



**NAVALIS
NAUTILUS™**
SYSTEM

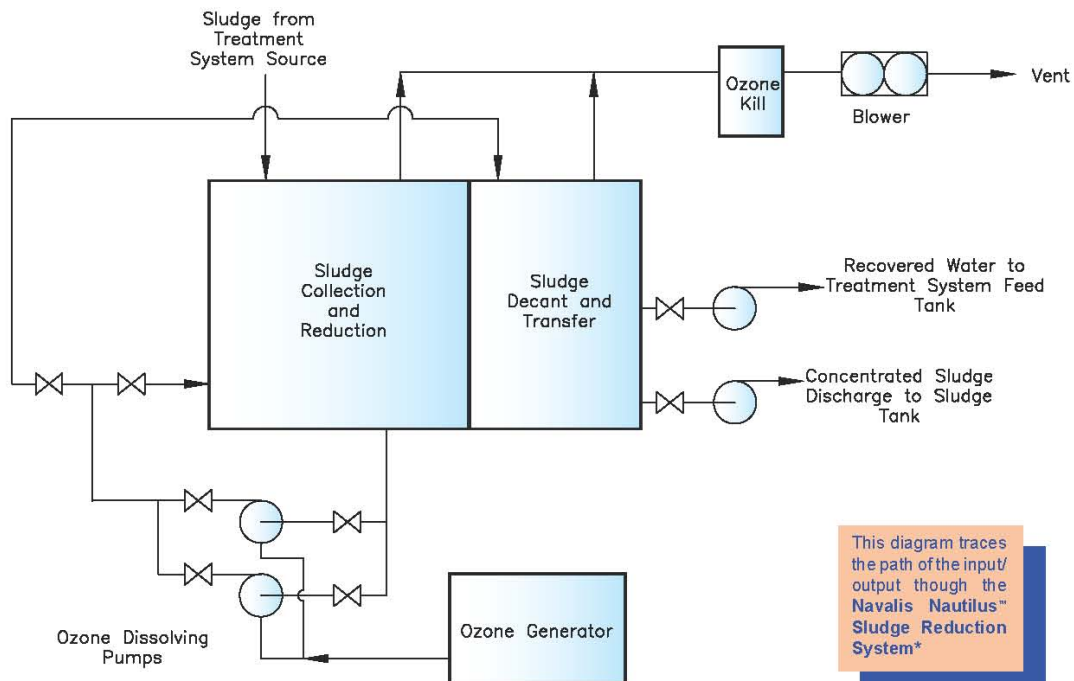
Navalis Optimum Sludge Reduction System

The patent pending **Navalis Nautilus™ Sludge Reduction System** reacts and thickens organic solids and sludges produced by wastewater treatment systems. The process injects a re-circulated stream of solids with dissolved ozone gas continuously mixing the Sludge Reduction Chamber. Ozone breaks down organic material reducing its volume and weight and at same time removes much of the objectionable odor common with domestic and marine organic sludge sources producing a “reacted sludge.”

At periodic intervals, controlled by automated PLC action, a portion of the reacted sludge is directed into the Sludge Decant Chamber. In this chamber the material is allowed to go quiescent for a set period of time. During this time solids settle to the bottom by gravity forming a sharp boundary between “clarified liquor” and solids. Through a decant process the clarified liquor is drawn off for reprocessing in the wastewater treatment device. The remaining thickened solids, with an average dry weight of 10%, are then pumped for further processing (i.e. dewatering, drying and thermal destruction or alternate disposal).



- Compatible with all Existing Treatment Systems
- Produces Thickened Reacted Sludge
- Reduces Primary Sludge Volume by 50-80%
- Substantially Reduces Objectionable Odors



This diagram traces the path of the input/output through the Navalis Nautilus™ Sludge Reduction System*

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What Are Advantages to Using The Navalys Nautilus™ Sludge Reduction System?

Enables:

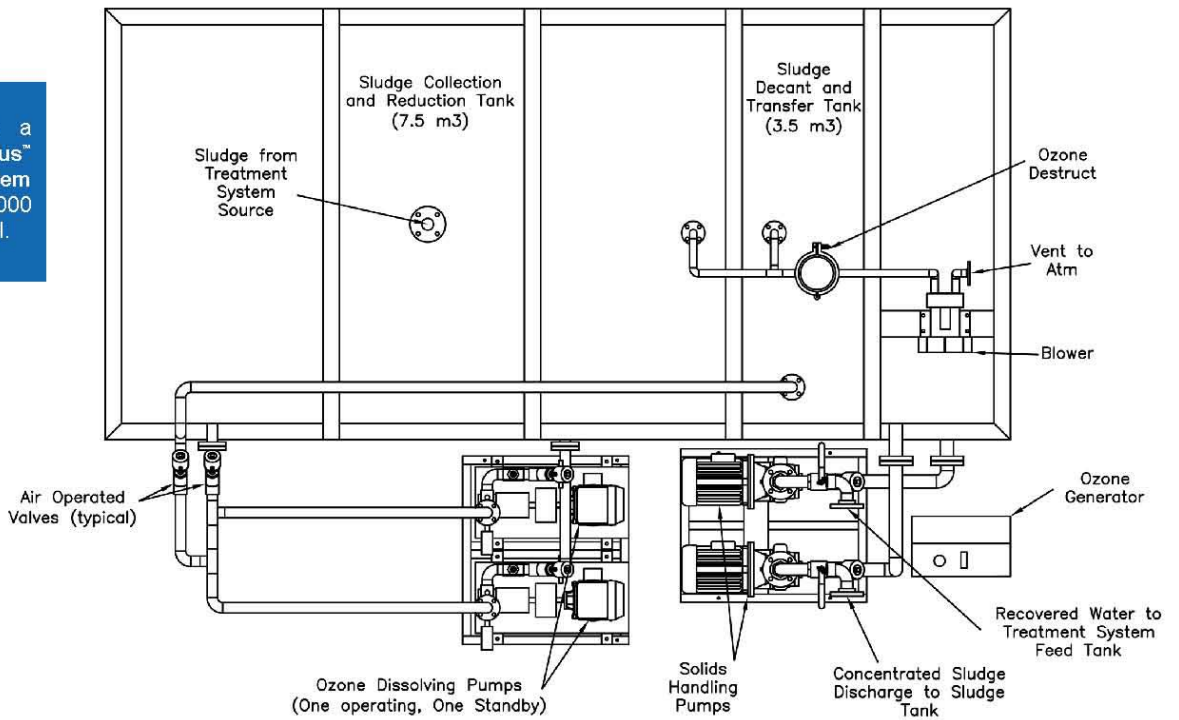
- Smaller Sludge Handling Equipment
- Reduced Shipboard Tankage for Sludge Management
- Greatly Reduced Energy Costs

Overall Dimensions (mm)	4200 x 2950 x 2290 H
Weight (dry)	6,540 lbs (2,950 kg)
Weight (wet)	21,936 lbs (9,950 kg)
Power	7.5 kW



Influent Sludge from the Treatment Device (left); Thickened, Reacted Sludge Ready for Decant (right)

*The figure provides a typical Navalys Nautilus™ Sludge Reduction System arrangement for a 4,000 person passenger vessel.



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