

# Field-Erected Orbal® Process

## Orbal® Field-Erected Package Plants

Siemens Water Technologies integrates one of the industries most advanced biological nutrient removal processes into an effective wastewater treatment system. The field-erected Orbal® process includes Davco™ field-erected steel tanks with enhanced nutrient removal applications such as mixers, wall pumps, coarse bubble grids and/or surface aerators.

The Orbal® process is a multichannel oxidation ditch that is well suited for conventional activated sludge, advanced secondary treatment, simultaneous nitrification-denitrification, biological phosphorus removal and storm water treatment. The typical Orbal oxidation basin has three concentric channels. The outer channel, where the majority of the process takes place is an aerated anoxic reactor. The DO of the second channel operates in a swing mode to vary with daily load conditions. The last channel maintains a polishing mode removing remaining BOD and ammonia before the flow exits to clarifiers. The mechanical backbone is its unique aeration disc with its high oxygen transfer and unmatched mixing efficiency.

The Davco™ steel field-erected treatment plant provides a cost-effective and long-life solution to treatment plant construction. Also, the field-erected plants are simpler and faster to install since they are pre-engineered and factory built, which avoids the weather related delays and labor intensive conditions associated with built in place approaches. They also require less physical space, yard piping, electrical conduit, maintenance and significantly less site preparation. The field-erection of the tank requires assembling and welding the components, then cleaning and coating the entire system as needed. Coatings will vary according to the application and local. The field-erected plants have proven their long-life functionality and durability over decades in all types of climates.

By utilizing this cost-effective design, the Orbal® process can be efficiently operated with the SmartBNR™ control system. This control system is designed by our process engineers who have a through understanding of the plant's complete process. The system features and automated storm water mode, aerated-anoxic aeration control, automated SRT control and automated process control. The SmartBNR™ control system offers precise control over simultaneous nutrient removal in a single reactor, predictive aerator response to reactor conditions, integrated control strategy using both oxidation - reduction potential and dissolved oxygen and automated sludge wasting to maintain optimum sludge age. Our SmartBNR™ controls can guarantee process performance with minimum power costs. With the automated SRT controls and storm flow modes, reliable hands-free operation can be achieved.



Aeration disc installed in Orbal® multichannel oxidation ditch



*Installation of the Davco™ field-erected tanks can be easily constructed by a qualified contractor or by one of the Siemens field installation teams. Our crews are experts in the field erected treatment plant assembly methods. They have earned an exceptional reputation for quality on-site workmanship and reliability in meeting or exceeding schedule and budget goals.*



*SmartBNR™ Controls provides an efficient operating wastewater treatment facility.*

Orbal field-erected package plants are the ideal solution for a variety of applications in the following industries; Small Communities and Housing Developments, Food and Beverage, Pulp and Paper, Pharmaceutical, Petrochemical, Oil Refining and Textile.

For a highly efficient, cost-effective wastewater treatment process contact us today to discuss how the Orbal® field-erected package plant can meet your needs.

#### Key Advantages:

- Biological Nutrient Removal (BNR)
- Enhanced Nutrient Removal (ENR)
- Reduced construction and capital cost
- Fast concept to completion timeline
- High quality effluent
- SmartBNR™ Controls
- Efficient cost saving operation

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