

# Superpulsator<sup>®</sup> Clarifier

Drinking water clarification

Pulsed sludge blanket

Solids contact unit

# Superpulsator® Clarifier

The Superpulsator Clarifier combines basic chemical principles and proven clarification technology in a high-rate, solids contact clarifier that offers maximum efficiency. The 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.

Capable of removing color, turbidity, and organic material in both municipal and industrial applications, Superpulsator treats billions of gallons of water per day in installations throughout the world.

## Superpulsator adds efficiency and economy to your facility:

- **Optimum flocculation and chemical usage.** Nearly all other solids contact clarifiers compromise flow distribution in order to gain efficient solids contact. Superpulsator distributes and collects flow over the entire area of the clarifier, utilizing the clarifier volume and sludge blanket in an efficient separation process.
- **Low maintenance.** Most solids contact processes require mechanical or flow-impeding devices such as mixers, pumps, or baffles to keep the sludge homogeneous. Superpulsator accomplishes this through pulsations powered by a vacuum system. There are no moving parts — or parts susceptible to clogging — under water.
- **Corrosion resistant.** All submerged parts — collection and distribution laterals, settling plates, valves, and draw-off lines — are made from fiberglass, plastic, or corrosion-resistant steel for longer service life.
- **Operator friendly.** The vacuum pump, vent valve arrangement, and sludge waste valves are Superpulsator's only mechanical parts. Automated and easily accessible, they require minimal operator attention.
- **Energy efficient.** Compared to other clarification processes, Superpulsator has very low energy requirements. It consumes approximately one horsepower unit per mgd — vs. four to five horsepower units for competitive systems.

## Details developed in the field

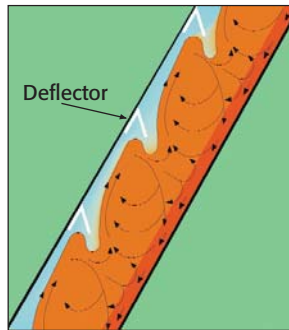
Superpulsator Clarifiers are field-tested in hundreds of operating installations worldwide. Each step in the process has evolved through patented and proprietary

improvements designed with WWTP contractors, engineers, and end users in mind.

### 1. Raw water distribution

A tapered distribution channel maintains a uniform flow velocity of coagulated water to the distribution laterals that span the clarification

basin. Orifices in the distribution laterals point downward to provide scouring of the basin floor and impart additional flocculation energy.



### 2. Particle settlement

Our exclusive, inclined settling plates are spaced on 13-inch centers at parallel 60-degree angles. This configuration keeps the sludge blanket homogeneous across the entire settling area, aids in flocculation by creating a vortical flow pattern, and helps guide sludge into the concentrator during pulsation.

### 3. Effluent collection

Submerged collection laterals are used instead of troughs to collect the clarified water at significantly reduced costs.

### 4. Collection, concentration, and discharge of sludge

Guided by the settling plates, excess sludge volume is easily removed from the clarifier and into the sludge concentrator. In the concentrator, the sludge is thickened and periodically removed by gravity wasting.

### 5. Pulsation equipment

Vacuum pumps are mounted directly on the vacuum chamber to reduce the amount of piping needed. A spare pump comes standard with every Superpulsator for added reliability.





- **Flexible.** Superpulsator is ideal for new construction or can be retrofitted into most existing basin shapes. Tube settlers can be added to most existing installations to expand capacity without constructing additional basins.
- **Integrated.** Flocculation and clarification functions are combined in one basin, eliminating the need for a separate flocculation chamber. The result? A smaller footprint that significantly reduces construction and operating costs.

### Options and expansions

Create the most efficient and cost-effective system for your needs.

#### Pulsapak® Package Treatment Plant

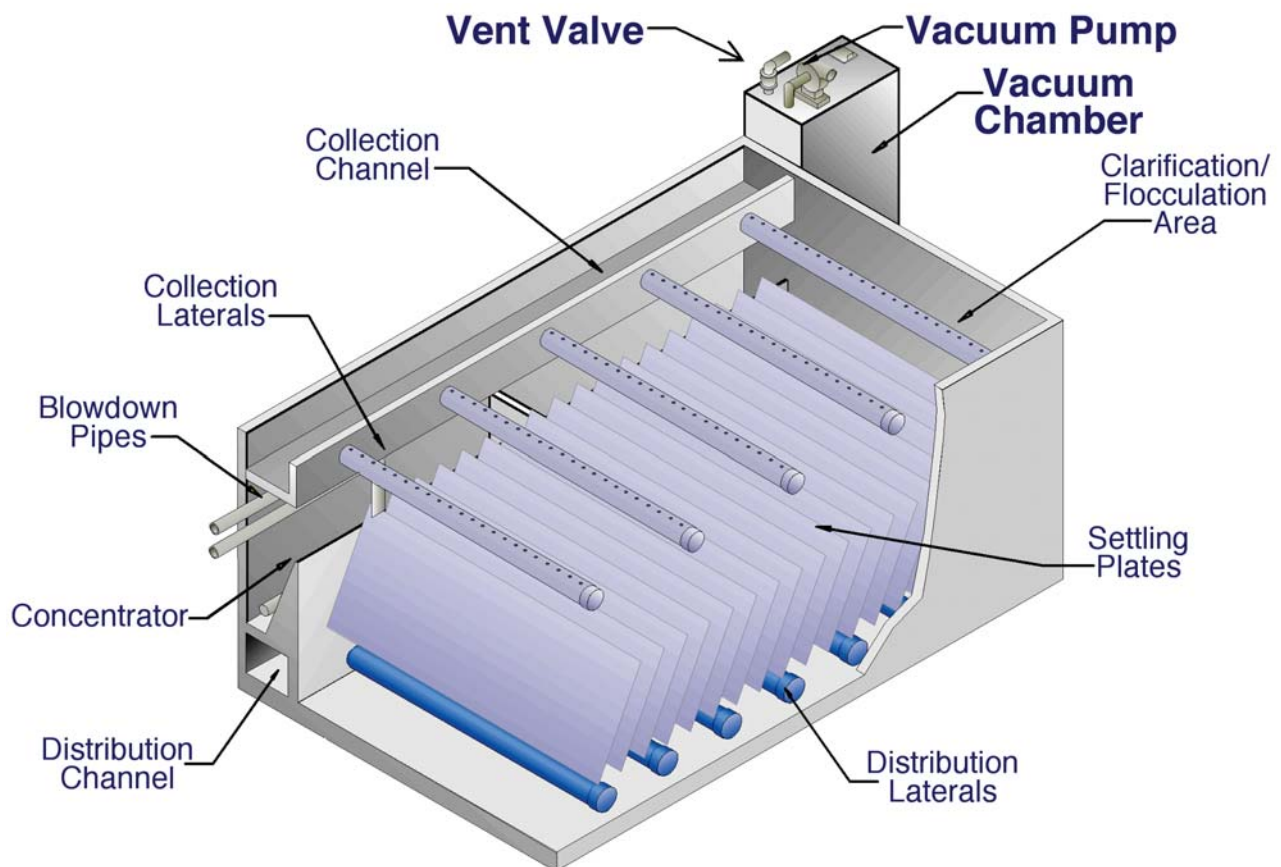
Self-contained and easy to install, Pulsapak is Superpulsator's package version. It comes complete with a two-bay filter and settling tubes (due to height restrictions, plates cannot be used).

#### Superpulsator Type U Clarifier

Our patented tube settler modules provide additional clarification to effluent water. The upward flow is polished by the projected tube surface while the lower tube walls guide residual floc back down to the sludge blanket. For increased capacity at a low cost, specify the Type U model.

#### Greenleaf Filter Control

Combine Superpulsator with this space-efficient, rapid gravity filter for the most economical and reliable modular water treatment concept anywhere.



### The heart of the system

The pulsation system — the heart of Superpulsator — consists of a vacuum pump to raise the water level in the vacuum chamber and a vent valve to lower it. As the water column rises in the vacuum chamber, the sludge blanket compresses like a spring.

When the vent valve opens, the water column surges into the distribution channel and laterals with a pulsing action that uniformly expands the sludge blanket.



## Superpulsator<sup>®</sup> Clarifier

### Clear advantages for your operation

- Integrated treatment functions within a single unit
- Minimal operator attention required
- Low maintenance
- Optimal solids removal



Contact us for information on cost-effective water treatment solutions.

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