SRTMASTER™

History

1997 As a part of a large research project, Dr. Alex Ekster developed the first prototype of the SRT control algorithm and tested it at the 167 MGD San Jose/Santa Clara Water Pollution Control Plant. The Water Environment Federation (WEF) acknowledged this project as the best research of the year and awarded Dr. Alex Ekster a Phillip Morgan Medal.

1998 Dr. Alex Ekster launched Ekster and Associates. Ekster and Associates developed a more robust version of the SRT control algorithm using several years of experience in operating SRT control systems.

1999 Ekster and Associates entered into an agreement with Royce Instrument Corporation to market SRT controllers. The Royce SRT controller, designed according to Dr. Ekster's specification and powered by Ekster and Associates' SRT control software, received the 2001 WEF Innovation Award.

2002 Ekster and Associates stopped licensing SRT control technology to Royce and started direct licensing to treatment plants. Ekster and Associates increased the product line from one SRT control package to four.

OUR TRIPLE GUARANTEE:

1. SRTMASTER will stabilize activated sludge and sludge thickening processes.
2. SRTMASTER will never calculate waste flow based on faulty data.
3. SRTMASTER will always inform operators about potential problems related to biomass and will suggest possible solutions.

Mode of Operation

SRTMASTER offers a choice of one of two continuous wasting modes, stable waste flow or stable waste mass, and a choice of one of two intermittent wasting modes, change of wasting duration or change of waste flow.

Implementation

Ekster and Associates offers several SRTMASTER packages:

1. **SRTMASTER S** includes SRTMASTER software for PC installation. OPC connectivity is required. This version works well with either a proprietary distributed control system with OPC connectivity or Human Machine Interface Software (such as Wonderware, Intellution, etc.) with OPC connectivity. SRTMASTER S provides freedom of choice for 2 suspended solids meters as long as they meet our specification.
2. **SRTMASTER SM** includes the SRTMASTER S option and suspended solids meters that have proven through extensive testing to be reliable elements of our SRT control system.
3. **SRTMASTER TS** includes SRTMASTER software for PC installation, distributed input/output hardware, and two suspended solids meters. SRTMASTER TS provides a total solution that is appealing for plants that do not have a plant-wide control system or have a problem with connectivity to the existing plant-wide control system.
4. **SRTMASTER TS SA** includes a stand-alone embedded SRT controller and two suspended solids meters. SRTMASTER TS SA provides a total solution that is appealing for plants that are interested in installing the entire SRT control system in the field.

Service

SRTMASTER is accompanied by an unparalleled customer support program designed to help operators of the activated sludge system take full advantage of this revolutionary product.

Ekster and Associates offers a full range of services including a unique SRT optimization service.

visit
www.srtcontrol.com
for more information

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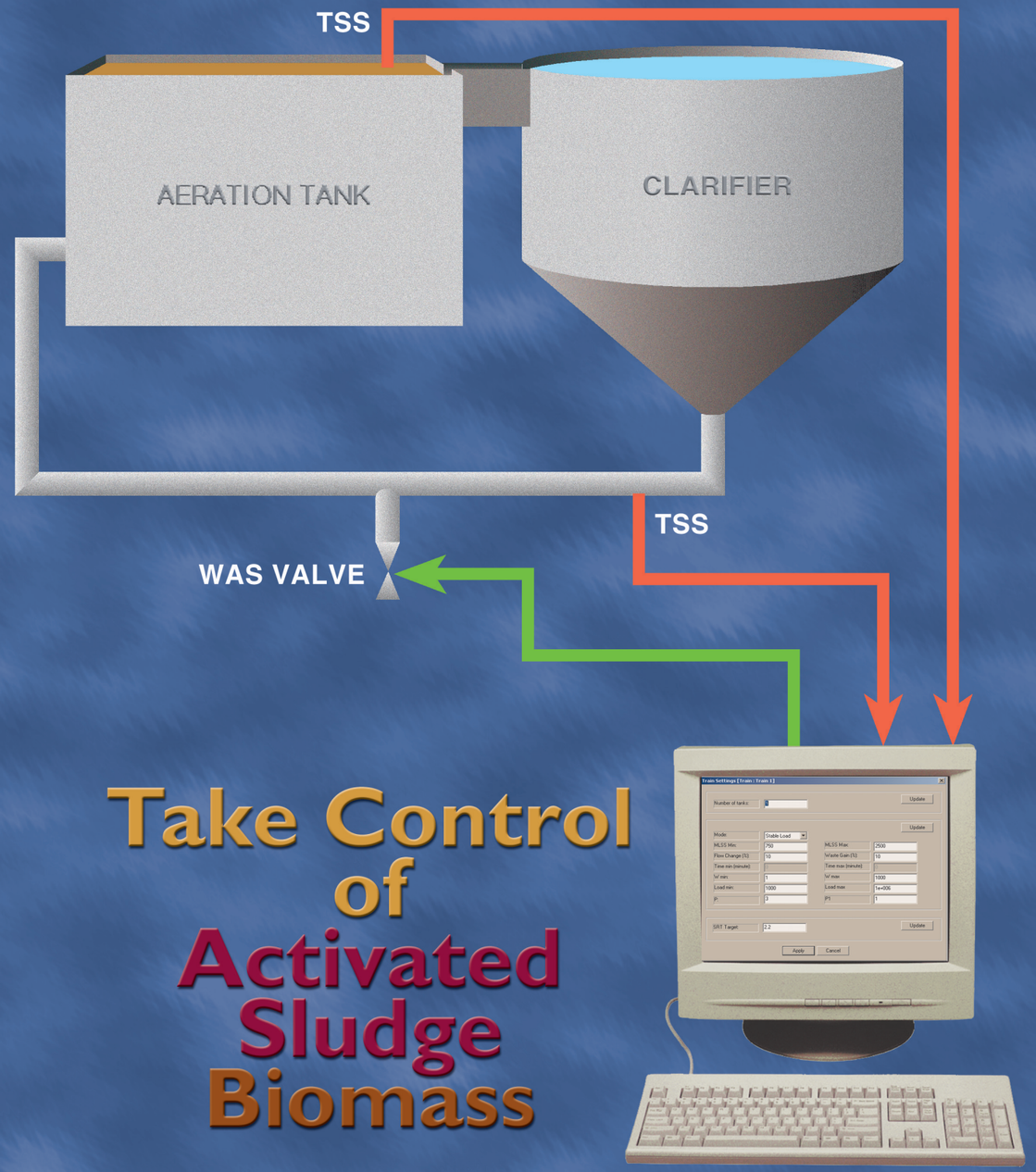
SRTMASTER™



Take Control of Activated Sludge Biomass

SRTMASTER™

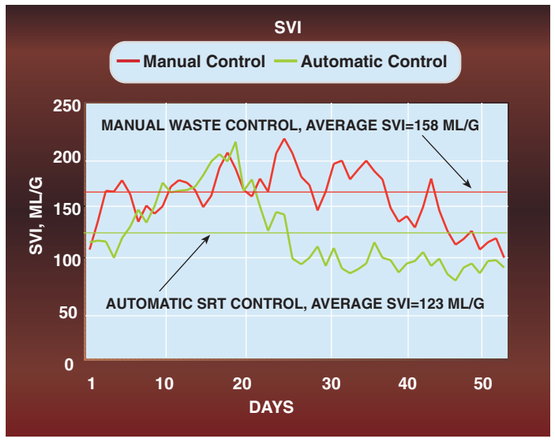
- Effective
- Reliable
- Innovative
- User-friendly

In the hands of activated sludge operators, SRTMASTER is an effective and reliable tool that helps to solve foaming and settling problems and makes operation more efficient because it combines process expertise with the power of on-line measurements and computing.

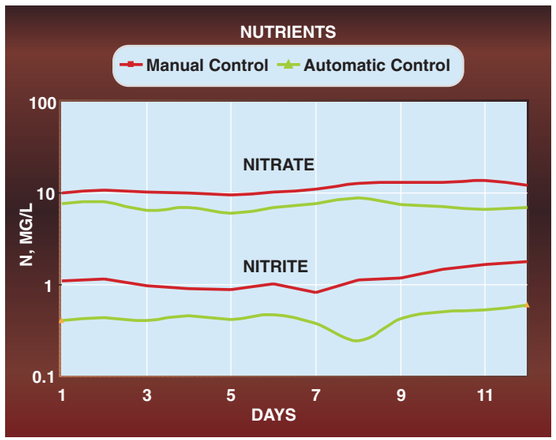
Maintaining Constant Solids Retention Time (SRT) Improves:

- Settling
- Nutrient Removal
- Thickener Performance
- Clarification
- Foam Control

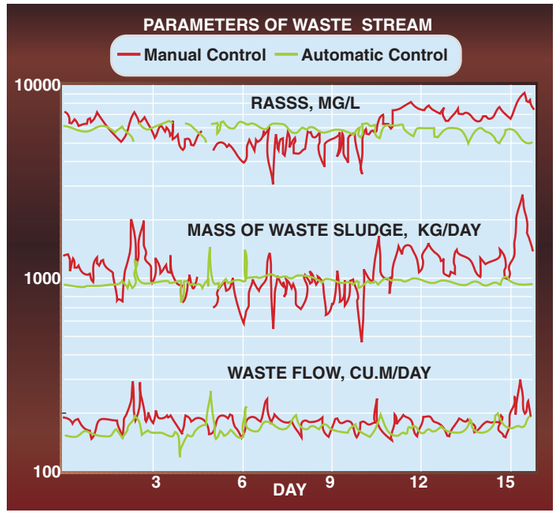
By constantly maintaining optimum SRT, SRTMASTER helps to create a biological environment that is hostile to foam formers such as *Nocardia* and *Microthrix*.



Under constant SRT, settling is improved because floc formers are in the majority of the microbiological population.

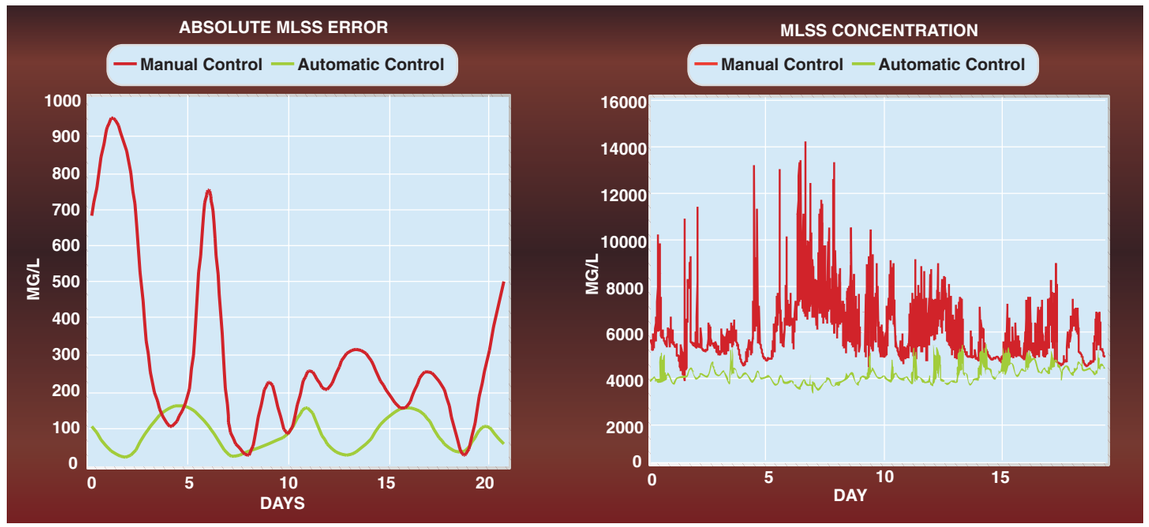


Under constant SRT, nutrient removal is improved because ammonia removing authotrophs and denitrifying heterotrophs function under optimum conditions.



SRTMASTER maintains constant mass solids loading to activated sludge thickeners. As a result, thickener performance improves considerably.

SRTMASTER™



Suspended solids concentration has less variability due to SRTMASTER's ability to measure TSS and calculate wastage on-line. As a result, clarification is improved, especially during peak and storm flow conditions because solids mass loading on clarifiers is reduced.

The control system was very robust. During the testing period, there were no occasions of a faulty control signal being generated by the controller.

...

A significant reduction of polymer usage (up to 50%) was also observed.

...

The SRT control system considerably improved stability of the activated sludge process by reducing variability in solids age and drastically improved the solids thickening process by reducing variability in solids mass loading. ...In addition, the system proved to be very low maintenance and reliable due to a self-cleaning feature of TSS meters and to a sophisticated expert algorithm built in the controller.

—Cordel Samuels, *Water Environment & Technology*, December 2001

Unique Features

- Each control algorithm is tuned before delivery using a customized computerized model of the customer's activated sludge process.
- The unique sensor fault detection algorithm detects problems with the sensors and prevents the use of faulty data.
- The unique output data filtration algorithm guarantees that maintaining the SRT target will never have a negative effect on performance of sludge clarification and sludge thickening.
- A special algorithm provides stable solids mass loading on the sludge thickening facility.
- The controller automatically notifies operators about potential problems and suggests possible solutions using fuzzy logic method combined with nonparametric statistics.