DensaDeg®
High-Rate Clarifier and Thickener
The DensaDeg® Clarifier is a high-rate solids contact clarifier that combines optimized flocculation, internal and external solids recirculation, and tube settling in two conjoined vessels to maximize hydraulic loading and treatment efficiencies. The proprietary blend of energy input and high volume solids recirculation reduces the waste sludge volume and results in rapid settling to optimize unit operation and treatment results.

Because it both clarifies and thickens, DensaDeg is especially effective for plants where waste sludge volumes are a problem or where there are site constraints.

DensaDeg means efficiency with real value.

• **Construction economy.** Integrated functions within a single unit require approximately 50 percent less space than conventional solids contact clarifiers.

• **Accelerated processing.** Combined internal and external sludge recirculation and high reactor solids concentration reduce startup time and increase treatment rates.

• **Excellent effluent quality.** Combined solids recirculation and high reactor concentration optimize unit operation and overall treatment results.

• **Optimal chemical efficiency.** Optimized flocculation through intense solids contact stabilizes treatment chemistry.

• **Low-cost operation.** Automatic startup, shutdown, metering, and draw-off control are based on flow rate and turbidity data, requiring minimal operator attention.

• **Reduced waste volume.** Waste sludge is very dense, which minimizes handling and storage.

• **Consistent, flexible performance.** Hydraulic loading management enables operation over a broad range of flows and raw water characteristics.

• **Long service life.** No abrasive material is added to the system so there is no wear on pumps, mixers, or scrapers.
**Integrated, 3-stage process**

In the **Reactor Zone**, influent water combines with reactants and pre-formed solids from the presettling/thickening zone, flowing up through a draft tube, where a specially designed turbine initiates flocculation. As the mixture resettles, its density increases. This internal recirculation is performed at a rate of up to ten times the influent flow rate, producing optimum flocculation density for the application and selected chemistry.

The slurry enters the **Presetting/Thickening Zone** over a submerged weir where, due to the density of the solids within the slurry, it is separated and deposited on the bottom of the vessel. Aided by a slow-moving rake, the deposited solids continue to thicken. The process maintains solids homogeneity, while facilitating further release of entrained water. Thickened sludge is periodically blown down from the bottom of the thickener, and is typically pumped directly to a final dewatering mechanism.

In the **Clarification Zone**, supernatant flows upward through settling tubes and is polished. The settling tubes allow rise rates of up to 10 gpm/ft² for most metal salt coagulation processes — often higher for lime addition processes — and up to 50 gpm/ft² for most CSO/SSO applications. Clarified water is uniformly collected in effluent launders located above the tubes.
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Get maximum versatility with the DensaDeg Clarifier
• Lime softening
• Clarification of surface waters
• Combined clarification and softening
• Enhanced primary treatment of wastewater
• Tertiary treatment of wastewater (phosphorus removal)
• Wet weather treatment (CSO, SSO, stormwater)
• Treatment of filter or membrane backwash water

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

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