers carefully evaluate each application to provide the most cost-effective and efficient treatment solution.

- ABW® Automatic Backwash Filter
- PulsaPAK® Package Clarifier/Filter System
- AquaPAK® DAF - Package Clarifier/Filter System
- AccelaPAK® - Package Clarifier/Softener/Filter



SERVICES INFILCare®

Part Sales

Infilco Degremont sells parts and components for most INFILCO brand equipment as well as parts for demineralizers, thickeners, nozzles, pressure filters, and valves. We offer reliable spare parts at competitive prices. We maintain records of previous installations to quickly identify your requirements. Many items are shipped directly from stock for quick delivery.



Rebuilds, Retrofits and Upgrades

Infilco Degremont offers cost-effective rebuilds and upgrades for INFILCO provided systems, no matter what year they were built. If you are interested in an economical alternative to installing a whole new system, contact us for a proposal.



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