

# Superpulsator<sup>®</sup> high-rate sludge blanket clarifier

industrial process & drinking water

→ **APPLICATIONS**

- surface water clarification
- membrane pretreatment
- TOC & color removal
- conventional basin retrofit

→ **FEATURES**

- no submerged moving parts
- corrosion resistant materials
- low-energy requirements

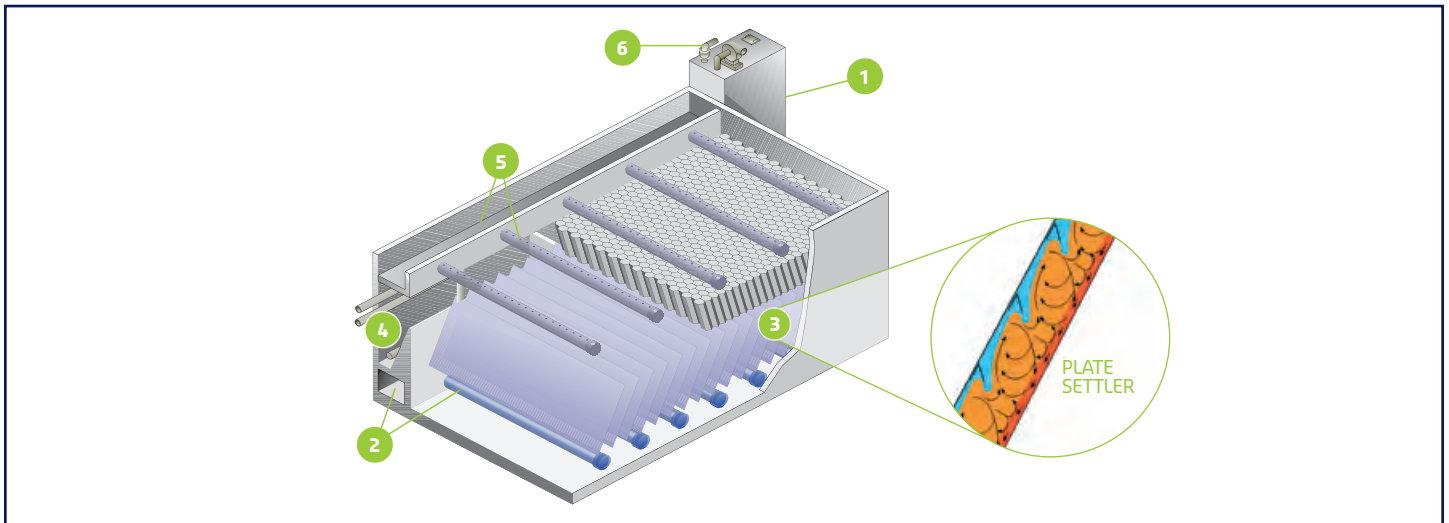
combines inclined-plate settling,  
sludge blanket and solids-contact  
principles to achieve maximum  
efficiency

ready for the resource revolution

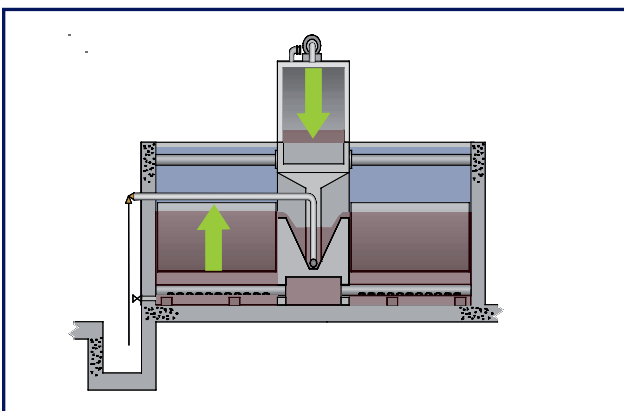


# the sludge blanket process

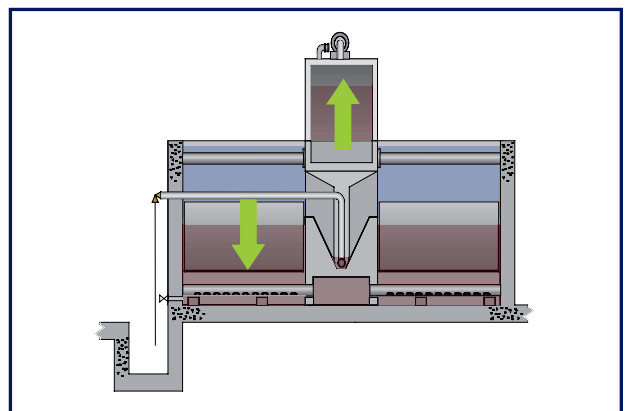
- 1 raw water inlet:** Coagulated water from a rapid mix system is transferred to the SuperPulsator vacuum chamber.
  - 2 distribution:** The base of the vacuum chamber is open to a distribution channel where coagulated water is uniformly distributed to a series of laterals. Orifices in the distribution 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. 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 concentrator collects sludge during sludge blanket expansion. Each sludge collector header discharges on a prescribed frequency and duration set 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.
- vacuum** – With the vacuum chamber closed to the 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 channel. 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 EXPANSION



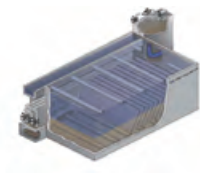
VACUUM  
BLANKET CONTRACTION



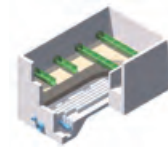
## Superpulsator® applications options



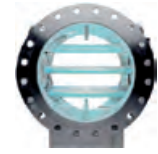
RAW WATER SOURCE



SUPERPULSATOR®



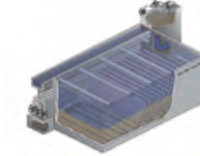
DUAL MEDIA FILTER



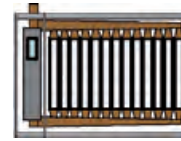
UV OR CL<sub>2</sub> DISINFECTION



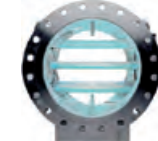
RAW WATER SOURCE



SUPERPULSATOR®



MEMBRANE FILTRATION



UV OR CL<sub>2</sub> DISINFECTION

## 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 <sup>2</sup>
	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

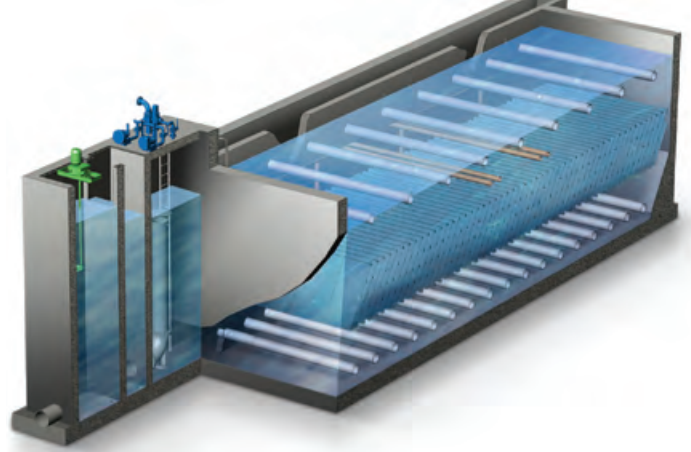
- **Type "U" Model** - upgrade with settling tubes for additional capacity
- **Package Systems** - six standard package units from 100 to 700 gpm (with or without filters)

## technical features

- flexible layout options
- customize to any site plan
- loading rates: 2.0 to 4.0 gpm/ft<sup>2</sup>
- 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

# Superpulsator®

high-rate sludge blanket clarifier



## integrated treatment solutions

As a full treatment line specialist, SUEZ draws upon a broad portfolio of proven technologies to assist industries and municipalities meet their water and waste water treatment challenges. We provide integrated equipment solutions and services for a wide range of applications:

- industrial water and wastewater
- municipal drinking water
- municipal wastewater
- biosolids management

We also offer global expertise in the design, build, operation and maintenance of water treatment plants and systems, all delivered to your specific demands.

## services

### Aftermarket

SUEZ in North America sells parts and components for most SUEZ 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

SUEZ in North America offers cost-effective rebuilds and upgrades for SUEZ 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.

## piloting

SUEZ in North America offers pilot systems and services for this and many other of our 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
- raw water lab analysis
- regulatory approval

Please contact us if you would like to learn more about pilot studies for this system.

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

- Accelator®
- ABW®
- Aquadaf®
- Densadeg®
- Densadeg XRC®
- Superpulsator®
- Ferazur®/Mangazur®
- Smartrack™

## contact

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