



Announcing the New Model BTJ[†] StaticOrb™ Intake Screen

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Screen Services' new high-efficiency **BTJ Intakes** are able to handle more flow per unit screen area than previous, or 'classic' intake designs. We have accomplished this major capacity boost using **ANSWER™ Computational Fluid Dynamics (CFD)** modeling software and CADD design software. This new design has been in development for more than 12 months.

In order to understand how our new design works, it's important to realize that up until recently, the **best** intake screen designs (including **classic StaticOrbs**) required a built-in 40% overcapacity to allow for the hydraulic turbulence caused by the inlet pipe itself. This turbulence causes "hot spots" on the screen surface where the velocity is higher than average.

The new flow-control techniques developed by Screen Services allow us to reduce the turbulence effect so that the maximum velocity is only 6.61% greater than the average velocity.

For example, for a capacity of 2,000 US gallons per minute, a *maximum through-screen velocity* requirement of 0.4 feet per second, and 50% open area screen:

- a) A *theoretical, perfect* intake would call for a screen surface area of 22.1 square feet. However, a 'perfect' intake is not currently feasible.
- b) A classic-style intake would require a minimum screen area of 30.9 square feet. The nearest model providing at least is area is a model S42 screen, having nearly 38.5 square feet of screen area. Thus, the screen area is 74% larger than a 'perfect' screen.
- c) Screen Services' **BTJ** design, being only 6.61% over-sized to ensure the flow velocity through the screen nowhere exceeds 0.4 feet per second, needs only 23.5 square feet of screen surface area. **BTJ** screens are available in 2 inch diameter increments, rather than the 6 inch steps of traditional intake design. The **BTJ** size providing at least 23.5 square feet is the S34BTJ with 25.2 square feet. This is only 14% larger than the theoretically 'perfect' screen, and is over 1½ times smaller than classic intake design.

The benefits resulting from specifying smaller and more efficient **BTJ StaticOrb™** intakes are many, and in some cases extreme:

- ▶ Reduced Cost for a given capacity; in the order of 20 to 25 percent.
- ▶ Lower transportation costs.
- ▶ Lower installation costs.
- ▶ Lower infrastructure costs (plinth/platform).
- ▶ A shorter pipeline in most cases, since the water source can be shallower.
- ▶ A smaller Air Backwashing System is needed due to the decrease in air demand.
- ▶ A smaller airline may be used since the airflow requirement is less.

BTJ StaticOrb™ intakes are available in drum-style for deep lake, reservoir, or marine installations where there is little or no flow, and in tee-style for flowing water or shallow-water installations.

† Patent Applied For