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 28 for additional information.
AUTOMATIC SELF-CLEANING STRAINERS

Straining Cycle

Backwashing Cycle

DuraWedge® Screen Element

Rotating Hollow Backwash Arm

Debris-Laden Fluid Inlet

Upper Seal Ring

Clean Strained Fluid Outlet

Lower Seal Ring

Backwash Outlet

Debris-Laden Flow From Inlet Nozzle

Dirty Fluid Discharged Through Backwash Piping

Dirty Fluid From Inlet Nozzle

Dirty Fluid Carried Away Through Backwash Piping

Debris-Laden Flow From Inlet

Rotating Full Flow Hollow Backwash Arm Piped To Atmosphere

Rotating Full Flow Backwash Arm

Strained Clean Continuous Flow

Strained Clean Continuous Flow

Reverse Flow

Reverse Flow

Top View

Top View
Sizes 2” Thru 8”

Cast construction Model 2596 Automatic Self-Cleaning Pipeline Strainers are available in 2”, 3”, 4”, 4”L, 6”, and 8” pipeline sizes. The 4”L size is designed for applications where the combination of flow rate and open area requirements may be too great for a standard 4” size.

Application Limits

Cast Iron Class 125 Flange (-20° to 150°F) 200 psi (2”- 8”)

Cast Stainless Steel Class 150 Flange (-20° to 100°F) 275 psi (2”- 4”)

Optional Features

Stainless steel, copper nickel, monel, aluminum bronze, and other materials of construction. ASME code stamp.

Pressure drop data indicates results to be expected with clean water, under normal flows, with standard straining media and in clean strainer.

Model 596 Cast Strainers

Sizes 10” Thru 20”

Application Limits

Ductile Iron Class 125 Flange (-20° to 150°F) 150 psi

Cast Steel Class 300 Flange (-20° to 150°F) 300 psi

Application Limit 20” Size

Ductile Iron Class 125 Flange (-20° to 150°F) 150 psi

Based on ratings of ANSI and ASME Section VIII, Div. 1.

Lower pressure ratings at higher temperatures

Optional Features

• Stainless steel, copper nickel, monel, aluminum bronze and other materials of construction.
• ASME Section VIII, Div. 1. code stamp available.
• Flanged, screwed or socket weld backwash connections (steel unit only).

Specific descriptions and construction details illustrated may vary slightly from equipment furnished. We reserve the right to revise or discontinue equipment or design features without notice. We recommend that you review performance and application data with us prior to final design.
Model 2596 Fabricated Carbon Steel and Stainless Steel

Sizes 10’ Thru 30’

APPLICATION LIMITS
Fabricated strainers are designed within the limits of the customer’s specifications and design criteria along with any applicable code requirement. i.e. ASME Section VII Div. 1.

OPTIONAL FEATURES
- Stainless steel, copper nickel, monel, aluminum bronze and other materials of construction.
- ASME Section VIII, Div. 1. code stamp available.
- Flanged, screwed or socket weld backwash connections (steel unit only).

Pressure drop data indicates results to be expected with clean water, under normal flows, with standard straining media and in clean strainer.

Approximate Dimensions (in) Approximate Weight (lb)

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<th>A</th>
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Approximate Dimensions (in) Approximate Weight (lb)

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<td>13</td>
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<td>8,000</td>
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Optional Features
- Stainless steel, copper nickel, monel, aluminum bronze and other materials of construction.
- Flanged, screwed or socket weld backwash connections (steel unit only).

Pressures drop data indicates results to be expected with clean water, under normal flows, with standard straining media and in clean strainer.

Specific descriptions and construction details illustrated may vary slightly from equipment furnished. We reserve the right to revise or discontinue equipment or design features without notice. We recommend that you review performance and application data with us prior to final design.
APPLICATIONS

Eaton Automatic Self-Cleaning Strainers are typically used in a wide variety of applications such as cooling water from ponds, lakes or rivers, cooling towers, plant service water, boiler feed water, secondary effluent, irrigation, and municipal water intake for equipment protection. Continuous flow is assured and protection is provided for nozzles, pumps, valves, heat exchangers and other process equipment.

These high quality strainers can also handle other liquids with water-like viscosities such as water based machine tool coolant successfully. The limiting factors are the level of solids content and the ability to handle the backwash discharge flow.

Eaton Automatic Self-Cleaning Strainers will significantly reduce maintenance costs, due to a design that reduces the number of internal parts to ensure the strainer is easy to access and maintain.

Eaton Automatic Self-Cleaning Strainers provide uninterrupted flow, a major consideration in plant operation. They are a worthwhile investment in applications where frequent cleaning of large size lines or installations in remote locations is encountered. These strainers also provide worry-free operation. Unexpected problems such as high system differential pressure due to a dirty strainer basket resulting in downtime or unscheduled maintenance will not occur.

Eaton Automatic Self-Cleaning Strainers are ideal as replacements for both simplex or duplex manual strainers because of their reliability and low maintenance requirements.

TYPICAL APPLICATIONS

Irrigation systems where low head is commonly encountered.

Fire protection/general service water from ponds and lakes.

Installations on the suction side of service water pumps.

Intake water for plants from rivers, bays, etc. where head variations occur.

Secondary effluent in treatment plants for spray nozzles and service water applications.