



**Aqseptence
Group**



Johnson Screens® Passive Intake Screens



The World's Most Effective Passive Intake Screen System

Aqseptence Group's brand of Johnson Screens® passive intake screen system provides uninterrupted water withdrawal from lakes, rivers and oceans. The Johnson Screens® passive intake screen operates continuously and requires no downtime for cleaning or routine maintenance. Moreover, the system can be configured to meet Australasian environmental regulations for protecting aquatic life.

Maximum Efficiency

The combination of non-plugging Vee-Wire® design and the patented internal flow modifier, provides a high open area while maintaining the lowest entrance velocity and pressure drop. This delivers a maximum water capacity with minimal entrainment and impingement.

Less Maintenance

The passive intake screen system has no moving parts that can break down or wear out. This eliminates the need to replace worn parts or make other costly repairs. The controlled entrance velocity on the passive intake screen, along with the specially matched Hydroburst™ air backwash, keeps the system clean and operating properly.



Custom Designed and Engineered

With over 30 years of intake screen experience and hundreds of installations covering a variety of conditions, application engineers from Aqseptence Group can provide design and application assistance. From shallow rivers to deep oceans, the passive intake screen systems can meet site requirements anywhere in the world.

To provide maximum efficiency, the Johnson Screens® passive intake screen is custom designed and engineered to each unique environment, resulting in a system which costs less to install, operate and requires less maintenance.

Lower Cost

The unique and flexible design of the passive intake screen system results in lower initial costs, no moving parts, less maintenance needs and a simplified installation - allowing for a reliable, inexpensive water supply.

Proven and Reliable Technology

Patented Internal Flow Modifier: Highest Efficiency and Lower Costs

The open pipe flow modifier is at the heart of the passive intake screen system. This internal flow modifier development improves the design with a patented dual pipe flow modifier.

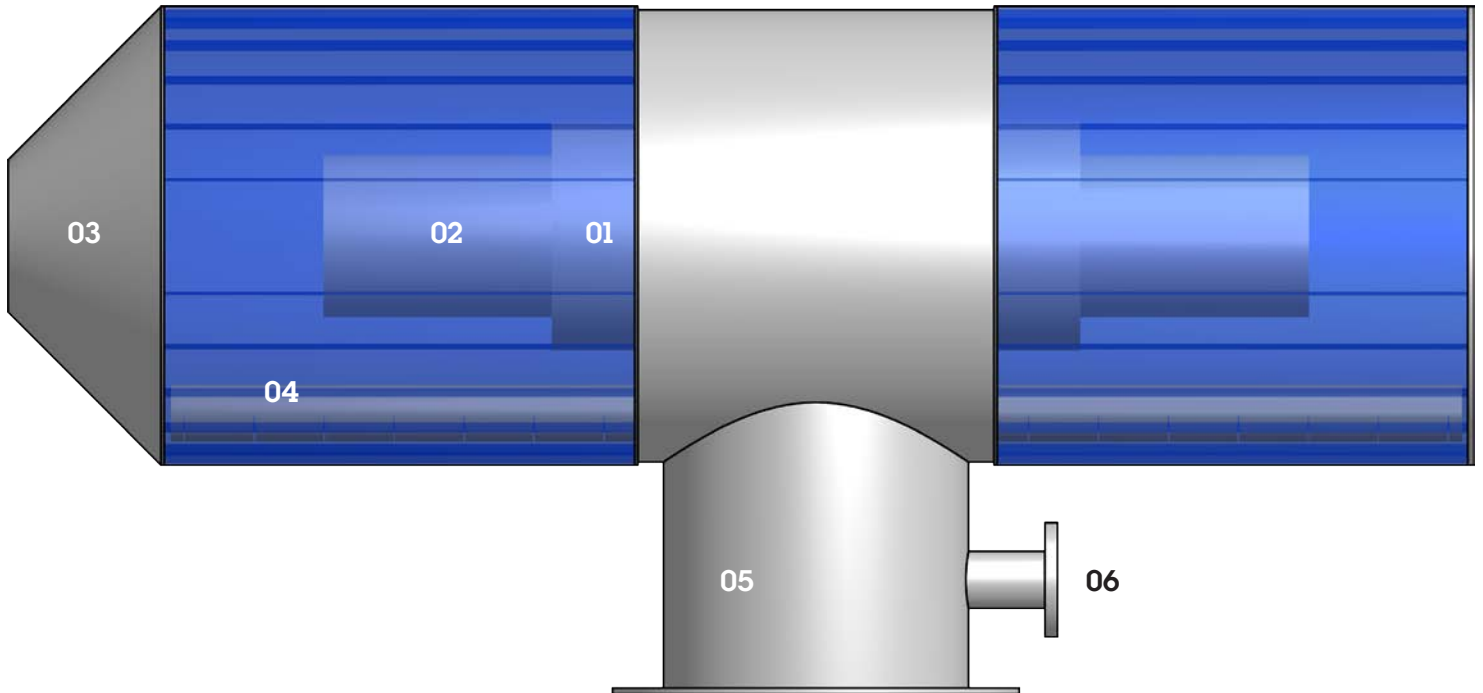
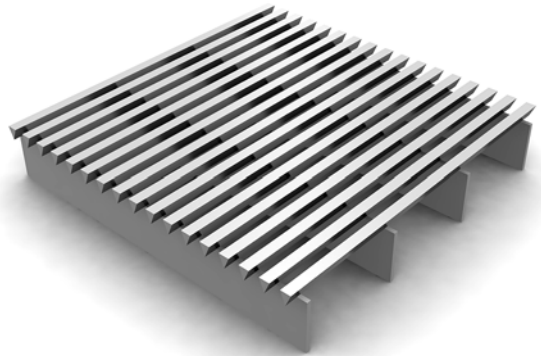
The dual pipe flow modifier does two things: it produces an even flow across the entire screen surface, while not increasing the pressure drop.

The even flow raises the overall efficiency of the screen to over 90 percent, allowing for smaller screen cylinders and Hydroburst components to be used.

The low pressure drop across the screen surface reduces the amount of energy required to pull water through the screen, creating significant operating cost savings.

Vee-Wire® Screen Design

- Controls the entrance velocity, or speed, of the water passing through the screen surface.
- Has very high open area, allowing vast quantities of water to flow through.
- Non-plugging design is easy to maintain.
- Wide range of corrosion-resistant materials available.
- Protects aquatic life from being trapped within the screen.



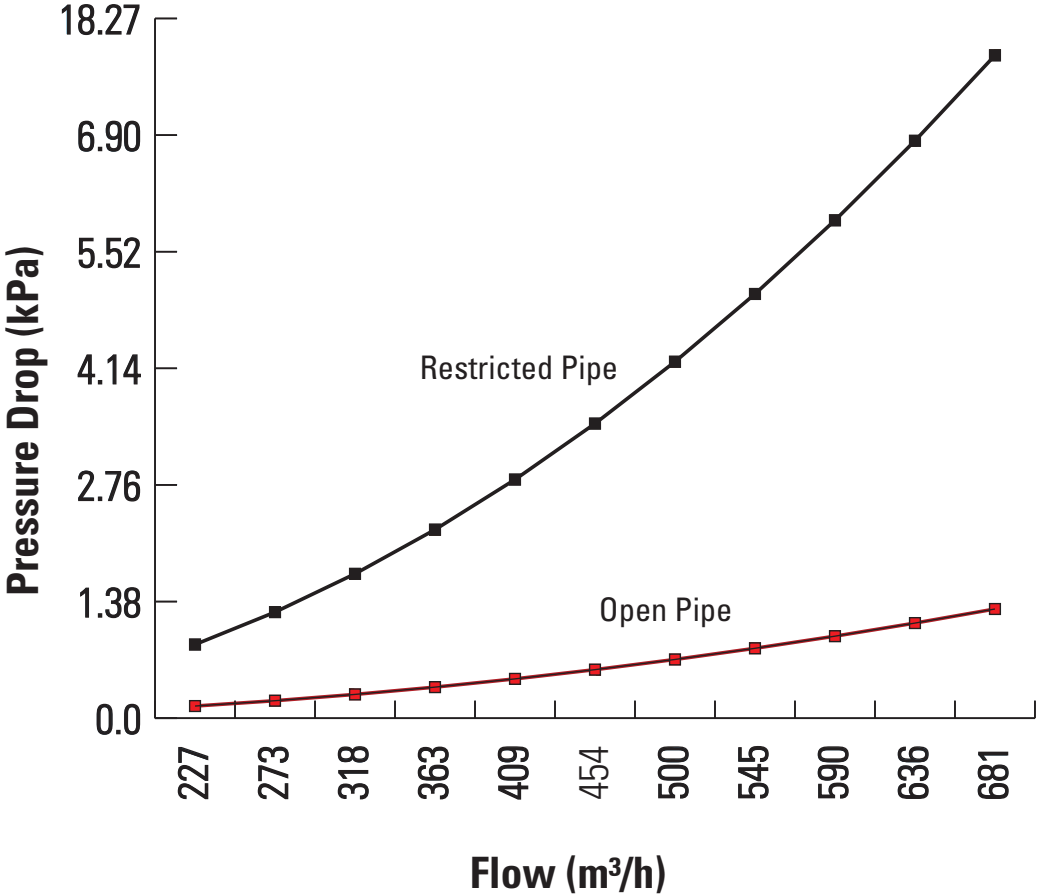
- 01 Initial Flow Modifier
- 02 Secondary Flow Modifier
- 03 Debris Deflector
- 04 Air Backwash Header
- 05 Outlet Flange
- 06 Air Backwash Pipe and Flange

Dual Pipe Internal Flow Modifier - The Key To Success

Early flow modifier designs, which included restrictive pipes using slots and holes, plugged easily and experienced a very high pressure drop across the screen surface area. The Johnson Screens® passive intake screen system has an open pipe design that is much more effective, and is now the industry standard.

In Figure 01 below, the pressure drop difference between a restrictive pipe and an open pipe flow modifier illustrates the significant improvement of the patented dual pipe internal flow modifier design. As more water is pumped through a restrictive pipe flow modifier, the pressure drop increases dramatically.

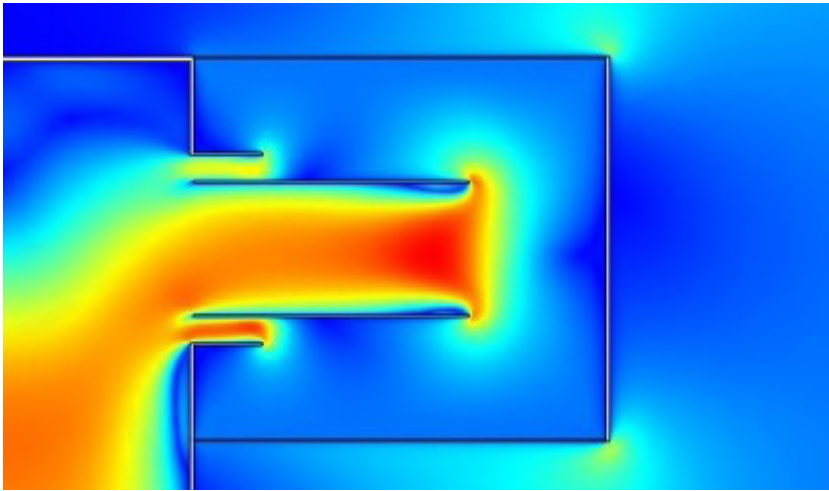
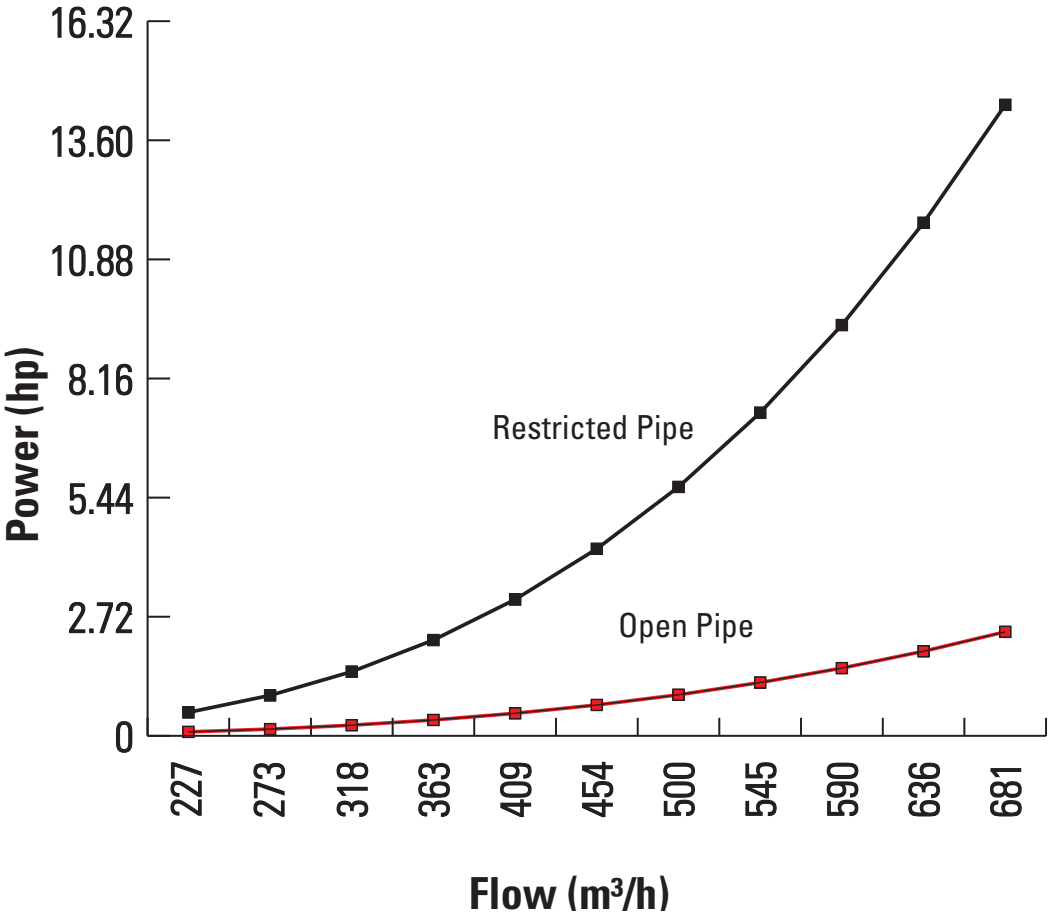
Pressure Drop Comparison - Figure_01



Open Pipe Flow Modifiers: Lower Operating Costs

When the pressure drop increases on a passive intake screen, the pumping unit has to work much harder. Figure 02 shows a comparison between restrictive pipe and open pipe flow modifiers and the amount of energy required to pump water through a passive intake screen. As water is pumped, greater energy is required for the restrictive pipe designs, resulting in an increase in operating costs.

Electricity Demand Comparison - Figure_02



Computation Fluid Dynamic (CFD) Analysis

This evenly coloured orange area depicts the uniformity of the flow across the entire intake screen surface area when using a dual pipe flow modifier.

Hydroburst™ Backwash: An Automatic Cleaning Process

Aqseptence Group developed the Hydroburst backwash system for conditions where the intake screens may need regular cleaning due to areas with high concentrations of debris, or where the screen is in an area that is difficult to access.

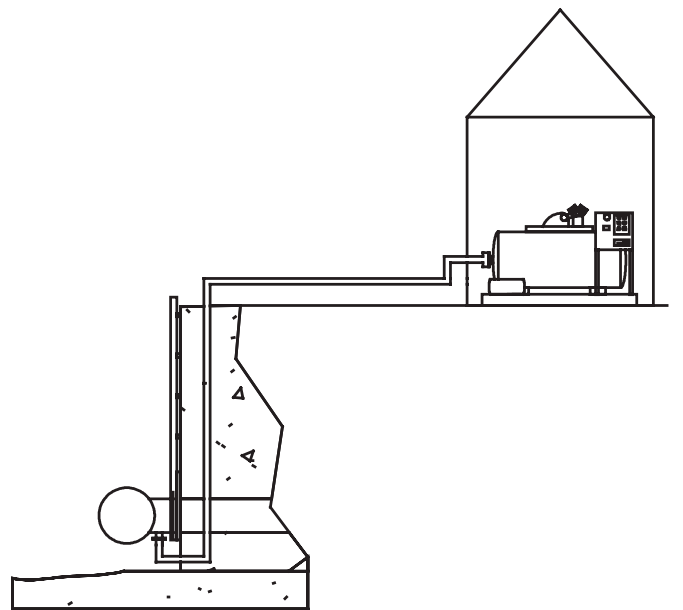
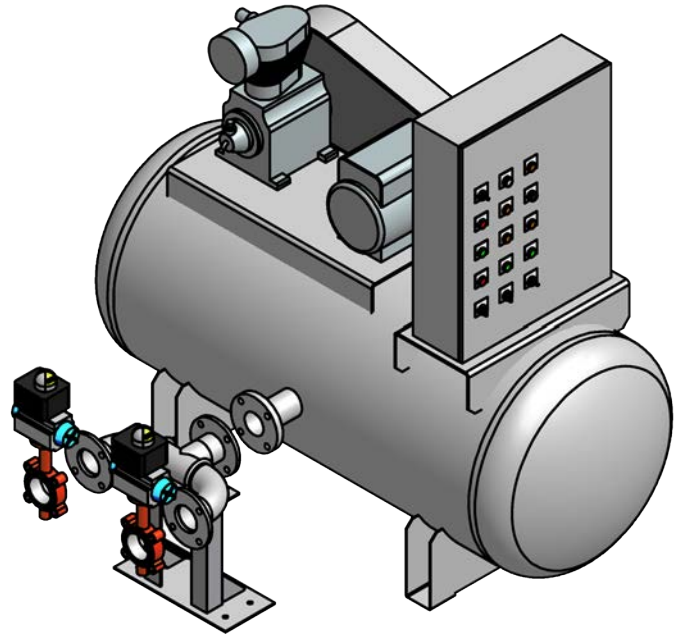
The process flushes the debris away from the screen surface by releasing a large volume of compressed air inside the screen.

Hydroburst Maximises Intake System Efficiency

When debris in the water is high, the Hydroburst system provides fast and effective cleaning of the screen cylinders.

- Air volume is precisely matched to the intake screen cylinder size for maximum delivery.
- Measured air burst forces debris away and scours the screen surface for highly effective cleaning.
- A specially designed manifold distributes air inside the screen cylinder for optimal performance.

Varieties of controls are available, including manual, automatic activate on headloss and time activate.







Proven Technology For Shallow Water Resources

Based on the design of the Johnson Screens® passive intake screen systems, the patent half screen intake system provides uninterrupted, environmentally safe water withdrawal from lakes, rivers and oceans. The half screen intake system allows for the screen to be used in half the operational depth of water of the traditional passive intake screen system.

Design features include:

- Low profile - half the water depth needed
- Hydroburst™ cleaning system option
- Passive intake screen - no maintenance
- Vee-Wire® construction

As water demands expand for cities and towns, water resources previously harder to withdraw from, due to their shallow depth, now have become a more viable option.

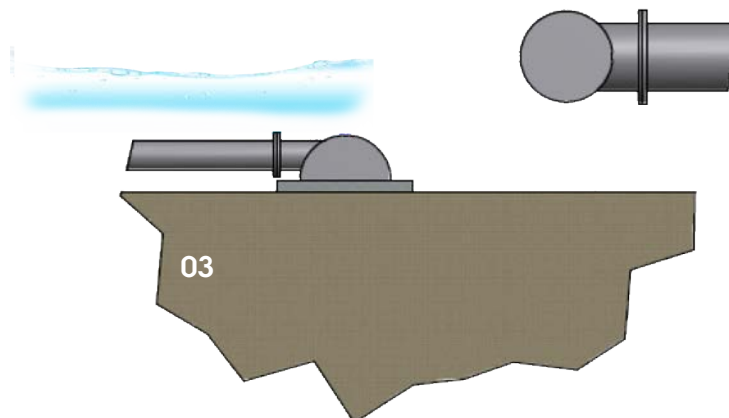
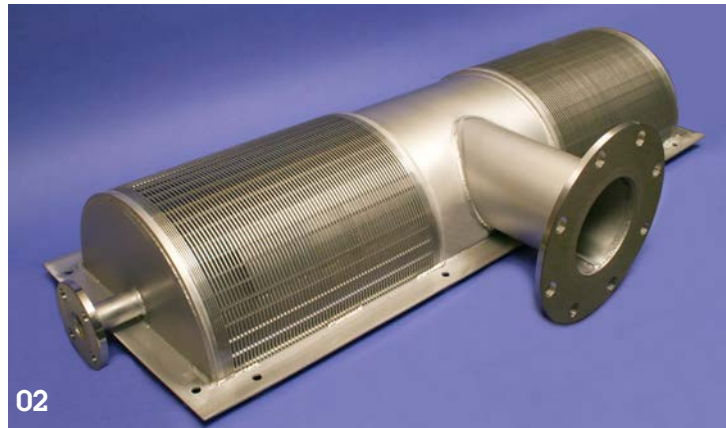
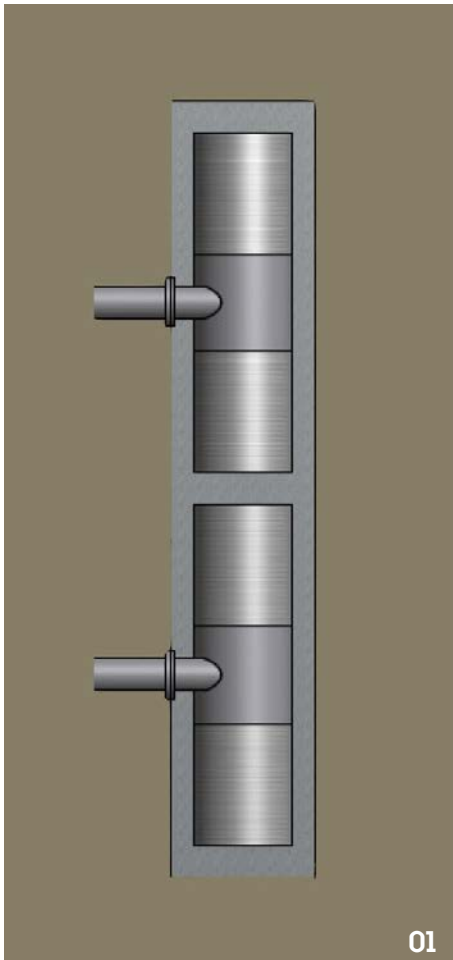
01 The half screen intake sits on a concrete pad and eliminates half the depth needed for the same flow.

02 The half screen intake.

03 The half screen intake is able to operate at half the water depth of traditional intake screen systems.

The general rule-of-thumb for proper intake screen depth has been to allow a half diameter of operational depth clearance from top and bottom, to prevent silt from being sucked up from the bottom and creating a vortex on the top of the water.

- Sits on a concrete pad and eliminates half the depth needed for the same flow
- Functions identically to the standard Johnson Screens® passive intake screen system
- Uses the same control of flow distribution, with the patented multiple flow modifier design and Hydroburst™ system to keep the screen surface clean of debris.
- Standard sizes range from 1/2T - 12HC to 1/2T - 96HC intake screens, and are typically applied in pairs







RELIABLE PERFORMANCE.
SUSTAINABLE RESULTS.

Aqseptence Group Pty Ltd

88 Brickyard Road
Geebung · Queensland 4034
Phone +61 7 3867 5555
asiapacific.water@aqseptence.com

www.aqseptence.com

