

AUTOMATIC SELF-CLEANING STRAINERS

The Hayward automatic self-cleaning strainer is a motorized strainer designed for the continuous removal of entrained solids from liquids in pipeline systems.

It has successfully performed in industrial, process, water, wastewater, power, paper and municipal applications for over 30 years.

With an automated control system monitoring the strainer operation, cleaning is accomplished by an integral backwash system. A small portion of the screen element is isolated and cleaned by reverse flow. The remaining screen area continues to strain – providing uninterrupted flow. With this efficient design, only a small amount of the liquid being strained is used to carry away the debris from the strainer.

All HAYWARD® Automatic Self-Cleaning Strainers feature the idL™ shaft seal that positively prevents leakage from the backwash shaft at the top of the strainer. This unique quad seal replaces older, leak prone packing material. With the idL seal the exterior of the strainer stays dry and clean in service, there's never any bothersome external leakage or weeping of the process media down the sides of the strainer.

Hayward offers two different Models of Automatic Self-Cleaning Strainers, the Model 596 and the Model 2596. They are available in sizes of 2" through 20" in cast construction and 6" through 60" in fabricated construction. Design and construction of these units are in accordance with ANSI and ASME Section VIII, Division 1. A wide range of screen designs are offered from 1/8" perf to 400 mesh, depending on line size and application.

APPLICATIONS

Hayward's automatic self-cleaning strainers are commonly used on water service where the disposal of debris and backwash water is not a problem. Continuous flow is assured and protection is provided for nozzles, pumps, valves, heat exchangers and other process equipment.

These high quality strainers can also successfully handle other fluids such as white water, black liquor, starch, fuel and lubricating oil, caustic solutions and cooking oils. A determining factor in these cases is the recycling of the backwash fluid. HAYWARD automatic self-cleaning strainers will significantly reduce maintenance costs and provide uninterrupted flow. They are a particularly worthwhile investment where solids loading is high or upset conditions occur. Frequent cleaning and servicing of manual strainers is costly and, if not properly done, serious disruptions to the entire piping system can occur. Also, they are an ideal solution for maintenance problems where the strainer is in an inaccessible or remote location. Automatic strainers can easily replace duplex basket strainers.



36" Model 596 strainer



10" Model 2596 strainer

AUTOMATIC SELF-CLEANING STRAINERS



8" Model 596 strainer

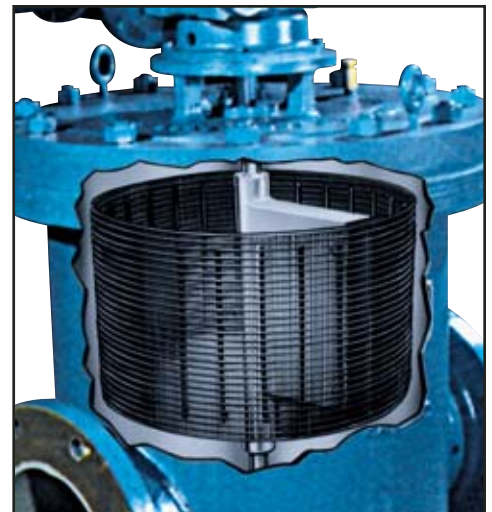
OPERATION

The debris laden dirty fluid enters the strainer's large bottom chamber where the line velocity is reduced. Flow continues upward, passing radially through the "sealed" screen element. Unwanted material is trapped on the inside of the screen. The flow is uninterrupted and the strained clean fluid continues its path into the correctly proportioned outer annulus of the strainer body and exits through the outlet nozzle.

Backwash cleaning is accomplished by utilizing the pressure differential between line pressure and atmosphere. A hollow, full flow backwash arm extending the full length of the screen element rotates slowly inside of the screen and is piped to atmosphere. The port shoe is in close proximity to the screen, and its opening is equivalent to the "debris collector" sections created by the convolutions and/or the vertical collector bars in the element.

When cleaning is required the automatic backwash valve opens the system to atmosphere, causing a high velocity reverse flow across the isolated section of the screen. Dirt and debris are flushed from this segment of the screen into the backwash arm and out of the strainer via the backwash piping. During the backwashing cycle the main flow is uninterrupted and continues to be strained in the normal manner. A manual throttling valve is recommended after the control valve. Thus, backwash flow can be regulated and balanced for optimum performance and reduction of water loss.

An automatic control system consisting of an electrical panel, actuated valves and a differential pressure switch operates the strainer. The cleaning cycle is set to activate on a timed cycle with a differential pressure override to protect against system upset conditions. The control system will automatically close the backwash valve after the screen element is properly cleaned. The unit can also be operated manually or in the continuous backwash mode. See modes of operation on page 29 for additional information.



Cutaway of Model 596 shows backwash arm and strainer element.

TYPICAL APPLICATIONS

Automatic self-cleaning strainers are used in nearly every industry to strain fresh, brackish or salt intake water for plant services such as cooling, process, fire protection, etc. They allow water to be recycled within the plant, reducing costs.

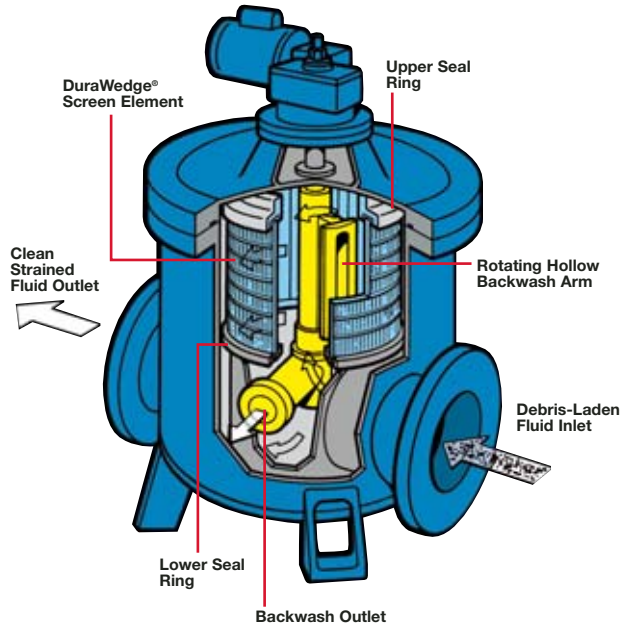
Process Industry: Protect heat exchangers, pumps, valves, and water spray nozzles.

Power Industry: Protect heat exchangers, pump seal water, and traveling screen wash water.

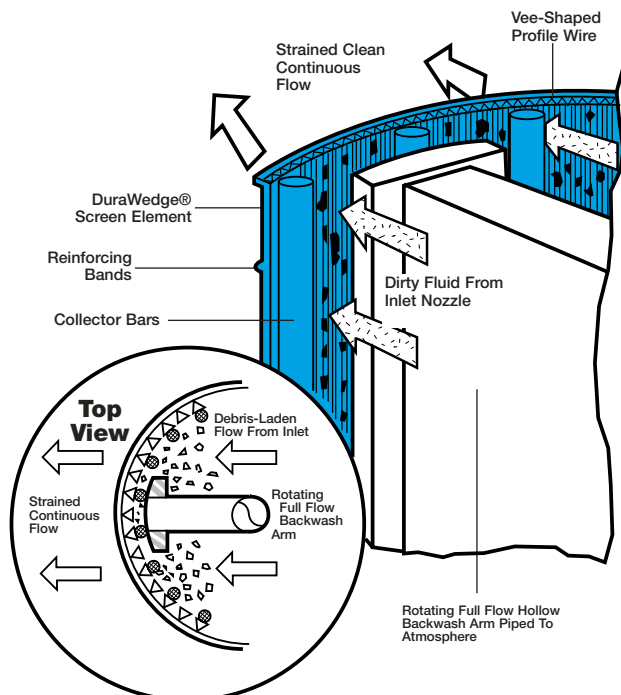
Pulp and Paper: Removing fibers from white water filtrate to prevent clogging of nozzles. Separate bark and chips for recycling.

Sewage/Waste and Water: Straining secondary effluent prior to discharge, and also providing clean plant service water.

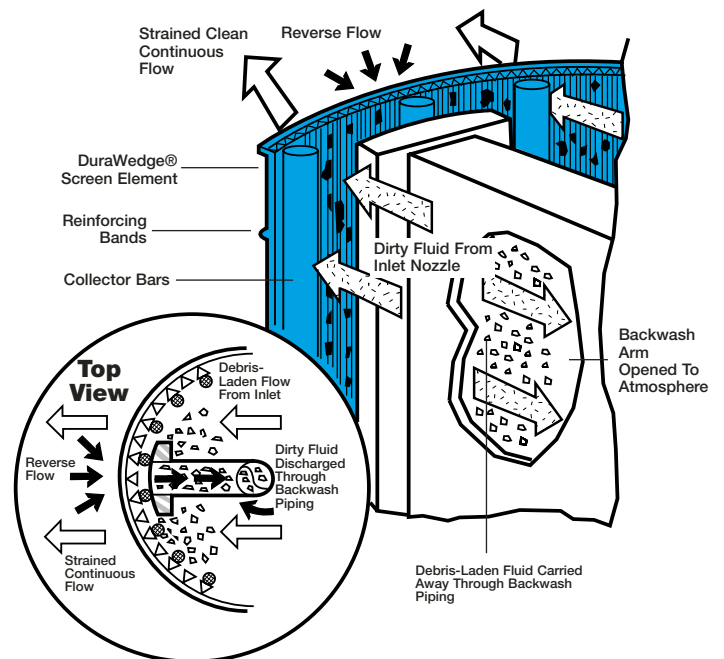
Primary Metal Industry: Provide clean water for quenching, descaling, and blast furnace cooling.



Straining Cycle



Backwashing Cycle



SELF-CLEANING STRAINER COMPONENTS

Features:

Quality Construction

HAYWARD® Automatic Self-Cleaning Strainers are designed and constructed in general accordance with ANSI and ASME Section VIII, Division 1. A Code Stamp is available. Seismic qualification is also available.

idL™ Seal

Hayward's unique idL shaft seal replaces older style packing and prevents troublesome leakage. This special quad seal means that the strainer always stays dry and clean in service with no process media leaking down the sides of the strainer.

Ease of Maintenance

Unitized modular assembly – the motor, gear reducer, cover and complete internal operating mechanism lift off as a unit, making all components easily accessible. This greatly simplifies maintenance and reduces costs.

Low Backwash Fluid Requirements

Due to the efficient hydraulic design of the backwash system.

Material of Construction

Cast 2" through 20" in iron, ductile iron, carbon and stainless steel, Ni-resist, aluminum bronze. Fabricated 6" through 60" in carbon steel, stainless steel, Monel, and copper nickel.

Choice of Screen Elements

To suit the particular service – Dura-Wedge, Perforated or Mesh elements.

Minimal Power Consumption

1/3 HP drive motor in 2" through 8" Model 596, 1/4 HP in 10" through 16" Model 2596. 1/3 HP in 18" through 24", 1/2 HP in 30", 1 HP in 36" to 42", and 2 HP in 48" through 60".

No Dirty Fluid Bypass

"Sealed End" cartridge screen element seat in close tolerance machined retained rings.

Tight, Simple Cover Seat

O-ring design permits resealing without time-consuming gasket replacements and adjustment.

Manual Operation if Required

Utilizing extended shaft.

Typical Model 596

