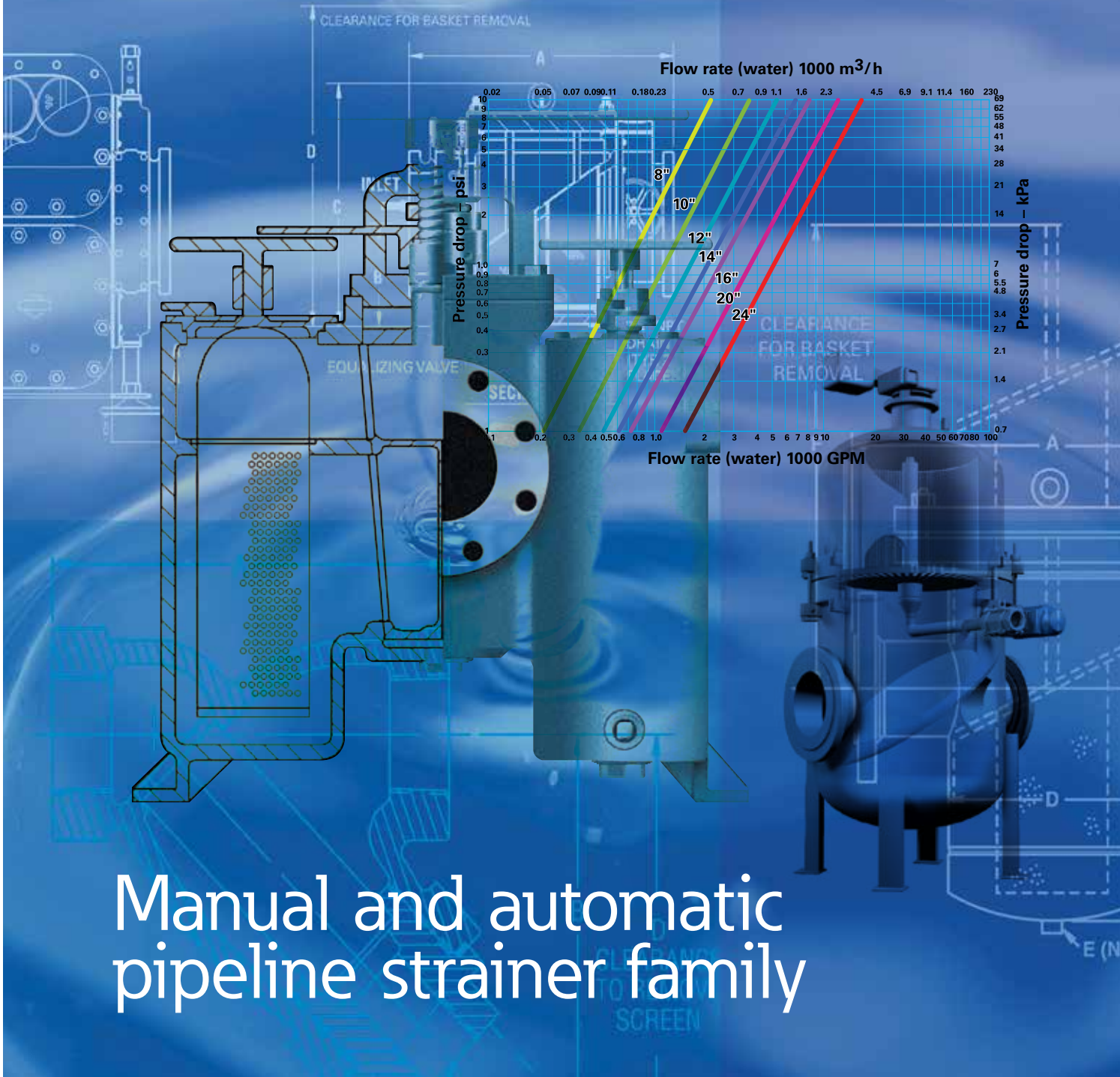


Permanent Media Systems

T and Y-Type
Simplex
Duplex

2596 Automatic
Temporary
Multi-Basket

MCS-Series
Control Systems
Media



Manual and automatic pipeline strainer family



Powering Business Worldwide



Eaton's filtration business is a global leader in manufacturing filtration products that include automatic self-cleaning and fabricated pipeline strainers, mechanically cleaned filters and strainers, bag, cartridge and depth sheet filtration systems, hydraulic and lubrication oil filtration and gas/liquid separators for industrial customers worldwide. Eaton has engineering and research and development centers in the USA, Belgium, Germany and China. Sales and service centers are located in 11 countries.

Eaton supplies high-quality systems, parts and services to markets that include automotive, food and beverage, ethanol and biofuels, oil and gas, pharmaceutical, power generation, pulp and paper, chemical, paints and coatings, electronics, iron and steel manufacturing, marine and municipal and industrial water. Eaton is well positioned in key markets and is expanding its global footprint with initiatives in the Americas, EMEA and Asia Pacific.

Eaton's filtration business has led the way with technology that meets the growing and rigorous demands of vital industrial sectors. Utilizing a variety of filtration technologies, Eaton has consistently implemented the best solutions available while continually striving to make a difference for customers and the environment.

Eaton filtration services

- State-of-the-art water testing lab facility
- Long-term or short-term equipment rental
- Field service—inspections, start-up, maintenance, repair and replacement
- Field trials
- Extensive network of manufacturer representatives and distributors worldwide
- Worldwide technical support in international markets
- Team of product specialists dedicated to providing application engineering

Eaton technologies

- Customized and modular solutions provide a full range of retention capabilities and construction materials in manual and automated designs
- ISO 9001-2008 quality management
- Standard ASME "U"; "UM" Code and CRN Stamp
- "N" stamp available
- European standards - DIN/PED
- EPA compliant solutions
- Properly sized components to meet any specified flow rate and retention requirement
- NSF approved coatings
- Ultra low discharge strainer technology that offers reduced purge volumes

Eaton sustainability commitment

Eaton is unwavering in our commitment to being sustainable by design—in the way we operate, through the design of our products and through the energy and climate saving benefits our products deliver. Eaton issues a sustainability report as part of its annual report, available on www.eaton.com.

North America
44 Apple Street
Tinton Falls, NJ 07724
Toll Free: 800 656-3344
(North America only)
Tel: +1 732 212-4700

Europe/Africa/Middle East
Auf der Heide 2
53947 Nettersheim, Germany
Tel: +49 2486 809-0

Internormen Product Line
Friedensstraße 41
68804 Altludersheim, Germany
Tel: +49 6205 2094-0

Begerow Product Line
An den Nahewiesen 24
55450 Langenlonsheim, Germany
Tel: +49 6704 204-0

China
No. 3, Lane 280,
Linhong Road
Changning District, 200335
Shanghai, P.R. China
Tel: +86 21 5200-0099

Singapore
4 Loyang Lane #04-01/02
Singapore 508914
Tel: +65 6825-1668

Brazil
Av. Julia Gaioli, 474 – Bonsucesso
07251-500 – Guarulhos, Brazil
Tel: +55 11 2465-8822

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Permanent Media Systems

T and Y-Type
Simplex
Duplex

2596 Automatic
Temporary
Multi-Basket

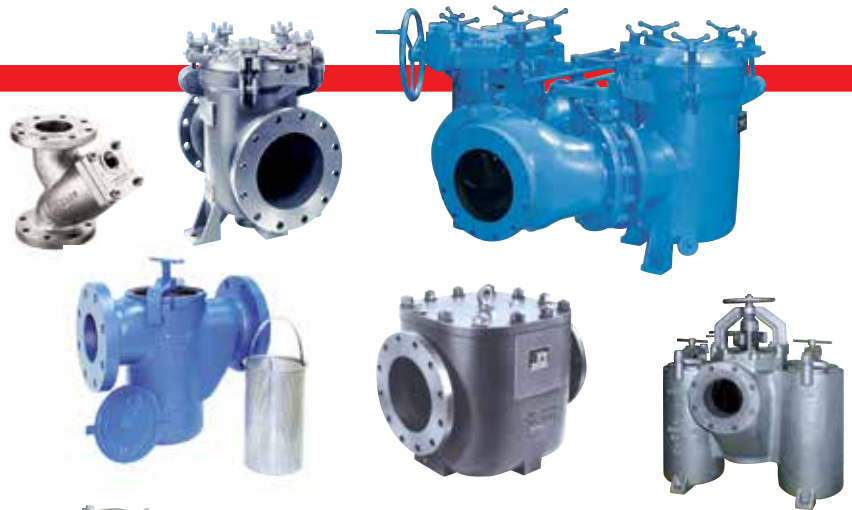
MCS-Series
Control Systems
Media

Pipeline strainer family

Contents

Standard cast pipeline strainers

- Cast strainers—introduction
- Model 85 Y strainer
- Model 72 simplex strainer
- Model 73 simplex straight flow strainer
- Model 72SJ simplex steam jacketed strainer
- Model 72L simplex Tefzel®-lined strainer
- Model 30R economy simplex strainer
- Model 510 multi-basket simplex strainer
- Model 53BTX ball-type duplex strainer
- Model 50 plug-type duplex strainer
- Model 52 large duplex strainer
- Model 570 multi-basket duplex strainer
- Strainer options and temporary strainers
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Fabricated pipeline strainers

- Fabricated strainers—introduction
- Model 90 simplex strainer
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Automatic backwashing strainers

- Model 2596 series motorized strainer—introduction
- Model 2596 2"– 8" cast iron or stainless steel
- Model 2596 10"– 16" cast ductile iron
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- How it works - "backwash arm"
- Technical data
- Media and control systems



Mechanically cleaned strainers

- MCS 500 magnetically coupled strainer
- MCS 1500 magnetically coupled strainer
- Mechanically cleaned strainer technical data and options



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Tefzel® is a registered trademark of E. I. du Pont de Nemours and company.

Chemicals

The presence of a pipeline strainer means a cleaner product, protection of equipment and simple separation of solids from liquids. By installing a pipeline strainer, noticeable improvements in chemical operations and guaranteed longer running life of equipment are possible.

Industrial and municipal water

Eaton strainers remove debris from lakes, streams and wells that can damage or clog equipment. They also remove leaves, insects, feathers, etc. From cooling tower water where the system is open to the atmosphere. For desalinization equipment, they take out unwanted matter from the water before it is treated for salt removal. Spent wastewater often passes through a basket strainer to take out material that should not go into a sewer or a waterway.

Pharmaceuticals and cosmetics

Ointments, lotions and similar products, which may contain clumps of undispersed or undissolved matter, are pumped through strainers. In the manufacture of lipstick, for instance, unwanted lumps can ruin the product.

Petroleum

Pipeline strainers clean unwanted material from petroleum products ranging from crude oil to gasoline. Fuel oil can contain gums, tars

or other dirt that can plug the nozzles of an oil burner. Every industrial oil burner is equipped with a strainer to screen these out. Similarly, refineries use strainers in oil handling operations to keep debris away from pumps and meters.

Pulp and paper

Smooth paper finishes require coatings be free of pigment clumps. Strainers in the coating lines catch and retain the lumps. They also clean traces of pulp or paper from white water effluent before it is discharged.

Process equipment

By installing a pipeline strainer ahead of expensive process equipment, the strainers protect against damage from scale, dirt or by-products, preventing costly shutdowns. Heat exchangers, condensers and pumps use strainers on their intake sides. Pipeline strainers keep flow meters and spray nozzles from clogging.

Paint, ink and latex

Undissolved lumps of resin, skins or clumps of pigment can ruin costly coating products. They are hard to detect, yet easy to avoid when using Eaton strainers.

Marine industry

Pipeline strainers are vital in handling seawater, which can contain a good deal of undesirable matter. Cooling lines, fire control lines, sanitary lines and general cleaning lines use strainers. Strainers also clean fuel, hydraulic and lubrication systems.

Tank cars and trucks

A basket strainer installed on a tank truck that dispenses liquids can catch unwanted solid material. Many chemical products undergo changes during storage or transport—which result in solid residues. The presence of solids in liquid fertilizers or pesticides, for example, can cause clogging of spray equipment.

Commercial buildings, hospitals and schools

Cooling towers and boilers use pipeline strainers to protect them from damage due to scaling.

Food industry

Strainers remove bits of pulp, skins or other unwanted matter from fruit juices. They remove lumps from chocolate syrup and wax from honey. The baking industry strains bone and gristle from molten lard with basket strainers and uses them to remove bits of dough, seeds, etc. From discharge water. Straining water allows it to be recycled and used for other purposes.



Power generation

The electric power industry uses strainers to clean water for cooling and to protect equipment. They also strain transformer oil to avoid clogging of the circulating lines.

More information

For specific, detailed application information, consult Eaton.

North America
44 Apple Street
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Toll Free: 800 656-3344
(North America only)
Tel: +1 732 212-4700

Europe/Africa/Middle East
Auf der Heide 2
53947 Nettersheim, Germany
Tel: +49 2486 809-0

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Friedensstraße 41
68804 Altlufsheim, Germany
Tel: +49 6205 2094-0

Begerow Product Line
An den Nahewiesen 24
55450 Langenlonsheim, Germany
Tel: +49 6704 204-0

China
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Linhong Road
Changning District, 200335
Shanghai, P.R. China
Tel: +86 21 5200-0099

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4 Loyang Lane #04-01/02
Singapore 508914
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Simplex, Duplex, Y-Type, Temporary, Baskets and Screens

Standard cast pipeline strainers

High performance systems for keeping debris out of your downstream equipment

Eaton standard cast pipeline strainers protect pumps, filters, nozzles, flow meters, valves, heat exchangers, condensers, oil burners, boilers and other process system components from damaging pipeline debris. Eaton maintains the largest and broadest inventory of strainers in the industry, and can provide off-the-shelf delivery of simplex, duplex and Y strainers in metals such as cast iron, carbon steel, bronze and stainless steel.



Y strainers function in a variety of liquid and gas steam straining applications to protect downstream process system components from damage or clogging by sand, gravel or other debris. Y strainers remove unwanted solids from liquid, gas or steam lines by means of a perforated or wire mesh element. Y strainers are cost-

effective when removing a small amount of material—resulting in long intervals between screen cleanings. To clean the strainer screen, shut down the line and remove the strainer cap. For applications with heavier dirt loading, Y strainers fitted with a "blow off" connection permits cleaning of the screen without removing it from the strainer body.

Simplex basket strainers are used when liquids require regular or frequent cleaning, and when the line can be shut down for short periods to clean or change the basket. Basket strainers hold substantially more material than Y strainers and offer a lower pressure drop. Installed



upright, in a horizontal line, the basket strainer lifts out from the top. This makes it easier to use with gummy or sticky fluids or with large pipeline sizes where the filled basket weight can be considerable.



Duplex basket strainers operate continuously so the pipeline flow never has to be shut down for strainer basket cleaning. When one basket is full, the flow shifts to the other one, making it easy to remove, clean and replace the first basket. Duplex or double basket strainers are valuable in locations in which it is impossible to shut off flow to stop the operation. Examples of these processes include cleaning fuel oil in large indus-

trial oil burners, all types of marine applications, screening water in cooling towers and straining fluids in continuously running chemical operations.

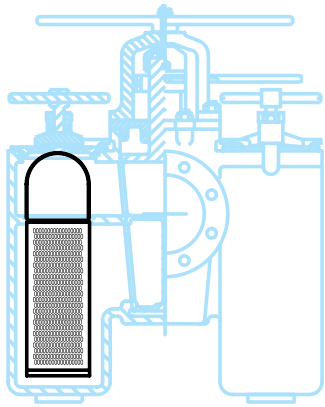
Eaton standard cast pipeline strainers meet customers' expectations and the highest standards, including:

- ISO 9001-2008 quality management
- Properly sized components to meet any specified retention requirement and flow rate
- NSF approved coatings
- Ultra low discharge strainer technology that offers reduced purged volumes

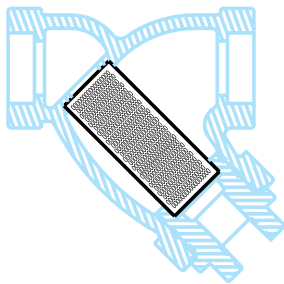
For more than 50 years, Eaton has led the way with designs that meet the growing and rigorous demands of process and manufacturing industries, utilities and municipalities around the world.

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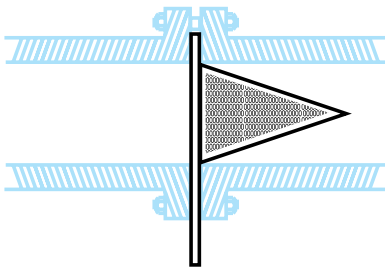
Powering Business Worldwide



Partial cutaway of plug type duplex strainer showing basket in position



Cutaway of Y strainer shows strainer screen in position

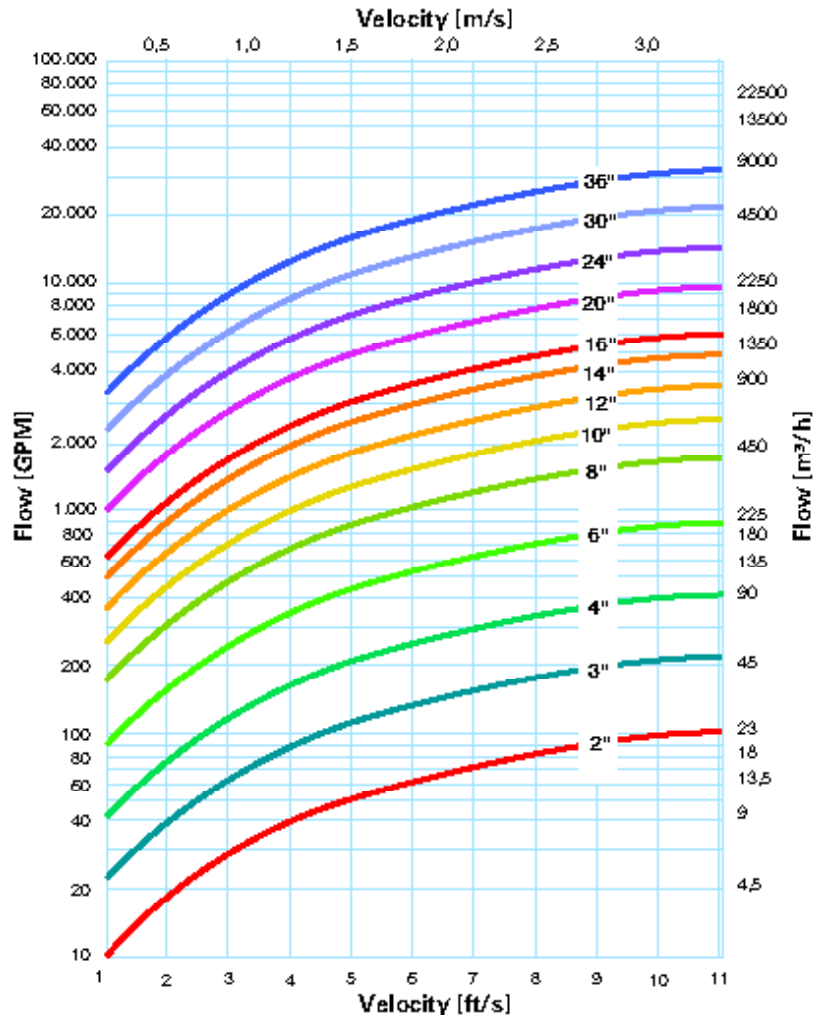


Cone type temporary strainer is shown bolted between two pipe flanges

Basic sizing guidelines

1. Select the correct screen and opening size, do not make smaller than necessary.
2. The quantity, type and nature of debris to be removed are considered.
3. The strainer meets the design pressure and temperature requirements of the pipeline.

Strainer sizing chart



North America
44 Apple Street
Tinton Falls, NJ 07724
Toll Free: 800 656-3344
(North America only)
Tel: +1 732 212-4700

Europe/Africa/Middle East
Auf der Heide 2
53947 Nettersheim, Germany
Tel: +49 2486 809-0

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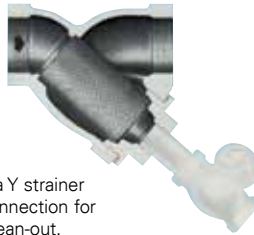
Model 85



- 1/4" to 10"
- Carbon steel and stainless steel
- Threaded, flanged or socket weld connections

Features

- Compact design
- Bolted or threaded covers
- Standard stainless steel screens
- Horizontal or vertical installation

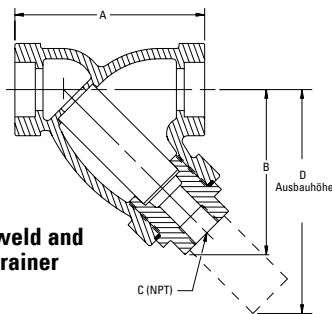


Cross-section of a Y strainer with "blow-off" connection for quick and easy clean-out.

Options

- Basket perforations from 1/32" to 1/2"
- Basket mesh from 20 to 400
- MONEL® screens

MONEL® is a registered trademark of Special Metals Corporation group of Companies.



Typical socket weld and threaded Y strainer



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Eaton Model 85 Y strainers are engineered to withstand aggressive industrial and commercial applications. Y strainers protect downstream process system components by mechanically removing unwanted solids from liquid, gas or steam lines by means of a perforated or wire mesh straining element.

To protect against any bypass, the Model 85 Y strainers are manufactured with a precision-machined screen seat on the body of the strainer and high-quality stainless steel screens fabricated to fit the strainer body perfectly. Model 85 Y strainers are available in carbon steel or stainless steel

for pipeline sizes from 1/4" to 10" with threaded, flanged or socket weld connections.

For cost-effective straining solutions, Y strainers work well in applications in which the amount of material to be removed from the flow is relatively small—resulting in long intervals between screen cleanings. The strainer screen is manually cleaned by shutting down the line and removing the strainer cap.

For applications with heavier dirt loading, Y strainers fitted with a "blow-off" connection permit cleaning of the screen without removing it from the strainer body.

Eaton Model 85 Y strainers 1/4" to 10" carbon or stainless steel-threaded, socket weld or flanged

Size	Material	End connection	Cover	Rating (WOG non-shock)*
1/4" to 2"	Carbon steel	Threaded or socket weld 600#	Threaded	1480 psi (102 bar)
1/4" to 2"	Stainless steel	Threaded or socket weld 600#	Threaded	1440 psi (99 bar)
1/2" to 10"	Carbon steel	Flanged 150#	Bolted	285 psi (20 bar)
1/2" to 10"	Carbon steel	Flanged 300#	Bolted	740 psi (51 bar)
1/2" to 10"	Stainless steel	Flanged 150#	Bolted	275 psi (19 bar)
1/2" to 10"	Stainless steel	Flanged 300#	Bolted	720 psi (50 bar)

* @ 100 °F (38 °C)

Socket weld, threaded carbon steel or stainless steel – 600# (in/mm)

Size	A	B	C (Nom.)	D	Wt (lb / kg)
1/4	3.00 / 76	3.00 / 76	3/8	4.00 / 102	2 / 0.9
3/8	3.00 / 76	3.00 / 76	3/8	4.00 / 102	2 / 0.9
1/2	3.00 / 76	3.00 / 76	3/8	4.00 / 102	2 / 0.9
3/4	3.75 / 95	3.50 / 89	3/8	4.75 / 121	4 / 1.8
1	4.63 / 118	4.00 / 102	1/2	5.75 / 146	6 / 2.7
1-1/4	5.00 / 127	4.63 / 118	3/4	6.50 / 165	8 / 3.6
1-1/2	5.63 / 143	5.25 / 133	3/4	7.50 / 191	10 / 4.5
2	7.00 / 178	5.75 / 146	1	8.75 / 222	15 / 6.8

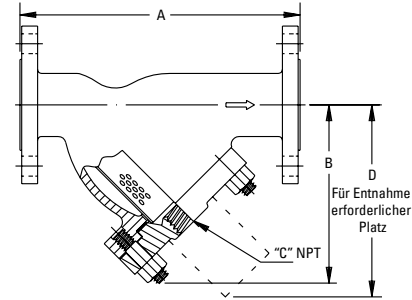
Consult Eaton for 12" and larger size dimensions. Dimensions and weights are for references only. Contact Eaton for certified drawings.

Model 85Y Strainer

Flanged carbon steel or stainless steel – 150# (in/mm)

Size	A	B	C (Nom.)	D	Wt (lb / kg)
1/2	5.00 / 127	2.75 / 70	3/8	3.50 / 89	5 / 2.3
3/4	5.63 / 143	3.00 / 76	3/8	4.00 / 102	7 / 3.2
1	6.38 / 162	3.64 / 92	1/2	5.00 / 127	9 / 4.1
1-1/4	7.25 / 184	4.25 / 108	3/4	5.75 / 146	14 / 6.3
1-1/2	8.88 / 226	5.75 / 146	3/4	6.50 / 165	18 / 8.2
2	7.88 / 200	6.00 / 152	1	8.25 / 210	16 / 7.3
2-1/2	9.75 / 248	6.50 / 165	1	9.25 / 235	25 / 11.4
3	10.00 / 254	7.25 / 184	1-1/4	10.50 / 267	35 / 16
4	12.13 / 308	9.75 / 248	1-1/2	14.75 / 375	70 / 32
6	18.50 / 470	14.25 / 362	2	21.00 / 533	130 / 59
8	21.63 / 549	18.00 / 457	2	26.75 / 679	240 / 109
10	26.00 / 660	22.50 / 565	2	33.75 / 857	300 / 136

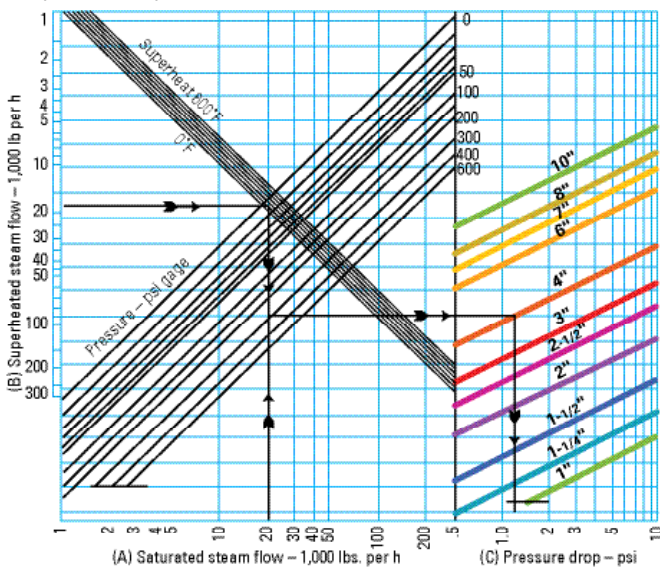
Typical flanged Y strainer



Flanged carbon steel or stainless steel – 300# (in/mm)

Size	A	B	C (Nom.)	D	Wt (lb / kg)
1/2	5.25 / 133	2.75 / 70	3/8	3.50 / 89	6 / 2.7
3/4	6.00 / 152	3.00 / 76	3/8	4.00 / 102	9 / 4.1
1	6.88 / 175	3.63 / 92	1/2	5.00 / 127	13 / 6.0
1-1/4	7.75 / 197	4.25 / 108	3/4	5.75 / 146	18 / 8.2
1-1/2	9.38 / 238	5.75 / 146	3/4	6.50 / 165	24 / 11
2	8.63 / 219	6.25 / 159	1	8.25 / 210	30 / 13.6
2-1/2	10.63 / 270	7.00 / 178	1	9.25 / 235	40 / 18.2
3	12.00 / 305	7.75 / 197	1-1/4	10.50 / 267	55 / 25
4	14.50 / 368	10.50 / 267	1-1/2	14.75 / 375	105 / 48
6	20.00 / 508	14.75 / 375	2	21.00 / 533	200 / 91
8	23.38 / 594	18.75 / 476	2	27.00 / 686	360 / 164
10	27.38 / 695	22.75 / 578	2	34.50 / 876	430 / 195

Steam pressure drops



Calculating saturated steam pressure drop

Example: Pressure = 300 psig (20 bar)
Flow rate = 20,000 lb/h (55,000 kg/h)
Strainer size = 4 inches

1. Locate steam flow on Scale A.
2. Follow vertical line to required pressure.
3. Follow horizontal line to strainer size.
4. Follow vertical line downward and read pressure drop on Scale C.
5. Pressure drop equals 1.25 psi (114 bar).

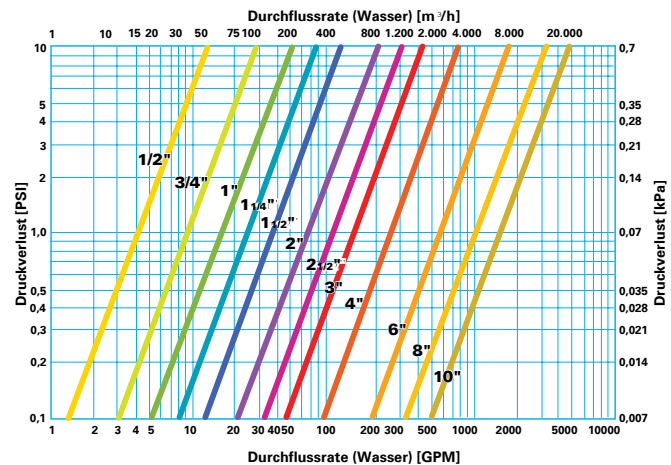
Calculating superheated steam pressure drop

Example: Pressure = 300 psig (20 bar)
Flow rate = 18,000 lb/h (40,000 kg/h)
Strainer size = 4 inches

1. Locate steam flow on Scale B.
2. Follow horizontal line to superheat.
3. Follow vertical line to pressure.
4. Follow horizontal line to strainer size.
5. Follow vertical line and read pressure drop on Scale C.
6. Pressure drop equals 1.25 psi (114 bar).

Note: Use the superheat temperature value above the saturated steam temperature to obtain the point on this graph.

Flow rates



North America
44 Apple Street
Tinton Falls, NJ 07724
Toll Free: 800 656-3344
(North America only)
Tel: +1 732 212-4700

Europe/Africa/Middle East
Auf der Heide 2
53947 Nettersheim, Germany
Tel: +49 2486 809-0

Internormen Product Line
Friedensstraße 41
68804 Altludersheim, Germany
Tel: +49 6205 2094-0

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An den Nahewiesen 24
55450 Langenlonsheim, Germany
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No. 3, Lane 280,
Linhong Road
Changning District, 200335
Shanghai, P.R. China
Tel: +86 21 5200-0099

Singapore
4 Loyang Lane #04-01/02
Singapore 508914
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Av. Julia Gaioli, 474 – Bonsucesso
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Simplex Basket Strainer

Model 72

Pipeline
Strainer

Cast
Construction

Permanent
Media



- Sizes 3/8" to 8"
- Iron, bronze, carbon steel or stainless steel
- Threaded or flanged

Features

- Quick open cover—no tools needed
- Heavy wall construction
- Large capacity baskets
- Machined basket seat
- Threaded drain
- Mounting feet for stable installation for flanged units 2" and larger
- Perforated or mesh 316 stainless steel basket
- American Bureau of Shipping (ABS) Type Approved for ship designers, builders and owners



Options

- Basket perforations from 1/32" to 1/2"
- Basket mesh from 20 to 400
- MONEL® baskets
- Viton®, PTFE encapsulated or EPDM seals
- Vent valves
- Gauge/vent taps - 1/4" NPT
- Magnetic basket inserts
- Pressure differential gauge and switch
- Flange according to DIN EN

The Eaton Model 72 has been the industry standard simplex basket strainer for more than 75 years. It is perfect for industrial and commercial applications in which the line can be temporarily shut down for strainer basket cleaning or changeout.

A reason for its popularity is the unusually large basket capacity. The free straining area with a perforated basket is a minimum of six times the cross sectional pipe area. No tools are needed to open the cover. The quick opening, swinging yoke can be disassembled and the basket removed in seconds. On sizes 4" and larger, a special cover clamp is provided to distribute

the seating pressure and to ensure positive seating of the cover.

Another feature is a threaded drain on every size strainer (fitted with a yoke quick-closer). Sizes 2" and larger are equipped with legs that bolt to the floor for rock solid installation.

Wall thicknesses are exceptionally heavy. The basket seats are precision machined to give a tight seal and prevent any material from bypassing the basket. The Eaton Model 72 simplex basket strainer is a top quality, heavy-duty unit designed to stand up to the most demanding of applications.

Model 72 simplex

Size	Material	End connection	Seals	Pressure rating*
3/8" to 3"	Iron and bronze	Threaded	Buna-N®	200 psi (13.8 bar)
1" To 3"	Carbon steel	Threaded	Buna-N	200 psi (13.8 bar)
1" To 3"	Stainless steel	Threaded	Viton	200 psi (13.8 bar)
1" To 8"	Iron	Flanged 125#	Buna-N	200 psi (13.8 bar)
1" To 8"	Bronze	Flanged 150#	Buna-N	200 psi (13.8 bar)
1" To 8"	Carbon steel	Flanged 150#	Buna-N	200 psi (13.8 bar)
1" To 8"	Stainless steel	Flanged 150#	Viton	200 psi (13.8 bar)

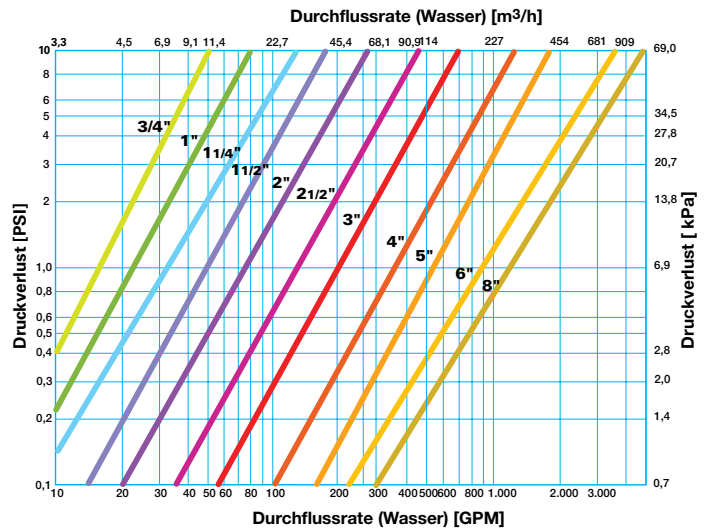
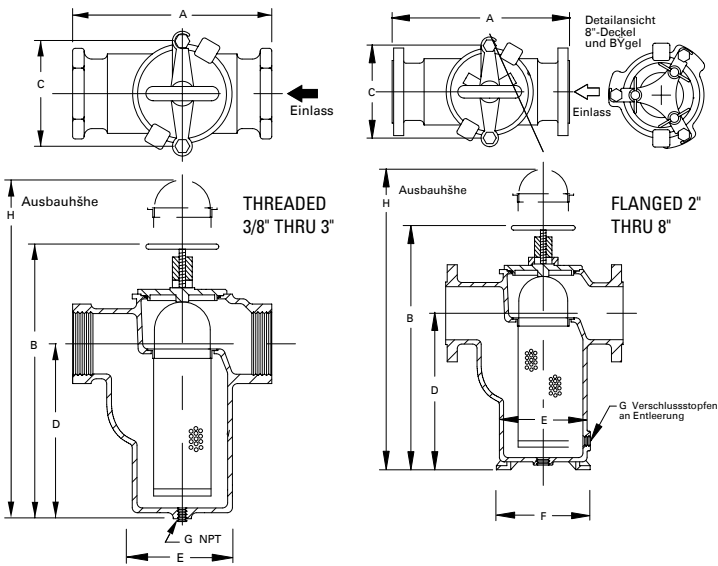
* @ 100 ° F (38 ° C)

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Powering Business Worldwide

Model 72 Simplex Basket Strainer



Threaded Model 72 dimensions (in/mm)

Dimensions and weights are for reference only. Contact Eaton for certified drawings.

Size	A	B	C	D	E	F	G	H	-----Net Wt (lb / kg) -----			
									Bronze	Carbon Steel	Iron	Stainless Steel
3/8	4.00 / 102	6.63 / 168	2.88 / 73	4.00 / 102	2.38 / 60	-	3/8	11 / 279	4 / 1.8	-	4 / 1.8	-
1/2	4.00 / 102	6.63 / 168	2.88 / 73	4.00 / 102	2.38 / 60	-	3/8	11 / 279	4 / 1.8	-	4 / 1.8	-
3/4	5.38 / 137	8.38 / 213	4.00 / 102	5.00 / 127	3.06 / 78	-	1/2	13 / 330	8 / 3.6	-	7 / 3.2	-
1	5.38 / 137	8.38 / 213	4.00 / 102	5.00 / 127	3.06 / 78	-	1/2	13 / 330	8 / 3.6	7 / 3.2	7 / 3.2	7 / 3.2
1-1/4	6.75 / 172	9.88 / 251	4.88 / 124	5.88 / 149	3.88 / 99	-	1/2	14 / 356	13 / 6	-	12 / 6	-
1-1/2	7.25 / 184	11.00 / 279	4.88 / 124	7.00 / 178	4.00 / 102	-	3/4	16 / 406	16 / 7	15 / 7	15 / 7	16 / 7.3
2	8.75 / 222	13.38 / 340	6.75 / 172	7.63 / 194	5.13 / 130	-	1-1/4	21 / 533	32 / 15	36 / 16	28 / 13	31 / 14
2-1/2	10.38 / 264	14.88 / 378	8.00 / 203	8.63 / 219	6.38 / 162	-	1-1/2	26 / 660	49 / 22	52 / 24	42 / 19	51 / 23
3	11.50 / 292	17.75 / 468	8.00 / 203	11.38 / 298	6.63 / 168	-	1-1/2	28 / 711	60 / 27	60 / 27	52 / 23	60 / 27

Mod. 72 Cv factors*

Size	Value	Size	Value
3/8"	15.0	2"	73
1/2"	15.0	2-1/2"	125
3/4"	15.0	3"	180
1"	22.5	4"	350
1-1/4"	31.5	6"	900
1-1/2"	46.0	8"	1400

* For water with clean, perforated basket

Flanged Model 72 dimensions (in/mm)

Dimensions and weights are for reference only. Contact Eaton for certified drawings.

Size	A	B	C	D	E	F	G	H	-----Net Wt (lb / kg) -----			
									Bronze	Carbon Steel	Iron	Stainless Steel
1	7.63 / 194	8.38 / 213	4.00 / 102	5.00 / 127	-	-	1/2	13.00 / 330	16 / 7	9 / 4	9 / 4	9 / 4
1 1/2	10.25 / 260	11.00 / 279	4.88 / 124	7.00 / 178	-	-	3/4	16.00 / 406	30 / 14	17 / 7.7	17 / 7.7	17 / 7.7
2	10.50 / 268	13.75 / 349	6.75 / 172	7.63 / 194	5.13 / 130	6.25 / 159	3/8	20.00 / 508	49 / 22.3	36 / 16	36.5 / 17	36 / 16
2 1/2	11.63 / 295	15.63 / 397	8.00 / 203	8.88 / 226	6.38 / 162	7.63 / 194	3/8	23.00 / 584	64 / 29.1	63 / 27	54 / 25	63 / 29
3	13.13 / 334	18.00 / 457	8.00 / 203	10.63 / 270	6.50 / 165	8.00 / 203	3/8	27.00 / 686	85 / 38.6	-	76 / 35	-
3	13.13 / 334	18.75 / 476	7.94 / 202	12.00 / 305	6.50 / 165	8.00 / 203	1/2	27.00 / 686	-	86 / 39	-	86 / 39
4	16.75 / 425	19.88 / 505	10.75 / 273	10.75 / 273	9.63 / 245	11.38 / 289	1/2	30.00 / 762	140 / 63.6	-	125 / 55	-
4	17.25 / 438	19.88 / 505	10.69 / 272	10.69 / 272	9.25 / 235	11.38 / 289	1/2	30.00 / 762	-	130 / 59	-	130 / 59
5	18.13 / 461	25.13 / 638	10.75 / 273	15.25 / 387	10.00 / 254	11.38 / 289	1/2	41.00 / 1,041	182 / 82.7	-	170 / 775	-
6	19.63 / 499	28.50 / 724	10.69 / 272	18.38 / 467	10.00 / 254	11.38 / 289	1/2	46.00 / 1,168	270 / 122.7	235 / 107	200 / 91	235 / 107
8	27.00 / 686	40.50 / 1,029	-	27.00 / 686	13.75 / 349	17.50 / 445	1/2	60.00 / 1,524	600 / 272.7	550 / 250	500 / 227	550 / 250

North America
44 Apple Street
Tinton Falls, NJ 07724
Toll Free: 800 656-3344
(North America only)
Tel: +1 732 212-4700

Europe/Africa/Middle East
Auf der Heide 2
53947 Nettersheim, Germany
Tel: +49 2486 809-0

Internormen Product Line
Friedensstraße 41
68804 Altluisheim, Germany
Tel: +49 6205 2094-0

Begerow Product Line
An den Nahewiesen 24
55450 Langenlonsheim, Germany
Tel: +49 6704 204-0

China
No. 3, Lane 280,
Linhong Road
Changning District, 200335
Shanghai, P.R. China
Tel: +86 21 5200-0099

Singapore
4 Loyang Lane #04-01/02
Singapore 508914
Tel: +65 6825-1668

Brazil
Av. Julia Gaioli, 474 - Bonsucesso
07251-500 - Guarulhos, Brazil
Tel: +55 11 2465-8822

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US
EF-SSEA-5
6-2014

Straight Flow Basket Strainer



Model 73 Straight flow



- Iron or bronze
- Sizes 10" to 18"
- Flanged

Features

- Quick open cover
- Straight through flow design
- Low pressure loss
- Convoluted basket design
- Hand removable basket
- Threaded drain
- Buna-N® O-ring seal
- Perforated or mesh 316 stainless steel basket
- Low profile
- American Bureau of Shipping (ABS) Type Approved for ship designers, builders and owners



Options

- Basket perforations from 1/32" to 1/2"
- Basket mesh of 20, 40 or 60
- MONEL® baskets
- Vent valves
- Drain valves
- Gauge/vent taps - 1/4" NPT
- Pressure differential gauge and switches

MONEL® is a registered trademark of Special Metals Corporation group of Companies.

The Best simplex strainer for high flow applications in large pipelines

The Eaton Model 73 simplex basket strainer with its straight flow design greatly reduces pressure loss and results in a compact strainer that can fit in tight spaces.

Special basket strainer

Large size pipelines with high flow rates require a specific type of basket strainer. The convoluted (pleated) perforated or mesh screens in the basket increases the amount of straining area available while reducing the basket size and weight. This makes it easy to remove the basket from the strainer housing. No lifting tackle required. The quick opening cover provides fast

and easy access to the basket for quick service. This can save considerable time and money in labor.

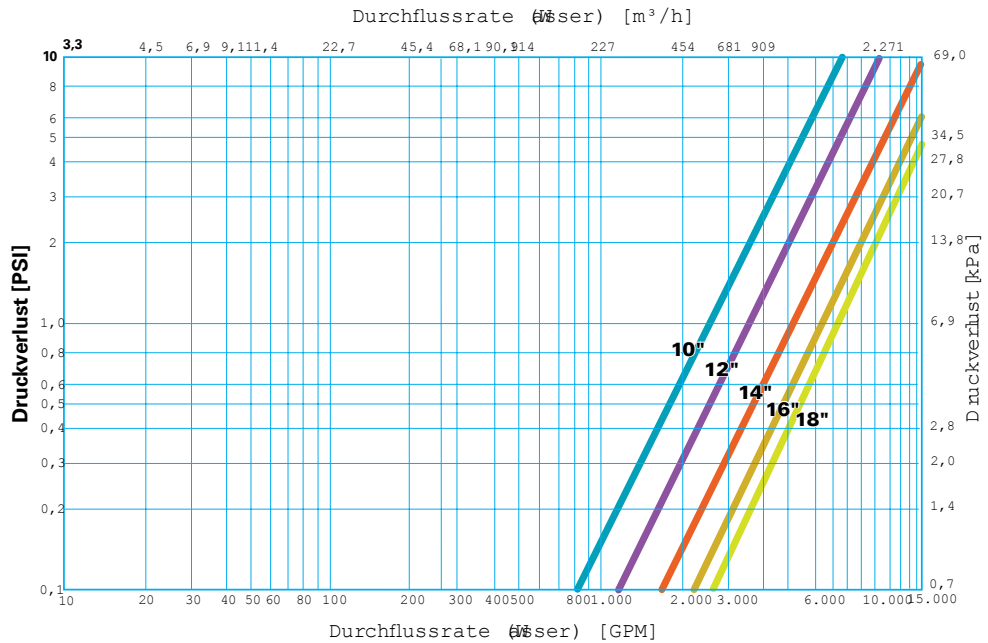
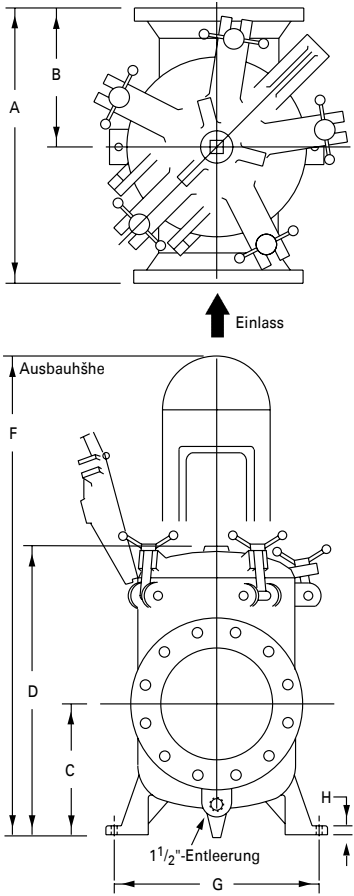
When selecting a pipeline strainer for a large size piping system with high flow rates, be sure to consider all the factors, not just initial pressure loss. The amount of straining area in the basket is critical to reducing the amount of time between cleanings or changeouts.



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Powering Business Worldwide

Model 73 Straight Flow Strainer



Selection chart

Size	Material	End connection	Seals	Pressure rating*
10" to 12"	Iron	Flanged 125#	Buna-N	200 psi (13.8 bar)
10" to 12"	Bronze	Flanged 150#	Buna-N	200 psi (13.8 bar)
14" to 18"	Iron	Flanged 125#	Buna-N	150 psi (10.3 bar)
14" to 18"	Bronze	Flanged 150#	Buna-N	150 psi (10.3 bar)

* @ 100 °F (38 °C)

Cv factors*

Size	Value
10"	2300
12"	3200
14"	5000
16"	6000
18"	7000

* For water with clean, perforated basket

Dimensions (in/mm) Model 73 straight flow

Pipe size	A		B		C		D		F		G		H		Net Wt (lb / kg)			
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	Iron	Bronze		
10	23.00	584	11.00	279	12.19	310	29.00	737	47.00	1194	19.00	483	15/16	24	420	191	500	227
12	27.00	686	13.00	330	16.75	425	38.00	965	67.00	1702	23.00	584	1	25	550	250	825	374
14	31.00	787	15.50	394	18.75	476	45.00	1143	77.00	1956	27.00	686	1	25	850	386	1150	522
16	31.00	787	15.50	394	18.75	476	45.00	1143	77.00	1956	27.00	686	1	25	975	443	1400	635
18	31.00	787	15.50	394	18.75	476	45.00	1143	77.00	1956	27.00	686	1	25	1000	454	—	—

Dimensions and weights are for reference only. Contact Eaton for certified drawings.

North America
44 Apple Street
Tinton Falls, NJ 07724
Toll Free: 800 656-3344
(North America only)
Tel: +1 732 212-4700

Europe/Africa/Middle East
Auf der Heide 2
53947 Nettersheim, Germany
Tel: +49 2486 809-0

Internormen Product Line
Friedensstraße 41
68804 Altlufsheim, Germany
Tel: +49 6205 2094-0

Begerow Product Line
An den Nahewiesen 24
55450 Langenlonsheim, Germany
Tel: +49 6704 204-0

China
No. 3, Lane 280,
Linhong Road
Changning District, 200335
Shanghai, P.R. China
Tel: +86 21 5200-0099

Singapore
4 Loyang Lane #04-01/02
Singapore 508914
Tel: +65 6825-1668

Brazil
Av. Julia Gaioli, 474 – Bonsucesso
07251-500 – Guarulhos, Brazil
Tel: +55 11 2465-8822

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US
EF-SSEA-6
6-2014

Model 72SJ

- Carbon steel or stainless steel
- Sizes 1" to 8"
- Flanged

Features

- NPT steam connections
- Up to 100 psi (6.9 bar) steam pressure
- Quick open cover—no tools required
- Large capacity basket
- Threaded drain plug
- Machined basket seat
- Viton® seals
- Perforated or mesh 316 stainless steel basket

Options

- Basket perforations from 1/32" to 1/2"
- Basket mesh from 20 to 400
- MONEL® baskets
- Vent valves
- Drain valves
- Gauge/vent taps - 1/4" NPT
- Pressure differential gauge and switches

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The Model 72SJ is for applications in which materials must be kept hot to remain fluid. Examples are chocolate, asphalt, resins and polymers. By circulating steam or a heat transfer fluid through the strainer jacket, the strainer body temperature remains constant.

The basic strainer used in the Model 72SJ is Eaton's popular Model 72 simplex basket strainer that has proven itself an industry standard. All of the features of the Model 72 have been retained, including large basket capacity with a free straining area and a perforated

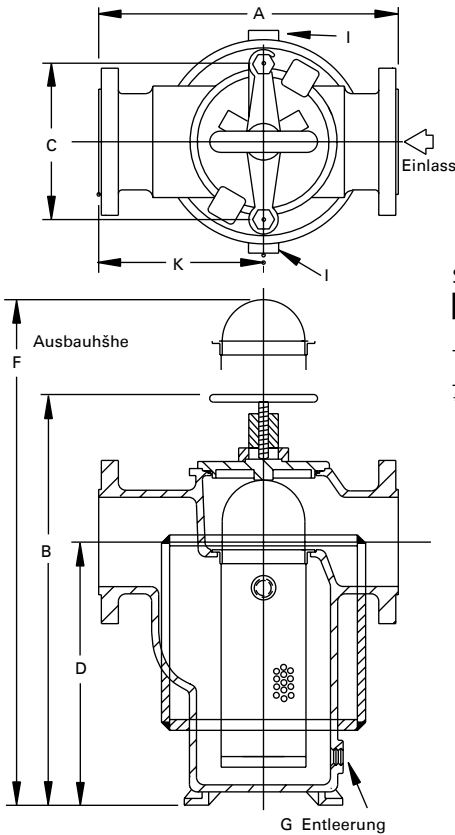
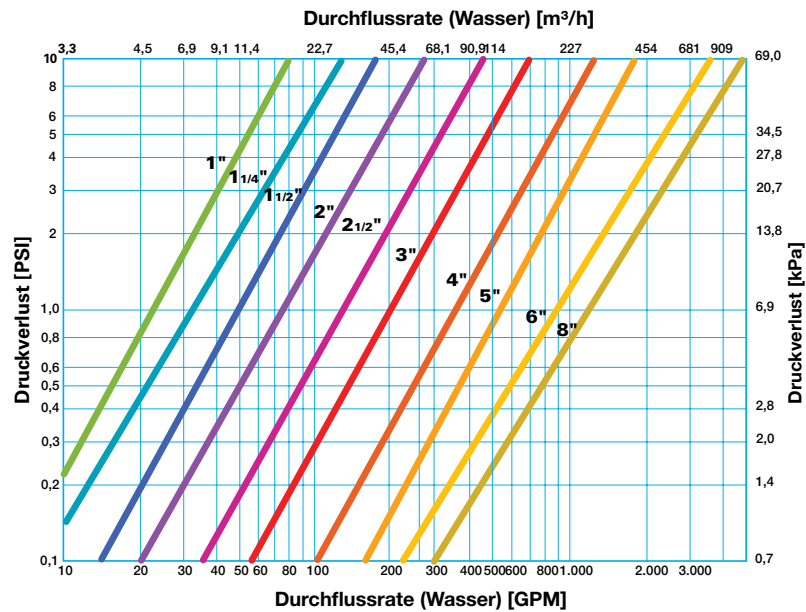
basket approximately six times the cross sectional pipe area. No tools are needed to open the cover. The quick opening, swinging yoke can be disassembled and the basket removed in seconds. The standard cover seal is Viton and can be used in most applications up to a temperature of 400 °F (204 °C).

Equipped with either a carbon steel or stainless steel jacket welded to the cast body, the steam jacket will handle steam pressures up to 100 psi (6.9 bar).



Powering Business Worldwide

Model 72SJ Steam Jacketed Basket Strainer



Selection chart

Size	Material	End connections	Seals	Pressure rating
1" to 8"	Carbon steel	Flanged 150#	Viton	200 psi (13.8 bar)
1" to 8"	Stainless steel	Flanged 150#	Viton	200 psi (13.8 bar)

* @ 100 °F (38 °C)

Cv factors*

Size	Value	Size	Value
1"	22.5	3"	180
1-1/4"	31.5	4"	350
1-1/2"	46.0	6"	900
2"	73.0	8"	1400
2-1/2"	125		

* For water with clean, perforated basket

Dimensions (in/mm) Model 72SJ straight flow

Size	A	B	C	D	F	G	I	K	Net Wt (lb / kg)	
									Carbon steel	Stain- less steel
1	7.63 / 194	8.38 / 213	4.00 / 102	5.00 / 127	12 / 305	1/2	1/2	4.31 / 110	16 / 7	-
1-1/2	10.25 / 260	11.00 / 279	4.88 / 124	7.00 / 178	16 / 406	3/4	1/2	5.75 / 146	25 / 12	-
2	10.50 / 268	13.75 / 349	6.75 / 172	7.63 / 194	20 / 508	3/8	1/2	5.75 / 146	48 / 22	45 / 20
2-1/2	11.63 / 295	15.63 / 397	8.00 / 203	8.75 / 222	23 / 584	3/8	1/2	6.38 / 162	81 / 37	75 / 34
3	13.13 / 334	18.75 / 476	8.00 / 203	12.00 / 305	27 / 686	1/2	1/2	7.25 / 184	112 / 51	105 / 48
4	17.25 / 438	19.88 / 505	10.75 / 273	10.75 / 273	29 / 737	1/2	3/4	9.63 / 245	165 / 75	155 / 70
6	19.63 / 499	28.50 / 724	10.75 / 273	18.38 / 467	46 / 1168	1/2	3/4	10.81 / 275	315 / 143	280 / 127
8	27.00 / 686	40.50 / 1029	-	27.00 / 686	60 / 1524	1/2	3/4	15.75 / 400	653 / 297	653 / 297

Dimensions and weights are for reference only. Contact Eaton for certified drawings.

Eaton
North America – HQ
 44 Apple Street,
 Tinton Falls, NJ 07724
 Toll Free: 800 656-3344
 (North America only)
 Voice: +1 732 212-4700
 Fax: 952 906-3706

North America
 44 Apple Street
 Tinton Falls, NJ 07724
 Toll Free: 800 656-3344
 (North America only)
 Tel: +1 732 212-4700

Europe/Africa/Middle East
 Auf der Heide 2
 53947 Nettersheim, Germany
 Tel: +49 2486 809-0

Internormen Product Line
 Friedensstraße 41
 68804 Altlufsheim, Germany
 Tel: +49 6205 2094-0

Begerow Product Line
 An den Nahewiesen 24
 55450 Langenlonsheim, Germany
 Tel: +49 6704 204-0

China
 No. 3, Lane 280,
 Linhong Road
 Changning District, 200335
 Shanghai, P.R. China
 Tel: +86 21 5200-0099

Singapore
 4 Loyang Lane #04-01/02
 Singapore 508914
 Tel: +65 6825-1668

Brazil
 Av. Julia Gaioli, 474 – Bonsucesso
 07251-500 – Guarulhos, Brazil
 Tel: +55 11 2465-8822

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US
 EF-SSEA-7
 6-2014

Model 72L



- Carbon steel with Tefzel® liner
- Corrosion resistant
- Sizes 1" to 6"
- Flanged

Features

- Excellent corrosion resistance
- Abrasion resistant 1/8" Tefzel lining
- Tefzel-coated baskets
- Service temperatures to 300 °F (149 °C)
- Quick opening covers
- Large capacity baskets
- Flanged drain
- Low cost alternative to exotic alloy strainers

Options

- MONEL® baskets
- HASTELLOY® C baskets
- Consult Eaton for available perf and mesh sizes

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A continuous lining of advanced fluoropolymer resin makes the Eaton Model 72L simplex strainer an excellent low cost alternative to exotic alloy strainers in a wide variety of corrosive or abrasive lined piping applications. These applications include wastewater treatment, paper mills, hazardous materials, flue gas systems, ultra pure water handling, chemical and petrochemical processing. The basic design of the Model 72L is Eaton's time tested Model 72 simplex basket strainer.

The body and cover of the Model 72L are lined, not just coated with Tefzel. This protects all wetted surfaces of the strainer, making it impervious to attack by chemicals that can cause rapid deterioration of other types of plastics and all but the most costly metal alloys.

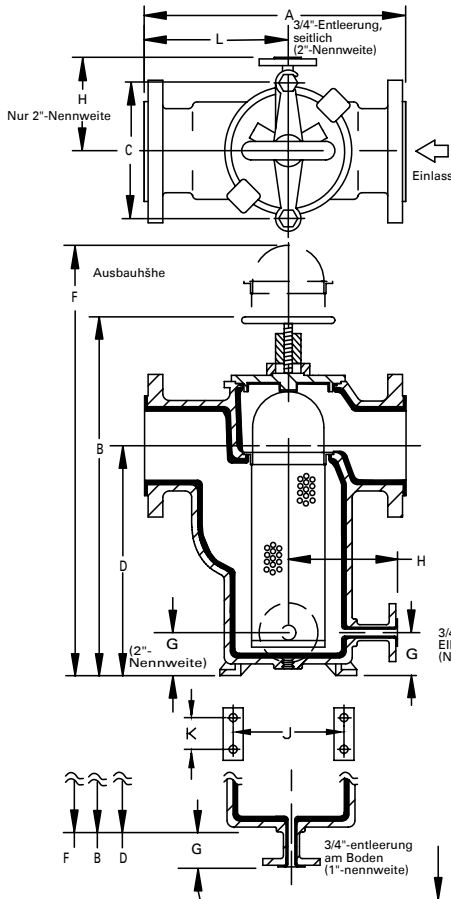
The Tefzel fluoropolymer lining is inert to strong mineral acids, inorganic bases, halogens and metal salt solutions. Even carboxylic acids, anhydrides, aromatic and aliphatic hydrocarbons, alcohols, aldehydes, ketones, ethers, esters, chlorocarbons and classic polymer solvents have no effect on the Tefzel lining. Service temperatures can range up to 300 °F (149 °C) in many applications. The lining also displays excellent mechanical strength when handling abrasive slurries.

Fitted with fluoropolymer coated perforated baskets or mesh baskets made of MONEL or HASTELLOY C, these strainers can be used in almost any lined piping or similar corrosive/abrasive strainer application.

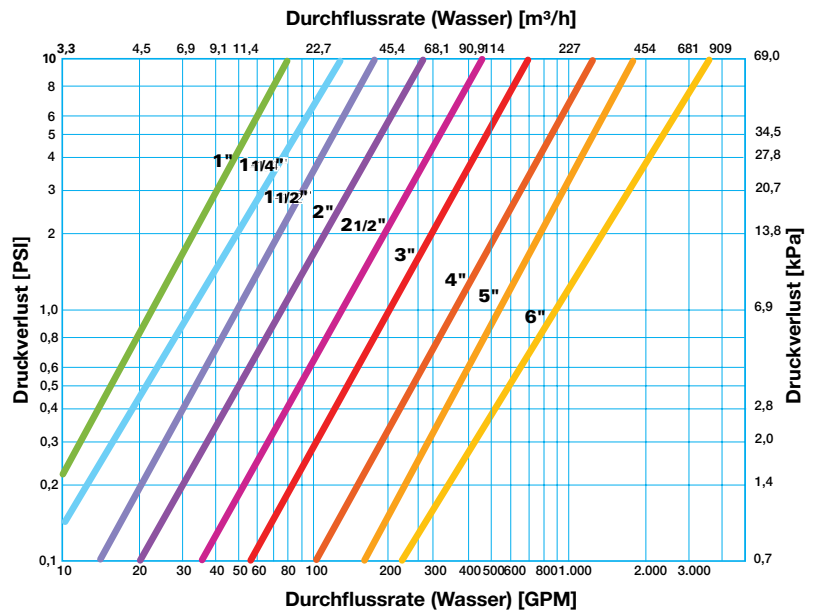


Powering Business Worldwide

Model 72L Tefzel-Lined Basket Strainer



Dimensions and weights are for reference only. Contact Eaton for certified drawings.



Selection chart

Size	Material	End connections	Seals	Pressure rating
1" to 6"	Carbon steel with Tefzel liner	Flanged 150#	Viton®	200 psi @ 100 °F (13.8 bar @ 38 °C)

Dimensions (in/mm)

Pipe size	A	B	C	D	F	G	H	J	K	L	Dry wt (lb / kg)
1	7.88 / 200	9.00 / 229	4.00 / 102	5.00 / 127	12 / 305	2.75 / 70	-	-	-	4.50 / 114	15 / 7
2	10.75 / 273	13.75 / 349	6.75 / 172	7.63 / 194	20 / 508	1.88 / 48	5.63 / 143	5.50 / 140	2.50 / 64	5.88 / 149	48 / 22
2-1/2	11.88 / 302	15.75 / 400	8.00 / 203	8.88 / 226	23 / 584	2.19 / 56	6.25 / 159	6.50 / 165	2.88 / 73	6.50 / 165	70 / 32
3	13.75 / 349	18.75 / 476	8.00 / 203	12.00 / 305	27 / 686	2.31 / 59	6.38 / 162	7.00 / 118	3.13 / 80	7.38 / 187	95 / 43
4	17.50 / 445	20.00 / 508	10.75 / 273	10.69 / 272	30 / 762	2.38 / 60	7.75 / 197	10.00 / 254	3.88 / 99	9.75 / 248	139 / 63
6	19.88 / 505	28.25 / 718	10.75 / 273	18.31 / 465	46 / 1168	2.19 / 56	7.88 / 200	10.00 / 254	5.00 / 127	11.00 / 279	250 / 1134

C_v factors*

Size	Value
1"	23
2"	72
2-1/2"	135
3"	170
4"	350
6"	880

* For water with clean, perforated basket

Basket & screen effective area – Tefzel-coated basket

Pipe size (in)	Perf. size (in)	Pipe area (in ²)	Screen area (in ²)	Free area (in ²)	Free/pipe ratio
1"	1/32	0.86	19.5	5.2	6.1
2"	1/16	3.35	50.9	15.8	4.7
2-1/2"	1/16	4.78	80.2	24.9	5.2
3"	5/32	7.39	114.5	72.1	9.8
4"	5/32	12.73	168.3	106.0	8.3
6"	5/32	28.90	324.2	204.2	7.1

North America
44 Apple Street
Tinton Falls, NJ 07724
Toll Free: 800 656-3344
(North America only)
Tel: +1 732 212-4700

Europe/Africa/Middle East
Auf der Heide 2
53947 Nettersheim, Germany
Tel: +49 2486 809-0

Internormen Product Line
Friedensstraße 41
68804 Altlufsheim, Germany
Tel: +49 6205 2094-0

Begerow Product Line
An den Nahewiesen 24
55450 Langenlonsheim, Germany
Tel: +49 6704 204-0

China
No. 3, Lane 280,
Linhong Road
Changning District, 200335
Shanghai, P.R. China
Tel: +86 21 5200-0099

Singapore
4 Loyang Lane #04-01/02
Singapore 508914
Tel: +65 6825-1668

Brazil
Av. Julia Gaioli, 474 – Bonsucesso
07251-500 – Guarulhos, Brazil
Tel: +55 11 2465-8822

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Model 30R

- Sizes 1- 1/2" to 8"
- Iron
- Threaded or flanged

Features

- Hand removable cover
- Drain plug
- Machined basket seat
- Perforated or mesh 316 stainless steel basket

Options

- Basket perforations from 1/32" to 1/2"
- Basket mesh from 20 to 400
- MONEL® baskets
- Vent valves
- Drain valves
- Gauge/vent taps - 1/4" NPT
- Magnetic basket inserts
- Pressure differential gauges and switches

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The Eaton Model 30R is a high-quality, low cost simplex basket strainer—perfect for cost sensitive applications.

Whereas the cost of the Model 30R is low, its design incorporates many features found only on more expensive units, including machined basket seats to protect against bypass, ensuring all of the flow is strained. The cover of the Model 30R is a clamp type and is hand removable

without the need for tools. This makes access to the basket quick and easy for cleanings or changeouts and every size strainer comes standard with a drain plug.

The Model 30R is the best choice simplex strainer for low or moderate pressure applications such as swimming pools, cooling towers and large air conditioning installations.

Selection chart

Size	Material	End connections	Seals	Pressure rating*
1-1/2" to 3"	Iron	Threaded	Buna-N®	200 psi (13.8 bar)
1-1/2" to 8"	Iron	Flanged 125#	Buna-N	200 psi (13.8 bar)

* @ 100 °F (38 °C)

Cv factors*

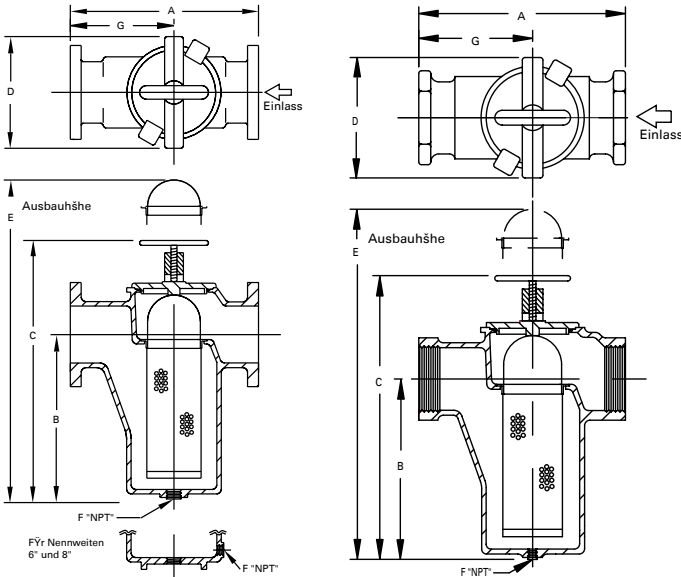
Size	Value	Size	Value
1-1/2"	58	4"	240
2"	90	6"	370
2-1/2"	140	8"	600
3"	200		

* For water with clean, perforated basket

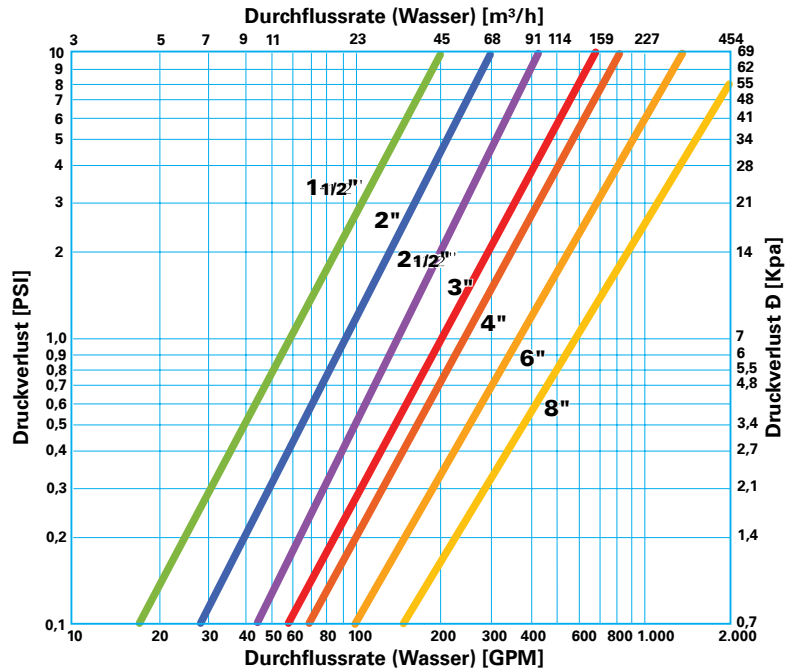


Powering Business Worldwide

Model 30R Economy Basket Strainer



Dimensions and weights are for reference only. Contact Eaton for certified drawings.



Dimensions (in/mm) flanged

Pipe size	A	B	C	D	E	F	G	Dry wt (lb / kg)
1-1/2	7.75 / 197	6.50 / 165	10.63 / 270	6.00 / 152	14.88 / 378	3/4	4.44 / 113	12 / 5.5
2	9.63 / 245	7.50 / 191	11.63 / 295	7.50 / 191	17.38 / 441	1-1/4	5.63 / 143	27 / 12.3
2-1/2	11.00 / 279	9.13 / 232	15.25 / 387	8.00 / 203	22.38 / 568	1-1/4	5.88 / 149	45 / 20.5
3	11.88 / 302	9.13 / 232	15.25 / 387	8.00 / 203	22.38 / 568	1-1/4	6.50 / 165	59 / 26.6
4	13.75 / 349	9.63 / 245	16.63 / 422	9.25 / 235	30.00 / 762	1-1/2	8.44 / 214	71 / 32.2
6	17.50 / 445	12.38 / 315	26.13 / 664	14.75 / 375	35.00 / 889	2	10.31 / 262	150 / 68.1
8	23.63 / 600	17.75 / 451	32.63 / 829	14.75 / 375	48.00 / 1219	2	14.50 / 368	230 / 104.3

Dimensions (in/mm) threaded

Pipe size	A	B	C	D	E	F	G	Dry wt (lb / kg)
1-1/2	7.00 / 178	6.50 / 165	10.63 / 270	6.00 / 152	14.88 / 378	3/4 / 20	3.88 / 99	7 / 3.2
2	8.50 / 216	7.50 / 191	11.63 / 295	7.50 / 191	17.38 / 441	1-1/4 / 32	4.81 / 122	20 / 9.1
2-1/2	11.50 / 292	9.13 / 232	15.25 / 387	8.00 / 203	22.38 / 568	1-1/4 / 32	6.00 / 152	34 / 15.5
3	11.50 / 292	9.13 / 232	15.25 / 387	8.00 / 203	22.63 / 575	1-1/4 / 32	6.00 / 152	34 / 15.5

North America
44 Apple Street
Tinton Falls, NJ 07724
Toll Free: 800 656-3344
(North America only)
Tel: +1 732 212-4700

Europe/Africa/Middle East
Auf der Heide 2
53947 Nettersheim, Germany
Tel: +49 2486 809-0

Internormen Product Line
Friedensstraße 41
68804 Altlufsheim, Germany
Tel: +49 6205 2094-0

Begerow Product Line
An den Nahewiesen 24
55450 Langenlonsheim, Germany
Tel: +49 6704 204-0

China
No. 3, Lane 280,
Linhong Road
Changning District, 200335
Shanghai, P.R. China
Tel: +86 21 5200-0099

Singapore
4 Loyang Lane #04-01/02
Singapore 508914
Tel: +65 6825-1668

Brazil
Av. Julia Gaioli, 474 – Bonsucesso
07251-500 – Guarulhos, Brazil
Tel: +55 11 2465-8822

For more information, please
email us at filtration@eaton.com
or visit www.eaton.com/filtration

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US
EF-SSEA-9
6-2014

Model 510



- Sizes 8" to 36"
- Iron or carbon steel
- Flanged

Features

- Four baskets per strainer
- Bolted cover
- Straight through flow design
- Compact
- Threaded drain
- Perforated or mesh 316 stainless steel basket
- Low profile for easy basket removal

Options

- Basket perforations from 1/32" to 1/2"
- Basket mesh of 20, 40 or 60
- MONEL® baskets
- Drain valves
- Gauge taps - 1/4" NPT
- Basket flange gaskets
- Cover lift davit
- Stainless steel construction
- Magnetic basket inserts
- Pressure differential gauges and switches



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For large size piping systems with flow rates up to 40,000 GPM (9,000 m³/h)

The Eaton Model 510 simplex strainer is unlike other large size simplex strainers because of its multi-basket design. Four strainer baskets strain the process media and give the strainer an extremely high dirt-holding capacity—an important consideration in larger size strainers that, because of their size and design, take longer for basket cleaning or changeout. The longer the strainer stays in service between cleaning, the less expensive its total operating costs.

Reduced pressure loss

To reduce the pressure loss to an absolute minimum, the Model 510 has a straight through flow configuration, made possible by a unique basket design that incorporates a slanted top.

Multi-basket design

The use of four baskets, rather than one or two, helps to keep operating costs low because the size of each basket can be smaller. This means that cleaning is a one-person job, eliminating the need for additional operators or lifting tackle to pull the baskets out of the strainer housing.

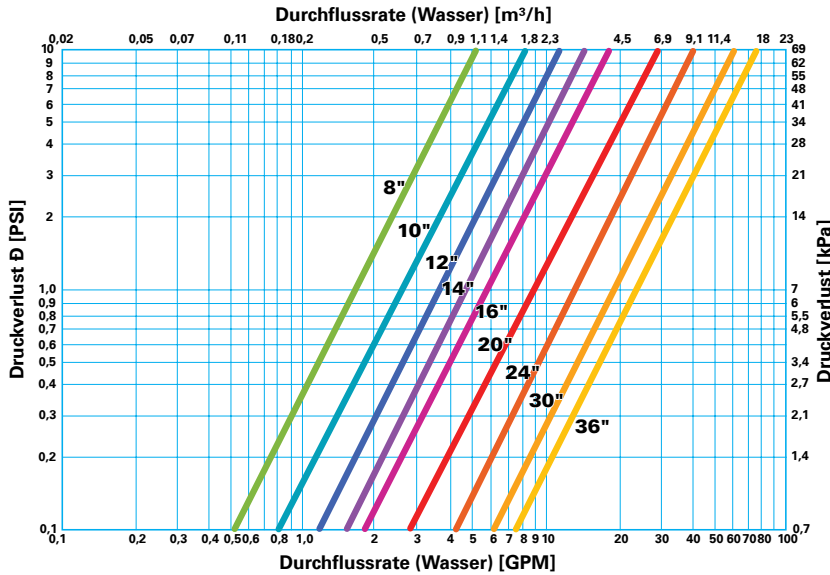
To make this job even faster and easier, the Model 510 has an optional cover lifting davit. The operator can raise the strainer cover and swing it out of the way for access to the strainer baskets. The four-basket design of the Model 510 provides an additional benefit as well: the centerline to bottom and centerline to top dimensions of the strainer are very short—creating a low-profile design ideally suited for installation in cramped quarters.

For large size piping systems with high flow rates, the Model 510 offers significant advantages over ordinary large size strainers, advantages that will improve performance and reduce operating costs over the life of the strainer.

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Powering Business Worldwide

Model 510 Multi-Basket Strainer



Selection chart

Size	Material	End connections	Gasket	Pressure rating*
8" to 24"	Iron	Flanged 125#	Non-asbestos	125 psi (8.6 bar)
30" to 36"	Iron	Flanged 125#	Non-asbestos	70 psi (4.8 bar)
8" to 24"	Carbon steel	Flanged 150#	Non-asbestos	150 psi (10.3 bar)
8" to 16"	Carbon steel	Flanged 300#	Non-asbestos	300 psi (20.7 bar)

* @ 100 °F (38 °C)

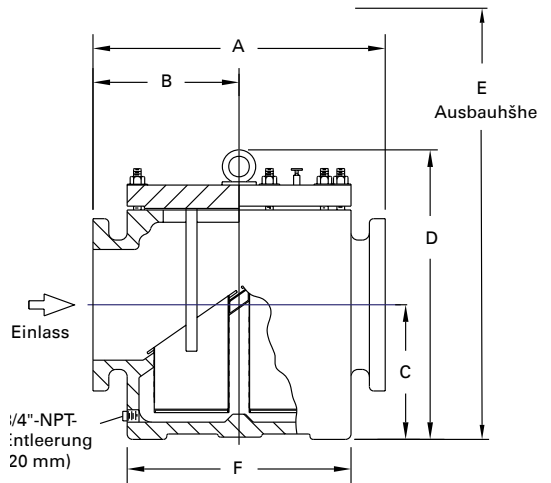
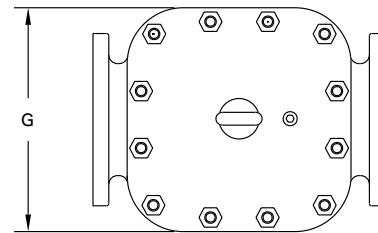
Cv factors*

Size	Value	Size	Value	Size	Value
8"	1600	14"	4800	24"	13000
10"	2500	16"	5800	30"	19000
12"	3500	20"	9000	36"	23000*

*For water with clean, perforated basket

Dimensions (in/mm)

Pipe size	A	B	C	D	E	F	G	---Dry wt (lb / kg)---	
								Iron	Carbon steel
8	23.25 / 591	11.63 / 295	9.13 / 232	20.13 / 511	38 / 965	18.00 / 457	18.50 / 470	547 / 249	547 / 249
10	26.13 / 664	13.06 / 332	11.38 / 289	23.75 / 603	44 / 1118	20.25 / 514	21.00 / 533	730 / 332	730 / 332
12	29.00 / 737	14.50 / 368	14.63 / 372	28.38 / 721	52 / 1321	22.25 / 565	22.75 / 578	1080 / 491	1080 / 491
14	30.50 / 775	15.25 / 387	16.75 / 425	31.25 / 794	60 / 1524	24.63 / 626	25.13 / 638	1360 / 618	1360 / 618
16	33.50 / 851	16.75 / 425	19.13 / 486	35.50 / 902	66 / 1676	27.13 / 689	27.75 / 705	1750 / 795	1750 / 795
20	44.75 / 1137	22.00 / 559	28.50 / 724	46.25 / 1175	88 / 2235	32.75 / 832	34.75 / 883	3330 / 1514	3330 / 1514
24	44.38 / 1127	22.19 / 564	31.50 / 800	52.25 / 1327	98 / 2489	36.63 / 930	38.50 / 978	4550 / 2068	4550 / 2068
30	61.50 / 1562	30.75 / 781	41.63 / 1057	66.50 / 1689	125 / 3175	47.50 / 1207	47.50 / 1207	8880 / 4036	8880 / 4036
36	62.00 / 1575	31.00 / 787	41.63 / 1057	66.50 / 1689	125 / 3175	47.50 / 1207	47.50 / 1207	9700 / 4409	9700 / 4409



Dimensions and weights are for reference only. Contact Eaton for certified drawings.



North America
44 Apple Street
Tinton Falls, NJ 07724
Toll Free: 800 656-3344
(North America only)
Tel: +1 732 212-4700

Europe/Africa/Middle East
Auf der Heide 2
53947 Nettersheim, Germany
Tel: +49 2486 809-0

Internormen Product Line
Friedensstraße 41
68804 Altluisheim, Germany
Tel: +49 6205 2094-0

Begerow Product Line
An den Nahewiesen 24
55450 Langenlonsheim, Germany
Tel: +49 6704 204-0

China
No. 3, Lane 280,
Linhong Road
Changning District, 200335
Shanghai, P.R. China
Tel: +86 21 5200-0099

Singapore
4 Loyang Lane #04-01/02
Singapore 508914
Tel: +65 6825-1668

Brazil
Av. Julia Gaioli, 474 – Bonsucesso
07251-500 – Guarulhos, Brazil
Tel: +55 11 2465-8822

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US
EF-SSEA-10
6-2014



Ball Type Duplex Basket Strainer



Model 53BTX



- Sizes 3/4" to 4"
- Iron, bronze, carbon steel or stainless steel
- Threaded or flanged



Unique diverter cartridge assures leak-tight isolation of basket chamber during cleaning.

A double sealing system on the upper and lower stems guards against any possible leakage. If service becomes necessary, just remove four bolts and the cartridge slides right out the top of the strainer body.

Features

- Dynamic sealing design for long life
- Easy-to-operate lever handle—no gear box required
- Unique seat and seal design requires no adjustments
- Teflon® seats for longer service life
- Foot pads for rock solid installation
- Double-stem O-rings for positive sealing
- Easy to access body vent valve
- Drain plugs in each basket cover
- Piston seal strainer basket cover
- Easy access for diverter cartridge removal
- 316 stainless steel ball design
- American Bureau of Shipping (ABS) Type Approved for ship designers, builders and owners

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Continuous operation

The Eaton Model 53BTX duplex basket strainer can operate continuously, eliminating the need to shut down processes for cleaning of strainers. When the first basket is full, a unique flow diverter cartridge shifts flow to a second basket to permit removal and cleaning with no interruption to operations.

Draining this chamber is easy; the cover lifts and swings clear of the chamber opening with no special tools required.

The unique flow diverter cartridge prevents fluid bypass into the out-of-service chamber. It features a dynamic sealing system that ensures exceptionally long seat life and positive sealing. Manual internal or external ball support adjustments are not necessary.

Size and material

The compact, low-profile Model 53BTX fits into spaces ordinary strainers may not, yet it still uses full-size strainer baskets with a low-pressure drop performance. Eaton offers basket openings from 3/4" down to 45 microns. Type 316 stainless steel is standard and MONEL® or HASTELLOY® C materials are optional.

Easy basket servicing

One drain plug is on each side of the housing. Additionally, an easy to access vent valve is in the cover. Standard foot mounting pads ensure a rock solid installation no matter where the strainer operates.

Available options include:

- Differential pressure gauges, with or without switches
- Magnetic separators installed in the strainer basket for removing fine ferrous particulate matter from the process media

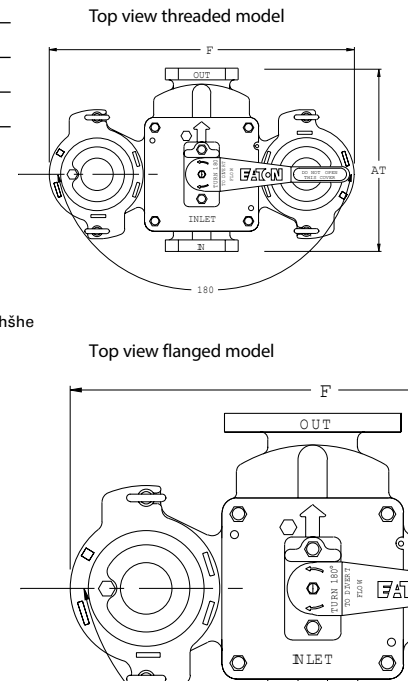
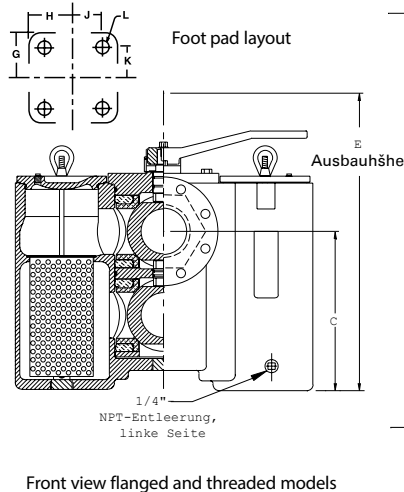
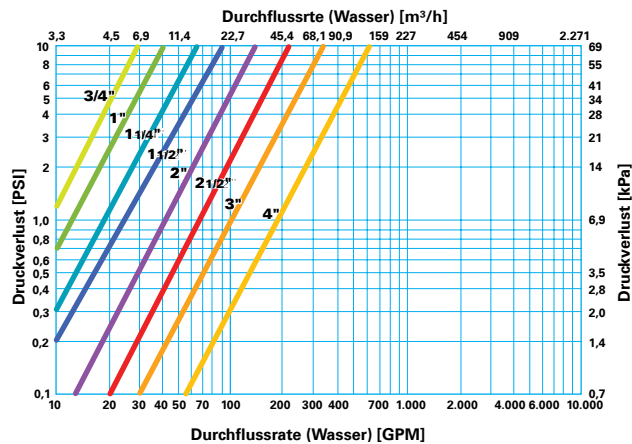


Model 53BTX Ball Type Duplex Basket Strainer

Selection table

Size	Body & cartridge material	End connection	Seat/Seal	Diverter balls	Pressure rating @ 150 °F (65 °C)
3/4", 1", 1-1/4", 1-1/2", 2", 2-1/2"	Iron	Threaded	TFE/Buna-N®*	Stainless steel	200 psi (13.8 bar)
3/4", 1", 1-1/4", 1-1/2", 2", 2-1/2"	Bronze	Threaded	TFE/Buna-N®*	Stainless steel	200 psi (13.8 bar)
3/4", 1", 1-1/4", 1-1/2", 2"	Carbon steel	Threaded	TFE/Buna-N®*	Stainless steel	200 psi (13.8 bar)
3/4", 1", 1-1/4", 1-1/2", 2"	Stainless steel	Threaded	TFE/Viton®	Stainless steel	200 psi (13.8 bar)
1", 1-1/2", 2", 2-1/2", 3", 4"	Iron	Flanged 125#	TFE/Buna-N®*	Stainless steel	200 psi (13.8 bar)
1", 1-1/2", 2", 2-1/2", 3", 4"	Bronze	Flanged 150#	TFE/Buna-N®*	Stainless steel	200 psi (13.8 bar)
1", 1-1/2", 2", 2-1/2", 3", 4"	Carbon steel	Flanged 150#	TFE/Buna-N®*	Stainless steel	200 psi (13.8 bar)
1", 1-1/2", 2", 2-1/2", 3", 4"	Stainless steel	Flanged 150#	TFE/Viton®	Stainless steel	200 psi (13.8 bar)

*Viton standard for SSTL, optional for iron, bronze and carbon steel.



Dimensions (in/mm)

Pipe size	AF	AT	C	E	F	G	H	J	K	L	Weight – Iron		Weight – Bronze		Weight – Carbon & SS	
											flanged (lb / kg)	threaded (lb / kg)	flanged (lb / kg)	threaded (lb / kg)	flanged (lb / kg)	threaded (lb / kg)
3/4	—	5.50 / 140	5.00 / 127	13.38 / 340	10.50 / 268	3.25 / 83	2.13 / 54	1.63 / 41	2.75 / 70	3/8	—	37 / 17	—	46 / 21	—	41 / 19
1	6.88 / 175	5.50 / 140	5.00 / 127	13.38 / 340	10.50 / 268	3.25 / 83	2.13 / 54	1.63 / 41	2.75 / 70	3/8	42 / 19	37 / 17	52 / 24	46 / 21	47 / 21	41 / 19
1-1/4	6.88 / 175	7.50 / 190	6.81 / 173	17.00 / 432	13.25 / 330	3.25 / 83	2.13 / 54	1.63 / 41	2.75 / 70	3/8	—	80 / 36	—	100 / 45	—	89 / 40
1-1/2	9.38 / 238	7.50 / 190	6.81 / 173	17.00 / 432	13.25 / 330	3.25 / 83	2.13 / 54	1.63 / 41	2.75 / 70	3/8	90 / 41	80 / 36	113 / 51	100 / 45	100 / 45	89 / 40
2	10.63 / 270	10.00 / 254	8.38 / 213	21.75 / 552	17.38 / 441	4.69 / 119	2.50 / 64	1.81 / 46	4.00 / 102	5/8	167 / 76	157 / 71	209 / 95	197 / 90	185 / 84	174 / 79
2-1/2	10.75 / 273	10.00 / 254	8.38 / 213	21.75 / 552	17.37 / 441	4.69 / 119	2.50 / 64	1.81 / 46	4.00 / 102	5/8	183 / 83	157 / 71	229 / 104	197 / 90	203 / 92	—
3	13.50 / 343	—	8.88 / 226	26.50 / 673	22.75 / 578	4.69 / 119	2.50 / 64	1.81 / 46	4.00 / 102	5/8	285 / 129	—	357 / 162	—	432 / 196	—
4	16.00 / 406	—	13.25 / 337	33.00 / 838	24.75 / 629	5.19 / 132	3.94 / 100	3.25 / 83	4.50 / 114	5/8	389 / 177	—	487 / 221	—	432 / 196	—

Dimensions and weights are for reference only. Contact Eaton for certified drawings. Pressure equalizing valve and piping standard on 4" Model 53BTX duplex strainers.

North America
44 Apple Street
Tinton Falls, NJ 07724
Toll Free: 800 656-3344
(North America only)
Tel: +1 732 212-4700

Europe/Africa/Middle East
Auf der Heide 2
53947 Nettersheim, Germany
Tel: +49 2486 809-0

Internormen Product Line
Friedensstraße 41
68804 Altludersheim, Germany
Tel: +49 6205 2094-0

Begerow Product Line
An den Nahewiesen 24
55450 Langenlonsheim, Germany
Tel: +49 6704 204-0

China
No. 3, Lane 280,
Linhong Road
Changning District, 200335
Shanghai, P.R. China
Tel: +86 21 5200-0099

Singapore
4 Loyang Lane #04-01/02
Singapore 508914
Tel: +65 6825-1668

Brazil
Av. Julia Gaioli, 474 – Bonsucesso
07251-500 – Guarulhos, Brazil
Tel: +55 11 2465-8822

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US
EF-SSEA-11
6-2014

Model 50



- Sizes 5", 6", 8"
- Iron, bronze, carbon steel or stainless steel
- Flanged



Features

- Continuous flow, no shutdown for basket cleaning
- Rugged tapered plug design
- Lift jack prevents galling of the plug
- Quick open cover—no tools needed
- Large capacity baskets
- Threaded drain
- Machined basket seat
- Perforated or mesh 316 stainless steel basket

Options

- Ductile iron construction
- Basket perforations from 1/32" to 1/2"
- Basket mesh from 20 to 400
- MONEL® baskets
- Vent valves
- Drain valves
- Gauge/vent taps - 1/4" NPT
- Magnetic basket inserts
- Pressure differential gauge and switch connections
- Viton®, PTFE encapsulated or EPDM seals
- Cast iron and stainless steel diverter plug



Trouble-free design, easy operation

The Eaton Model 50 plug type duplex strainer's design is simple and economical. This high-quality strainer is, in fact, a pressure rated plug valve with integral straining baskets.

To switch the flow from one basket to the other, the operating handle moves through a 90-degree arc. Because of the unique port design in the diverter plug, it is impossible for this operation to stop the flow. The entire switching operation takes fewer than 30 seconds, no tools required. Positioning the plug each time in exactly the right spot happens automatically by integral stops.

Before operating the handle, a specially designed, manual lifting jack built into the strainer, lifts the diverter plug

off its seat. After the switching operation, the jack easily reseats the plug, even under high pressures. Because a built-in stop limits the distance the diverter plug rises, it minimizes the possibility of material bypassing the plug while rotated to divert flow. It also prevents debris from building up under the plug and making it difficult to reseal.

Other features

- A quick, easy to open, swing-away yoke design cover goes back on just as fast as it came off
- Standard NPT drain taps simplify the draining of the basket chamber
- All sizes come with mounting legs for bolting the strainer to the floor for a rock solid installation



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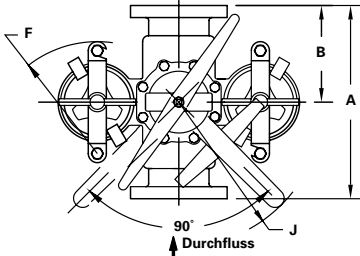
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Model 50 Plug Type Duplex Basket Strainer

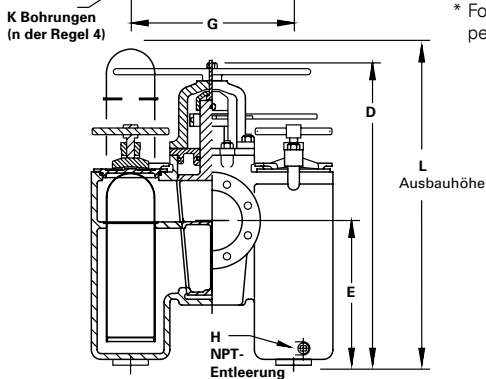
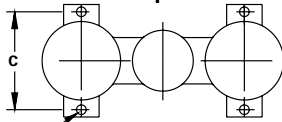
Selection chart

Size	Body material	Plug material	End connections	Seals
5", 6", 8"	Iron	Bronze	Flanged 125#	Buna-N®
5", 6", 8"	Bronze	Bronze	Flanged 150#	Buna-N
6", 8"	Carbon steel	Bronze	Flanged 150#	Buna-N
6", 8"	Stainless steel	Stainless steel	Flanged 150#	Viton

DIN flanges available on 6" only



Dimensions and weights are for reference only. Contact Eaton for certified drawings.



Rating

Size	Rating*
5"	200 psi (13.8 bar)
6"	200 psi (13.8 bar)
8"	150 psi (10.3 bar)

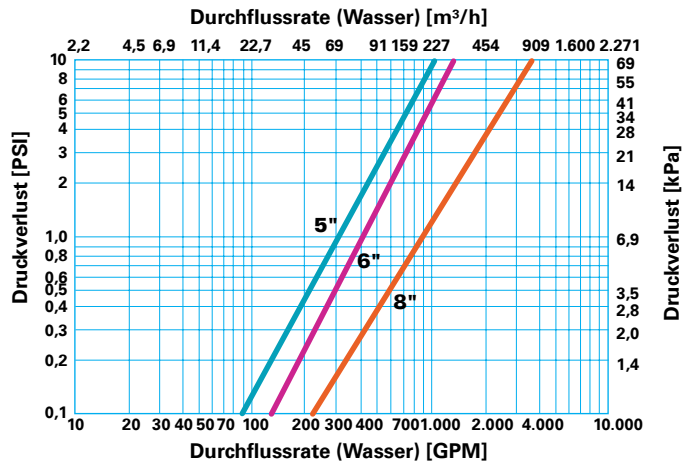
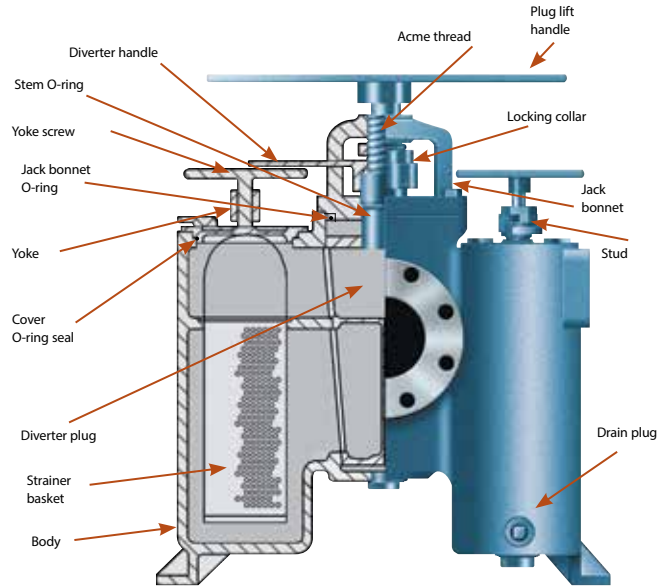
* @ 100 °F (38 °C)

C_v factors*

Size	Value
5"	300
6"	420
8"	900

* For water with clean, perforated basket

Partial cutaway of Model 50 duplex strainer clearly illustrates all major parts—and gives a clear indication of the simplicity of design and ease of maintenance.



Dimensions (in/mm)

Pipe size	A	B	C	D	E	F	G	H	J	K	L	Weight (lb/kg)			
												Cast iron	Bronze	Carbon steel	Stainless steel
5	18.38	9.00	9.75	33.25	14.75	10.25	17.19	3/8	19.75	0.56	41.00	403	412	—	—
	467	229	248	845	375	260	437	—	502	14	1041	183	187	—	—
6	22.00	12.88	12.50	36.25	19.50	11.75	20.75	3/8	19.75	0.63	42.00	500	583	580	615
	559	327	318	921	495	298	527	—	502	16	1067	227	264	263	279
8	25.00	14.00	17.00	50.63	23.06	—	30.75	1/2	28.00	0.94	56.00	1500	1800	1610	1670
	635	356	432	1286	586	—	781	—	711	24	56	682	818	732	759

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44 Apple Street
Tinton Falls, NJ 07724
Toll Free: 800 656-3344
(North America only)
Tel: +1 732 212-4700

Europe/Africa/Middle East
Auf der Heide 2
53947 Nettersheim, Germany
Tel: +49 2486 809-0

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Friedensstraße 41
68804 Altlufsheim, Germany
Tel: +49 6205 2094-0

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An den Nahewiesen 24
55450 Langenlonsheim, Germany
Tel: +49 6704 204-0

China
No. 3, Lane 280,
Linhong Road
Changning District, 200335
Shanghai, P.R. China
Tel: +86 21 5200-0099

Singapore
4 Loyang Lane #04-01/02
Singapore 508914
Tel: +65 6825-1668

Brazil
Av. Julia Gaioli, 474 – Bonsucesso
07251-500 – Guarulhos, Brazil
Tel: +55 11 2465-8822

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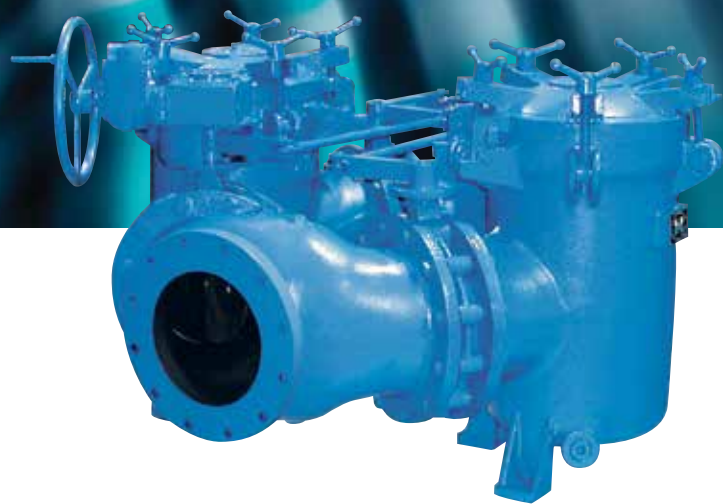
US
EF-SSEA-12
6-2014

Large Duplex Basket Strainer

Model 52



- Sizes 10" to 18"
- Iron and bronze
- Flanged



Features

- Continuous flow, no shutdown for basket cleaning
- Compact butterfly valve design
- Quick opening covers
- Convoluted design baskets
- Threaded drain
- Perforated or mesh stainless steel baskets
- Vent
- Positive shutoff

Options

- Ductile iron construction
- Basket perforations from 1/32" to 1/2"
- Basket mesh of 20, 40 or 60
- MONEL® baskets
- Vent valves
- Drain valves
- Gauge taps 1/4" NPT
- Pressure differential gauge and switch connections
- Magnetic basket inserts

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The butterfly valve advantage

The Eaton Model 52 duplex strainer's design large size with high flow rates benefit from a set of synchronized, high-quality, butterfly valves that minimize the effort to switch the flow from one basket chamber to the other.

The valve replaces the diverter plug used on smaller size strainers and gives a straight flow pattern with no sudden changes in flow direction. The result is a very low pressure loss. A 10" strainer of this type can handle 2,000 gpm (454 m³/h) of water with a pressure drop of only 2 psi (0.14 bar). This is the strainer to choose for high flow rate applications when a low-pressure loss is critical.

Unique basket design

The Model 52 incorporates a larger screening area by convoluting (pleating) the perforated sheet in the strainer basket, thus increasing the available screening area while reducing the total basket size.

The flow enters the basket from the side, not the top, resulting in a straight through flow pattern. This means a lower pressure drop and greater time between basket cleanings than would be possible with standard design baskets—a substantial savings in time and operating costs.

Compact design

Lighter weight and a smaller profile make this strainer ideal for situations when space requirements are tight.

Easy to operate

- A single hand wheel operator can be on either side of the strainer if accessibility is a problem.
- An arrow on the top of the gear housing indicates which basket chamber is in service and which is ready for cleaning.
- Quick opening covers make strainer basket changing or cleaning quick and easy with no tools or lifting gear.



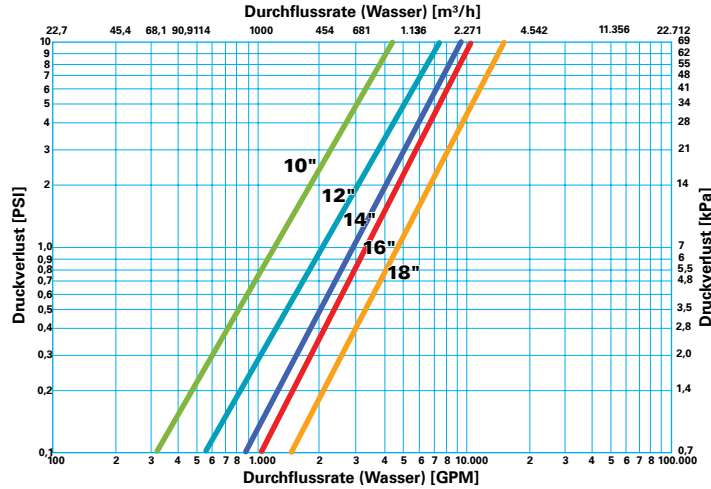
Powering Business Worldwide

Model 52 Large Duplex Basket Strainer

Selection chart

Size	Material	End connection	Seals	Pressure rating*
10" to 12"	Iron	Flanged 125#	Buna-N®	200 psi (13.8 bar)
10" to 12"	Bronze	Flanged 150#	Buna-N	200 psi (13.8 bar)
14" to 18"	Iron	Flanged 125#	Buna-N	150 psi (10.3 bar)
14" to 18"	Bronze	Flanged 150#	Buna-N	150 psi (10.3 bar)

* @ 100 °F (38 °C)



C_v factors*

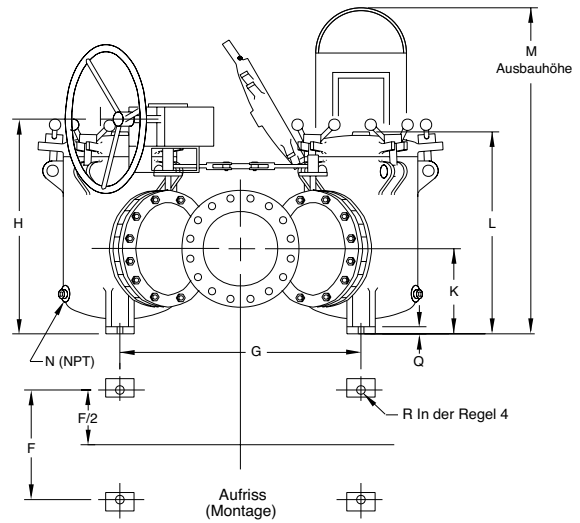
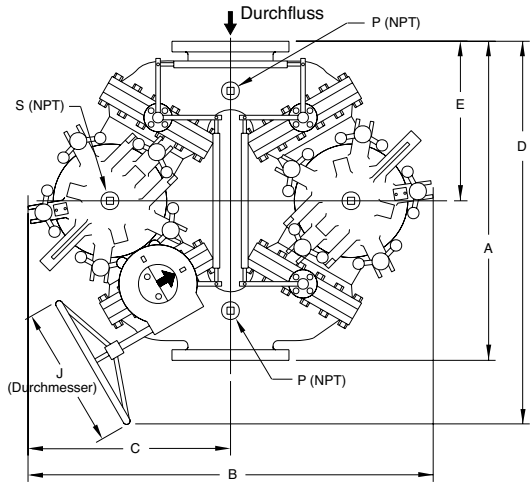
Size	Value	Size	Value
10"	1300	16"	3400
12"	2000	18"	4900
14"	2900		

* For water with clean, perforated basket

Dimensions and weights are for reference only. Contact Eaton for certified drawings.

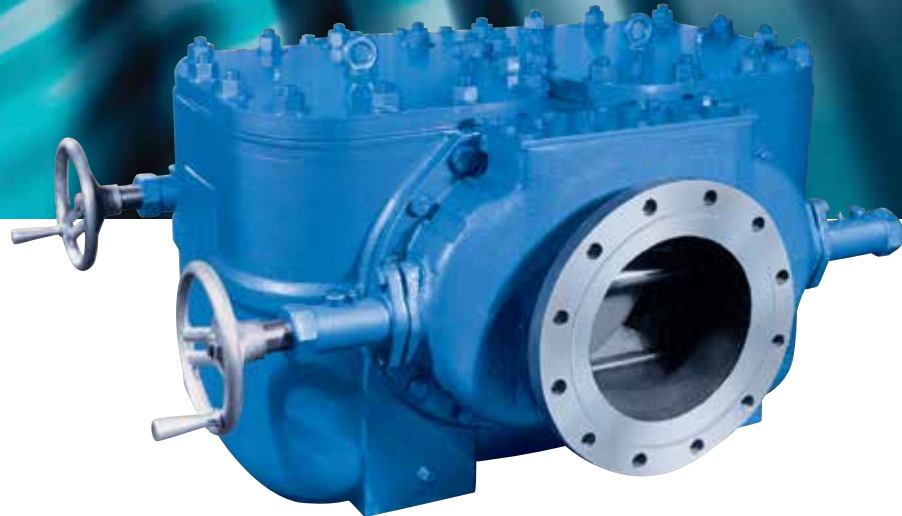
Dimensions (in/mm)

Pipe size	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	Wt (lb / kg)	
																		Iron	Bronze
10	45	51	26	52	22-1/2	19	32	30-1/4	18	12-3/16	29	49	1-1/2	1/2	1	1	1/4	1600	2003
	1143	1295	660	1321	572	483	813	768	457	310	737	1245	-	32	32	-	727	910	
12	62	64	32	66	31	23	41	36-5/8	16	16-3/4	38	66	1-1/2	1/2	1	1	1/4	2650	3318
	1574	1626	813	1676	787	584	1041	924	406	425	965	1676	-	32	32	-	1205	1508	
14	72	76	38	79	35-1/2	27	48	44-3/4	24	18-3/4	44-1/2	77	1-1/2	1/2	1	1	1/4	4300	5384
	1829	1930	965	2007	902	686	1219	1137	610	476	1130	196	-	32	32	-	1955	2447	
16	72	76	38	79	35-1/2	27	48	44-3/4	24	18-3/4	44-1/2	77	1-1/2	1/2	1	1	1/4	4400	5509
	1829	1930	965	2007	902	686	1219	1137	610	476	1130	196	-	32	32	-	2000	2504	
18	72	76	38	79	35-1/2	27	48	44-3/4	24	18-3/4	44-1/2	77	1-1/2	1/2	1	1	1/4	4600	-
	1829	1930	965	2007	902	686	1219	1137	610	476	1130	196	-	32	32	-	2087	-	



Multi-Basket Duplex Strainer

Model 570



- 8" to 24"
- Iron or carbon steel
- Flanged

Features

- Continuous flow, no shutdown for basket cleaning
- Sliding gate design
- Eight baskets per strainer (four per side)
- Bolted cover
- Compact
- Threaded drain
- Perforated or mesh stainless steel baskets standard
- Synchronized chain drive
- Pressure equalization assembly

Options

- Stainless steel construction
- Basket perforations from 1/32" to 1/2"
- Basket mesh of 20, 40 or 60
- MONEL® baskets
- Drain valves
- Cover lift davit
- Pressure differential gauge and switch connections
- Basket flange gaskets
- Magnetic basket inserts
- Left hand drive

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Continuous operation while straining up to 30,000 GPM (6,840 m³/h)

The Eaton Model 570 duplex basket strainer, specifically designed to remove potential damage causing particles from large volumes of water and other process media, strains up to 30,000 gpm (6,840 m³/h) efficiently and cost effectively. The strainer operates continuously and the pipeline flow never has to shut down for strainer basket cleaning.

A sliding gate mechanism operated by hand wheels, switches the flow from one basket chamber to the other. The free-floating valve disc mechanism moves easily and does not bind. The fully enclosed, valve-operating stem protects it from the fluid flow.

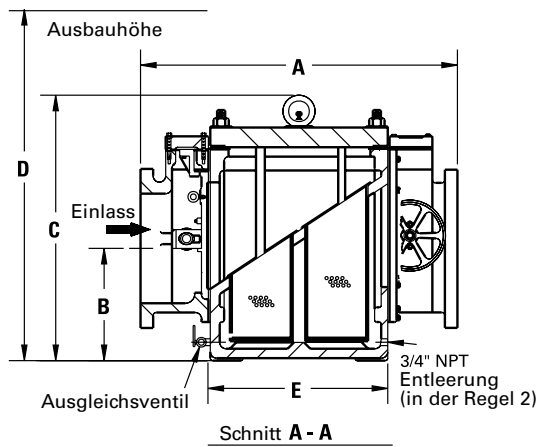
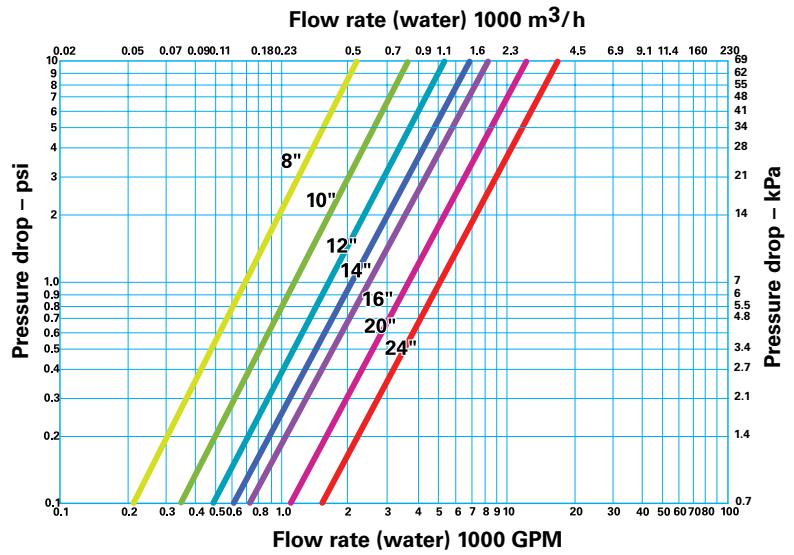
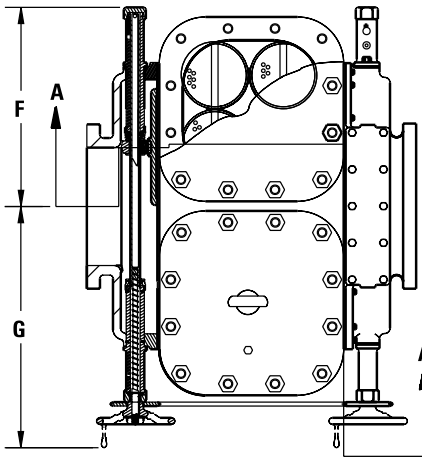


Multi-basket strainer

The Model 570 contains four baskets in each of the two straining chambers for a total of eight per duplex strainer. It is a very compact unit for its size with a low profile—ideal for tight installations in which space is a problem. Because of the multi-basket design, the individual baskets are smaller and lighter than would be possible with just one basket. One person can easily and rapidly remove and clean the baskets without lifting tackle.

The baskets feature an angled top to permit direct fluid entry that contributes to the strainer's low-pressure drop. Because of the large open area ratio in the baskets, they have an unusually high dirt holding capacity, which results in a longer cycle between basket cleaning. Over time, the savings in labor and downtime for basket cleaning will be considerable.

Model 570 Multi-Basket Duplex Strainer



Dimensions and weights are for reference only. Contact Eaton for certified drawings.

Selection chart

Size	Material	End connection	Gaskets	Pressure rating*
8" to 24"	Iron	Flanged 125#	Non-asbestos	125 psi (8.6 bar)
8" to 24"	Carbon steel	Flanged 150#	Non-asbestos	175 psi (12.0 bar)
8" to 16"	Carbon steel	Flanged 300#	Non-asbestos	300 psi (20.7 bar)

DIN flanges available. * @ 100 °F (38 °C)

Cv factors*

Size	Value	Size	Value
8"	700	16"	2500
10"	1250	20"	3600
12"	1600	24"	5200
14"	2000		

* For water with clean, perforated basket

Dimensions (in/mm)

Pipe size	A	B	C	D	E	F	G	Weight-iron (lb / kg)	Weight-carbon steel (lb / kg)
8	38.50 / 978	8.25 / 210	20.50 / 521	38.00 / 965	18.25 / 464	18.00 / 457	28.50 / 724	1410 / 641	1565 / 711
10	40.50 / 1029	10/38 / 264	23.75 / 603	44.00 / 1118	20.50 / 521	20.25 / 514	30.50 / 775	1880 / 855	2087 / 949
12	43.50 / 1105	13.50 / 343	29.25 / 743	52.00 / 1321	23.00 / 584	23.38 / 594	32.50 / 826	2604 / 1184	2890 / 1314
14	46.25 / 1175	15.75 / 400	31.63 / 803	60.00 / 1524	24.88 / 632	25.56 / 649	35.00 / 889	3006 / 1366	3337 / 1517
16	49.63 / 1261	17.81 / 458	35.00 / 889	66.00 / 1676	28.13 / 715	27.75 / 705	37.50 / 953	4350 / 1977	4826 / 2197
20	64.00 / 1626	26.63 / 676	45.75 / 1162	88.00 / 2235	33.75 / 857	34.00 / 864	43.75 / 1111	10,000 / 4545	11,100 / 5045
24	67.75 / 1721	29.50 / 749	53.00 / 1346	98.00 / 2489	36.63 / 930	40.38 / 1026	49.50 / 1257	11,440 / 5200	12,698 / 5772



North America
44 Apple Street
Tinton Falls, NJ 07724
Toll Free: 800 656-3344
(North America only)
Tel: +1 732 212-4700

Europe/Africa/Middle East
Auf der Heide 2
53947 Nettersheim, Germany
Tel: +49 2486 809-0

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Friedensstraße 41
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Tel: +49 6205 2094-0

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Standard Cast Pipeline Strainers

Options and temporary strainers



Heavy-duty strainer baskets

For very demanding applications, heavy-duty construction baskets are extremely rugged and stand up to the most abusive conditions. Heavy-duty strainer baskets have a metal banding spot welded at top and middle to provide extra support for difficult applications.

Magnetic inserts

In some applications, particularly where fluids are involved in machining processes, microscopic iron or steel particles may be present. These could pass through even the finest mesh screen. Magnetic inserts in the strainer basket catch these particles before they can pass through the mesh lining. Guaranteed to retain their magnetism indefinitely, the powerful Alnico magnets, completely encased and sealed in a 1/8" thick, type 316 stainless steel shell, prevent contamination or corrosion. Each magnet's capacity is 1300 gauss.



Taps

Optimal NPT cover vent taps and inlet/outlet nozzle taps are available for most strainers.



Typical pressure differential gauge with switch.

Differential pressure gauge

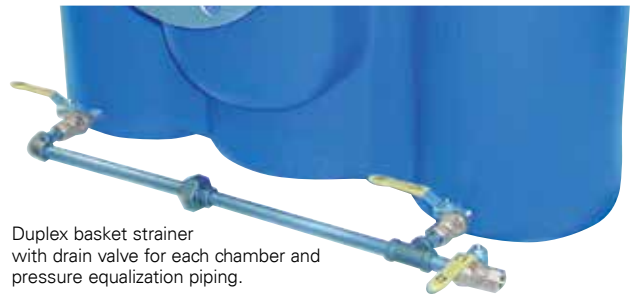
This gauge shows the pressure differential across the strainer and helps determine when to change out the strainer basket. It has a 0 - 30 psid (0 - 2.07 bar) pressure range and features a 3-1/2" gauge face. Rated at 3,000 psi (207 bar), it comes with a 1/4" NPT connection in either brass or stainless steel.

Differential pressure gauge with switch

This standard Eaton differential pressure gauge, shown above, includes a double pole, double throw, relay contact to permit actuation of a remote electrical signaling device—such as a light on a control panel—when it reaches a predetermined differential pressure. Contact rating is 10 A/115 V/60 Hz.

Cover vent valves

Available in brass or stainless steel, needle type valves, rated for 200 psi at 100 °F (13.8 bar at 38 °C), mount on the cover of the strainer with a 1/4" NPT tap.



Duplex basket strainer with drain valve for each chamber and pressure equalization piping.

Drain valves

These ball type valves, used to drain the strainer housing, are available in brass or stainless steel, rated at 600 psi at 100 °F (41.4 bar at 38 °C) with either 1/4" or 1/2" NPT connections.



Elastomer seals

If the standard seals on a pipeline strainer are not suitable for a specific application, Eaton offers a variety of special seals that include EPDM, Viton®, Buna-N® and TFE encapsulated.

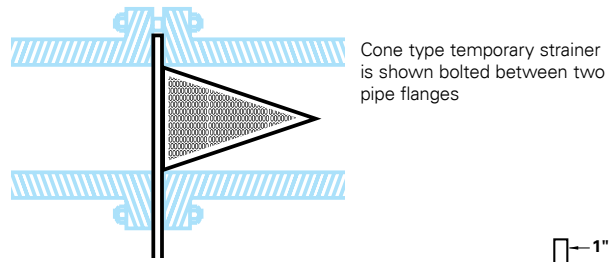
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Temporary Strainers

- 2" to 24"
- Flanged
- Stainless steel or MONEL®



Features

- ANSI classes 150, 300 and 600
- Perforations from 1/32" to 1/2" diameter
- Mesh liners of 20, 40, 60, 80 and 100 (best with basket type strainers)
- Stainless steel or MONEL® construction

Options

- Alloy construction, RTJ-style connections

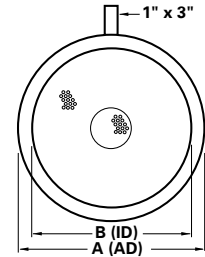
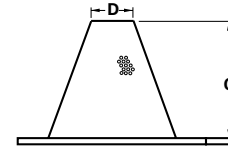
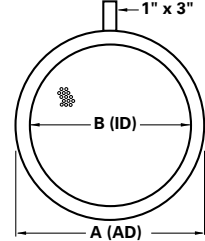
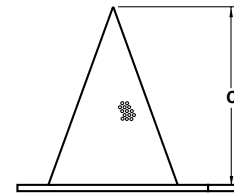
Designed for use in

- New pipeline start-up service
- Line flushing after any modification work

Cone type



Basket type



Dimensions (in) Model 92 cone type

Pipe size	A class 150	A class 300	A class 600	B	C
2	3.88 / 99	3.88 / 99	4.13 / 105	1.75 / 44	6.0 / 152
2 1/2	4.63 / 118	4.63 / 118	4.88 / 124	2.25 / 57	7.0 / 178
3	5.13 / 130	5.13 / 130	5.63 / 143	2.75 / 70	9.0 / 229
4	6.63 / 168	6.63 / 168	6.88 / 175	3.50 / 89	12.0 / 305
5	7.50 / 191	7.50 / 191	9.25 / 235	4.63 / 118	14.0 / 356
6	8.50 / 216	8.50 / 216	10.25 / 260	5.50 / 140	17.0 / 432
8	10.75 / 273	10.75 / 273	12.38 / 314	7.13 / 181	23.0 / 584
10	12.13 / 308	13.13 / 334	15.50 / 394	9.00 / 229	27.0 / 686
12	15.88 / 403	15.88 / 403	17.38 / 441	10.88 / 276	32.0 / 813
14	17.50 / 445	17.50 / 445	19.13 / 486	12.63 / 321	33.0 / 838
16	20.00 / 508	20.00 / 508	22.00 / 559	14.50 / 368	39.0 / 991
18	21.38 / 543	21.38 / 543	23.88 / 607	16.38 / 416	44.0 / 1,118
20	23.63 / 600	23.63 / 600	26.63 / 676	18.38 / 467	49.0 / 1,245
24	28.00 / 711	28.00 / 711	30.88 / 784	20.38 / 518	58.0 / 1,473

Dimensions (in) Model 92 basket type

Pipe size	A class 150	A class 300	A class 600	B	C	D
2	3.88 / 99	3.88 / 99	4.13 / 105	1.75 / 44	3.5 / 89	1.0 / 25
2 1/2	4.63 / 118	4.63 / 118	4.88 / 124	2.25 / 57	4.0 / 102	1.0 / 25
3	5.13 / 130	5.13 / 130	5.63 / 143	2.75 / 70	4.5 / 114	1.0 / 25
4	6.63 / 168	6.63 / 168	6.88 / 175	3.50 / 89	6.0 / 152	2.0 / 51
5	7.50 / 191	7.50 / 191	9.25 / 235	4.63 / 118	7.5 / 191	2.0 / 51
6	8.50 / 216	8.50 / 216	10.25 / 260	5.50 / 140	9.0 / 229	2.0 / 51
8	10.75 / 273	10.75 / 273	12.38 / 314	7.13 / 181	12.0 / 305	2.0 / 51
10	13.13 / 334	13.13 / 334	15.50 / 394	9.00 / 229	14.0 / 356	3.0 / 76
12	15.88 / 403	15.88 / 403	17.38 / 441	10.88 / 276	16.5 / 419	3.0 / 76
14	17.50 / 445	17.50 / 445	19.13 / 486	12.63 / 321	17.0 / 432	4.0 / 102
16	20.00 / 508	20.00 / 508	22.00 / 559	14.50 / 368	19.0 / 483	4.0 / 102
18	21.38 / 543	21.38 / 543	23.88 / 607	16.38 / 416	21.0 / 533	6.0 / 152
20	23.63 / 600	23.63 / 600	26.63 / 676	18.38 / 467	24.0 / 610	6.0 / 152
24	28.00 / 711	28.00 / 711	30.88 / 784	22.38 / 568	28.0 / 711	10.0 / 254

North America
44 Apple Street
Tinton Falls, NJ 07724
Toll Free: 800 656-3344
(North America only)
Tel: +1 732 212-4700

Europe/Africa/Middle East
Auf der Heide 2
53947 Nettersheim, Germany
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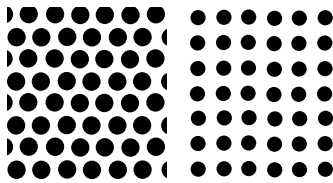
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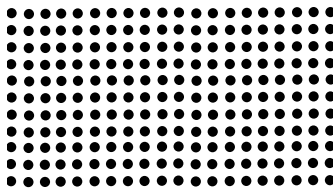
Basket and screen data

Pattern examples

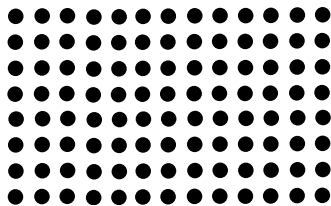


Staggered holes

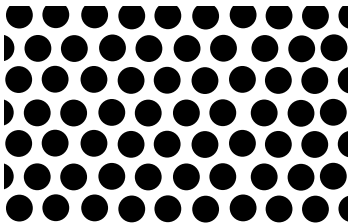
Straight holes



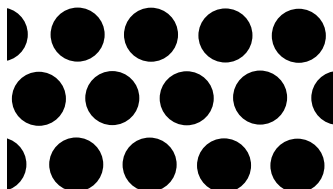
1/32" – Actual size



1/16" – Actual size



1/8" – Actual size



1/4" – Actual size

Basket and screen design

Designed to be both effective and durable, the basket or screen is the heart of an Eaton strainer. Eaton supplies baskets for simplex and duplex strainers and screens for Y strainers, in standard and heavy-duty designs. Standard design baskets meet the needs of most applications. Eaton recommends the heavy-duty design in cases when straining an extremely high viscosity material or experiencing a high solids load.

Eaton baskets and screens are available in two standard materials: 316 stainless steel or MONEL®. These materials cover nearly all corrosion resistance levels needed in strainer services. A wide range of perforations and mesh provides removal of solids from 1/2" down to as low as 40 microns. For special, unique applications, Eaton custom fabricates baskets from just about any material to exact specifications.

Basket construction

Each style basket includes a perforated sheet induction welded to a rigid top ring and solid bottom cap. Special attention to the welds along the perforated sheet seam, prevent the possible bypass of solids and maintain the basket's strength. A handle, welded to the I.D. of the top ring, facilitates easy removal. Heavy-duty baskets have reinforcing strips induction welded along the perforation's

seam and circumferentially on the outside of the mid-section of the basket. The perforated sheet is inside the top ring and bottom cap.

Screen construction

Y strainer screens, rolled to form a cylinder, are induction welded along the seam. A neat weld, applied along the perforated sheet seam, prevents the possible bypass of solids and provides a seam of acceptable strength. Eaton machines Y strainer screen seats to specific dimensions and, accordingly, both the O.D. and length of these screens are closely toleranced.

Perforated sheet – specification

Eaton baskets utilize perforated sheets because of their greater inherent strength and resistance to stress cracking. The percentage of open area of a screen generally dictates the internal pressure drop experienced across it. The objective is to select a perforation with the best balance of open area, hole arrangement and sheet thickness.

Open area

Perforated sheets can have an open area from 15% to 75%. In general, the larger the open area of perforated sheet, the thinner the sheet thickness must be. Holes punched closer together increase the perforated open area; the solid portion between holes distorts and becomes weak. Another

factor in controlling the sheet thickness is the hole diameter. The smaller the hole diameter, the thinner the sheet. Eaton baskets and screens have between 28% to 63% open area with gauge thickness from 18 (0.048 mm) to 25 (0.021 mm), depending upon the size of the perforations and the size and model of the strainer.

Hole arrangement

Holes can be punched either in a straight line or in a staggered pattern. Eaton baskets and screens have a staggered pattern that increases the open area, provides extra strength and creates less pressure drop.

Perforations

Eaton baskets and screens are available in 1/32", 3/64", 1/16", 1/8", 5/32", 1/4", 3/8" and 1/2" perforations and in mesh sizes 20, 40, 60, 80, 100, 200, 325 and 400. However, for general service there is one perforation for each size and type of strainer. Unless specified, this standard perforation is the size furnished with the strainer.

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Basket and screen data

Wire mesh specifications

Eaton strainers are available with woven wire mesh screens. Wire mesh provides smaller openings for very fine straining applications down to 40 microns. Eaton baskets and screens use monofilament mesh possessing equal wire size and wire count in both directions to produce square openings. Other types of mesh such as Dutch (or Hollander) are also available. Dutch weave has a greater quantity of wires in one direction and fewer wires of a larger diameter in the other direction. This creates a rectangular opening. As with perforated sheet, the best wire mesh selection is a balance of open area, wire diameter and type of weave.

Openings

Standard wire mesh liners for Eaton baskets and screens are available from 20 to 400 mesh. For any size mesh, there are different open area selections based on the diameter of the wires used. Twenty mesh means 20 wires per inch in both a vertical and horizontal direction. Therefore, as the wire size increases, the hole size decreases. Eaton baskets offer wire mesh with openings from 0.034" to 0.0015" (20 mesh to 400 mesh).

Open area

The open area of wire mesh is a function of both the weave and the wire diameter. Eaton uses a plain square weave in most cases because its straight-through flow path creates the least pressure drop. The mesh is

reinforced with a perforated metal backing possessing greater than a 60% open area. This combination affords the greatest degree of strength, yet offers a lower pressure drop than other types of wire mesh. In certain instances, such as Y strainer in steam applications, the increased pressure drop resulting from the use of a Dutch weave is not as critical as the retention of small particles. Therefore, in applications that involve steam, Eaton suggests the use of weave such as the 30 x 160 size that can withstand a much higher differential pressure without bursting. Eaton can supply baskets and screens with open areas from 14% to 46%

Plain square weave

Woven in an over and under pattern of wire having the same diameter, this weave produces a square opening with excellent flow characteristics.

Plain dutch weave

Woven in an over and under pattern in one direction in which the horizontal wires are larger in diameter than the vertical wires, which are driven close and crimped at each pass. This weave produces greater strength, but lower flow rates, than a square weave. Most often used in steam applications.

Mesh liners available

The number of openings per linear inch determines the size of mesh liners. The standard sizes Eaton can furnish are 20, 40, 60, 80, 100, 200, 325 and 400.

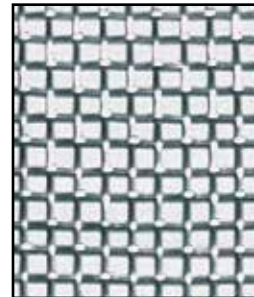
Perforated basket sheet specifications

Perforation size inches	Sheet thickness uss gauge #	Hole pattern	% Open area
0.020	26 (0.018 mm)	Straight	16.0
1/32	26 (0.018 mm)	Straight	28.0
3/64	26 (0.018 mm)	Straight	30.2
0.045	26 (0.018 mm)	Straight	37.0
1/16	26 (0.018 mm)	Straight	31.0
1/8	26 (0.018 mm)	Staggered	40.0
5/32	26 (0.018 mm)	Staggered	63.0
1/4	26 (0.018 mm)	Staggered	42.0
3/8	26 (0.018 mm)	Staggered	52.0
1/2	26 (0.018 mm)	Staggered	47.9

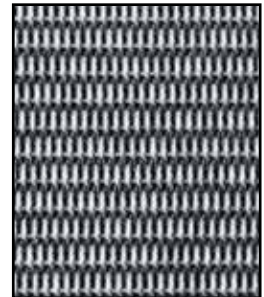
Mesh basket sheet specifications

Mesh size	Wire diameter inches	Mesh opening inches	Mesh opening microns	% Open area
20	0.016	0.0340	864	46.2
40	0.010	0.0150	381	36.0
60	0.0075	0.0092	234	30.5
80	0.0060	0.0065	165	27.0
100	0.0045	0.0055	140	30.3
200	0.0021	0.0029	74	33.6
325	0.0014	0.0017	43	30.0
400	0.0010	0.0015	38	36.0

Wire mesh weaves



Plain square weave



Plain dutch weave

North America
44 Apple Street
Tinton Falls, NJ 07724
Toll Free: 800 656-3344
(North America only)
Tel: +1 732 212-4700

Europe/Africa/Middle East
Auf der Heide 2
53947 Nettersheim, Germany
Tel: +49 2486 809-0

Internormen Product Line
Friedensstraße 41
68804 Altludersheim, Germany
Tel: +49 6205 2094-0

Begerow Product Line
An den Nahewiesen 24
55450 Langenlonsheim, Germany
Tel: +49 6704 204-0

China
No. 3, Lane 280,
Linhong Road
Changning District, 200335
Shanghai, P.R. China
Tel: +86 21 5200-0099

Singapore
4 Loyang Lane #04-01/02
Singapore 508914
Tel: +65 6825-1668

Brazil
Av. Julia Gaioli, 474 – Bonsucesso
07251-500 – Guarulhos, Brazil
Tel: +55 11 2465-8822

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TECHNICAL INFORMATION

Standard Cast Pipeline Strainers

Basket effective area

Strainer model	Pipe size (in)	Perforation size (in)	Nominal area of pipe (sq in)	Gross screen area (sq in)	Free area (sq in)	Ratio free area to pipe area
85	1/4	.045	.10	5.0	1.8	18.0
85	3/8	.045	.19	5.0	1.8	9.5
85	1/2	.045	.30	5.0	1.8	6.0
85	3/4	.045	.53	7.1	2.6	4.9
85	1	.045	.86	10.4	3.7	4.3
85	1-1/4	.045	1.49	15.1	5.5	3.7
85	1-1/2	.045	2.03	21.7	7.8	3.8
85	2	.045	3.35	30.4	10.9	3.3
85	2-1/2	.045	4.78	43.2	15.5	3.2
85	3	.045	7.39	70.7	25.5	3.4
85	4	.045	12.73	106.8	38.4	3.0
85	6	.045	28.70	241.7	87.0	3.0
85	8	.045	50.02	414.6	149.2	3.0
85	10	.045	71.80	652.2	234.8	3.3
30R	1-1/2	5/32	2.03	35.4	22.3	11.0
30R	2	5/32	3.35	50.9	32.1	9.6
30R	2-1/2	5/32	4.78	84.7	53.4	11.2
30R	3	5/32	7.39	84.7	53.4	7.2
30R	4	5/32	12.73	114.5	72.1	5.6
30R	5	5/32	20.0	158.1	99.6	5.0
30R	6	5/32	28.9	180.9	113.9	4.0
30R	8	5/32	50.03	275.6	171.8	3.4
50	5	3/16	20.0	216.1	106.0	5.4
50	6	3/16	28.9	265.4	132.7	4.6
50	8	3/16	50.02	506.7	253.4	5.1
52	10	3/16	78.8	800	400	5.1
52	12	3/16	113.1	1200	600	5.3
52	14	3/16	137.9	2000	1000	7.3
52	16	3/16	182.6	2000	1000	5.5
52	18	3/16	182.6	2000	1000	5.5
53BTX	3/4	1/32	0.53	19.8	5.5	10.4
53BTX	1	1/32	0.86	19.8	5.5	6.4
53BTX	1-1/4	1/8	1.49	45.0	22.0	14.4
53BTX	1-1/2	1/8	2.03	45.0	22.0	10.6
53BTX	2	1/8	3.35	65.0	31.0	9.3
53BTX	2-1/2	1/8	4.78	65.0	31.0	6.5
53BTX	3	3/16	7.39	110.3	55.1	7.4
53BTX	4	3/16	12.73	152.0	76.0	5.9

Strainer model	Pipe size (in)	Perforation size (in)	Nominal area of pipe (sq in)	Gross screen area (sq in)	Free area (sq in)	Ratio free area to pipe area
72	3/8	1/32	0.19	12.7	3.4	18.0
72	1/2	1/32	0.30	12.7	3.4	11.3
72	3/4	1/32	0.53	19.5	5.2	9.9
72	1	1/32	0.86	19.5	5.2	6.1
72	1-1/4	1/8	1.49	30.1	14.4	9.7
72	1-1/2	1/8	2.03	49.7	19.0	9.4
72	2	1/8	3.35	50.9	24.4	7.3
72	2-1/2	1/8	4.78	80.2	38.4	8.0
72	3	3/16	7.39	114.5	57.2	7.8
72	4	3/16	12.73	168.3	84.1	6.6
72	5	3/16	20.0	265.4	132.7	6.6
72	6	3/16	28.9	324.2	162.1	5.6
72	8	3/16	50.02	555.3	277.7	5.6
73	10	3/16	78.8	800	400	5.1
73	12	3/16	113.1	1200	600	5.3
73	14	3/16	137.9	2000	1000	7.3
73	16	3/16	182.6	2000	1000	5.5
73	18	3/16	182.6	2000	1000	5.5

Alloy data

Metal alloys used in Eaton strainers

Carbon steel – ASTM A-216 grade WCB

Tensile strength: 70,000 lb/sq
(480 N/mm²)
Yield: 36,000 lb/sq in (245 N/mm²)
Elongation: 22%
Chemical composition:
C (Carbon) 0.30%
Si (Silicon) 0.60%
P (Phosphorus) 0.04%
S (Sulfur) 0.045%
Mn (Manganese) 1.00%
Residual Elements 1.00% max

Aluminum bronze – ASTM B-148 grade C95400

Tensile strength: 75,000 lb/sq in
(517 N/mm²)
Yield: 30,000 lb/sq in (206 N/mm²)
Elongation: 12%
Chemical composition:
Cu (Copper) 85%
Fe (Iron) 4%
Al (Aluminum) 11%

Stainless steel – ASTM A-351 grade CF8M

Tensile strength: 70,000 lb/sq in
(480 N/mm²)
Yield: 30,000 lb/sq in (206 N/mm²)
Elongation: 30%
Chemical composition:
C (Carbon) 0.08% max
Si (Silicon) 1.5%
P (Phosphorus) 0.040%
Cr (Chromium) 18.0 - 21.0%
Ni (Nickel) 9.0 - 12.0%
Mn (Manganese) 1.50%
S (Sulfur) 0.04%
Mo (Molybdenum) 2.0 - 3.0%

Cast iron – ASTM A-126 class B

Tensile strength: 31,000 lb/sq in
(214 N/mm²)
Compressive strength: 109,000 lb/sq in
(750 N/mm²)
Tensile modulus: 15 x 10⁶ lb/sq in
Chemical composition:
C (Carbon) 3.20 - 3.40 %
Si (Silicon) 2.10 - 2.30%
P (Phosphorus) 0.15 - 0.30%
S (Sulfur) 0.08 - 0.12%
Mn (Manganese) 0.50 - 0.80%

Ductile iron – ASTM A-395 grade 60-40-18

Tensile strength: 60,000 lb/sq in
(413 N/mm²)
Yield: 40,000 lb/sq in
(275 N/mm²)
Elongation: 18%
Chemical composition:
C (Carbon) 3.20 - 4.0%
Si (Silicon) 1.80 - 2.80%
P (Phosphorus) 0.08% max.
S (Sulfur) 0.03% max.
Mn (Manganese) 0.03% max.

TECHNICAL INFORMATION

Standard Cast Pipeline Strainers

Pressure drop calculations

Pressure drops for Eaton strainers are shown on each product page. The curves are based on the flow of water through clean, perforated baskets or screens. For mesh-lined baskets or screens and/or for fluids other than water, use the correction factors listed on this page. To accurately calculate the pressure loss for filters and strainers in a pipeline, proceed as follows:

1. First calculate pressure loss using C_V factor formula at right.
2. Take the pressure loss figure obtained in (1) and recalculate it using the appropriate correction factor from the following table.

Correction factors for mesh-lined baskets

First – Multiply the pressure drop for water shown in charts by the specific gravity of the liquid.

Second – Multiply the corrected pressure drop figure by the following correction factors for more viscous liquids. (Water has a viscosity of 30 SSU.)

Viscosity (SSU)	Unlined perforated basket	40 Mesh lined basket	60 Mesh lined basket	80 Mesh lined basket	100 Mesh lined basket	200 Mesh lined basket	325 Mesh lined basket
30 (water)	1	1.2	1.4	1.6	1.7	2.0	2.5
500	1.6	1.9	2.1	2.4	2.6	3.1	3.6
1000	1.7	2.2	2.4	2.6	2.8	3.3	3.8
2000	1.9	2.4	2.7	2.9	3.2	3.8	4.0
3000	2.0	2.6	2.9	3.2	3.5	4.1	4.3
5000	2.2	3.0	3.5	4.0	4.5	5.3	6.3
10000	2.5	3.5	4.2	5.0	6.0	7.1	8.5

Strainer basket opening equivalents

Mesh	Inches	Millimeters	Microns	Perf	Inches	Millimeters	Microns
400	0.0015	0.0381	38	1/32	0.033	0.838	838
300	0.0018	0.0457	45	3/64	0.045	1.143	1143
250	0.0024	0.0609	60	1/16	0.070	1.778	1776
200	0.0027	0.0686	68	3/32	0.094	2.387	2387
150	0.0041	0.1041	104	1/8	0.125	3.175	3175
100	0.0065	0.1651	165	5/32	0.150	3.810	3810
80	0.007	0.1778	177	3/16	0.1875	4.762	4762
60	0.009	0.2286	228	1/4	0.250	6.350	6350
40	0.015	0.8636	380	3/8	0.375	9.525	9525
20	0.034	0.8636	862	1/2	0.500	12.700	12700

Pressure loss calculation using C_V factor

Metric units

$$\Delta p = \left[\frac{Q}{C_V} \right]^2 (133.6)$$

Δp = Pressure drop in kPa

Q = Flow in m³/h

C_V = Flow coefficient

Standard units

$$\Delta p = \left[\frac{Q}{C_V} \right]^2$$

Δp = Pressure drop in psi

Q = Flow in gpm

C_V = Flow coefficient

The pressure loss across a strainer can be calculated using the system's flow rate and the C_V factor for that strainer.

For example, a 1" Model 72 simplex strainer with a perforated basket has a C_V factor of 22.5. In water service with a 30 gpm (6.8 m³/h) flow rate, it will have a 1.7 psi (117 mbar) pressure drop $(30 \div 22.5)^2 = 1.7$. For mesh-lined baskets and/or fluids with a viscosity greater than water, multiply the pressure drop by the correction factors in the chart "Correction factors for mesh-lined baskets."

North America
44 Apple Street
Tinton Falls, NJ 07724
Toll Free: 800 656-3344
(North America only)
Tel: +1 732 212-4700

Europe/Africa/Middle East
Auf der Heide 2
53947 Nettersheim, Germany
Tel: +49 2486 809-0

Internormen Product Line
Friedensstraße 41
68804 Altlußheim, Germany
Tel: +49 6205 2094-0

Begerow Product Line
An den Nahewiesen 24
55450 Langenlonsheim, Germany
Tel: +49 6704 204-0

China
No. 3, Lane 280,
Linhong Road
Changning District, 200335
Shanghai, P.R. China
Tel: +86 21 5200-0099

Singapore
4 Loyang Lane #04-01/02
Singapore 508914
Tel: +65 6825-1668

Brazil
Av. Julia Gaioli, 474 – Bonsucesso
07251-500 – Guarulhos, Brazil
Tel: +55 11 2465-8822

For more information, please email us at filtration@eaton.com or visit www.eaton.com/filtration

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Simplex, Duplex, T-Type

Custom fabricated strainers

Modular systems make it easy to meet precise specifications

Nothing too big, too small or too special

Eaton custom fabricated pipeline strainers are unique designs that fit the exact requirements of any application. Whether it is a special alloy, unique piping connection, or cover opening system, or even an extraordinary size, Eaton's talented engineers will design and develop strainers to any specification.

With extensive manufacturing capabilities and investment in equipment, all but the most specialized fabrication work is performed in-house—reducing costs and expediting delivery of finished strainers. All equipment is manufactured to customer specifications with full consideration to meet required delivery dates.

Eaton prides itself on innovation and continually invests in new products and technology.

Known for quality workmanship, Eaton fabricated pipeline strainers meet customers' expectations and the highest standards, including:

- ISO 9001-2008 quality management
- Standard ASME "U" and "UM" Code Stamp
- "N" stamp available
- Brazilian NR-13 available
- European standards - DIN/PED available
- Properly sized components to meet any specified flow rate and retention requirement
- NSF approved coatings
- Ultra low discharge strainer technology that offers reduced purged volumes

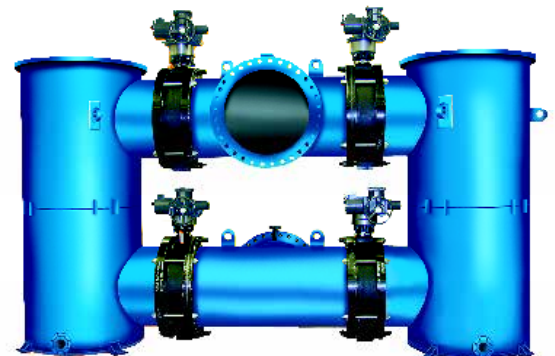


Model 91 T-type strainer with Quick Open Cover



24" simplex Model 90 low profile carbon steel fabricated strainer

Eaton's continued success can be attributed to the amount of skill and pride that goes into the production of each customers' fabricated pipeline strainer.



Model 950B fabricated carbon steel duplex strainer



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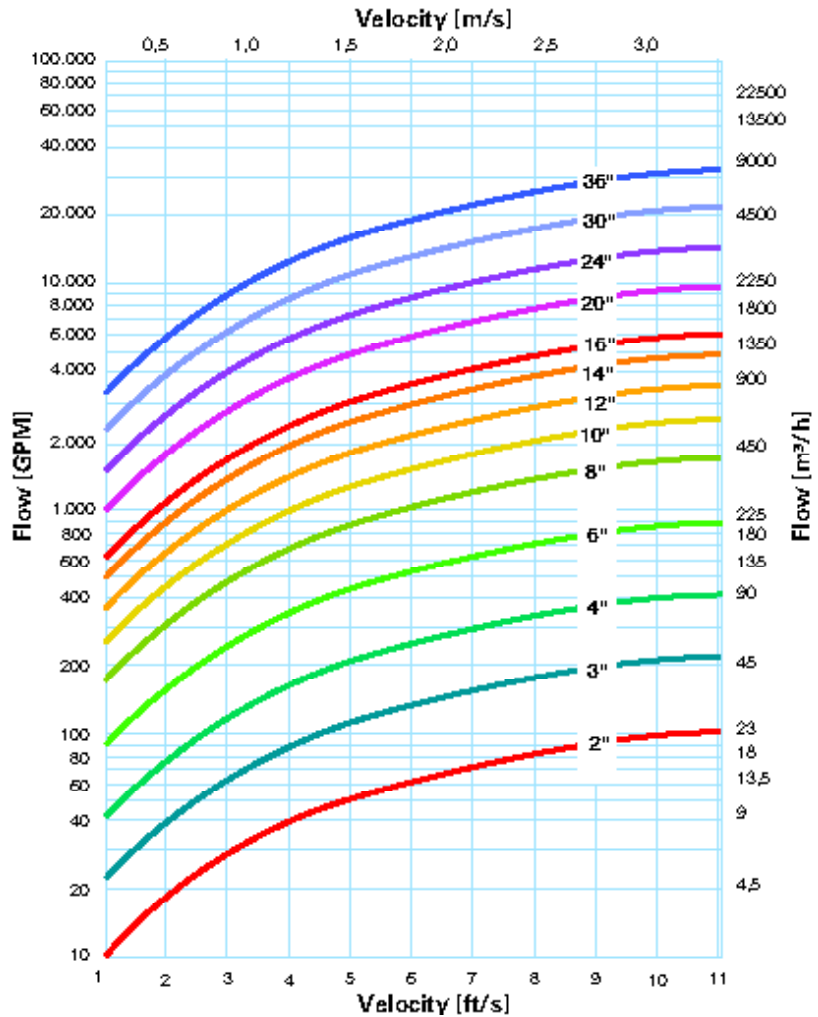


12" Model 950B duplex strainer with quick open cover

Basic sizing guidelines

1. Select the correct screen and opening size, do not make smaller than necessary.
2. The quantity, type and nature of debris to be removed are considered.
3. The strainer meets the design pressure and temperature requirements of the pipeline.

Strainer sizing chart



Fabrication options

- Simplex, duplex and T-type fabrication
- Pipe sizes 2" to 60"
- ANSI class flanges from 150# to 1500# or DIN EN
- Bolted, quick opening hinged cover or davit assembly
- Carbon steel, stainless steel or special alloy construction for body and baskets
- RTJ-style connections
- Vent valves
- Drain valves
- Gauge taps
- Pressure differential gauge and switches
- Backflushing system for manual or automated cleaning
- Steam jacket for highly viscous fluids
- Custom nozzle positioning including rotated or offset placement
- High pressure/temperature capabilities
- Construction according to "AD 2000-Merkblätter", DIN EN 13445 or ASME Code
- Perforated baskets from 1/32" to 1" hole diameter
- Mesh basket liners from 20 to 400 (862 to 38 microns)
- Viton®, Buna-N® or other O-ring seal material
- Coatings and linings available upon request

North America
44 Apple Street
Tinton Falls, NJ 07724
Toll Free: 800 656-3344
(North America only)
Tel: +1 732 212-4700

Europe/Africa/Middle East
Auf der Heide 2
53947 Nettersheim, Germany
Tel: +49 2486 809-0

Internormen Product Line
Friedensstraße 41
68804 Altlufsheim, Germany
Tel: +49 6205 2094-0

Begerow Product Line
An den Nahewiesen 24
55450 Langenlonsheim, Germany
Tel: +49 6704 204-0

China
No. 3, Lane 280,
Linhong Road
Changning District, 200335
Shanghai, P.R. China
Tel: +86 21 5200-0099

Singapore
4 Loyang Lane #04-01/02
Singapore 508914
Tel: +65 6825-1668

Brazil
Av. Julia Gaioli, 474 – Bonsucesso
07251-500 – Guarulhos, Brazil
Tel: +55 11 2465-8822

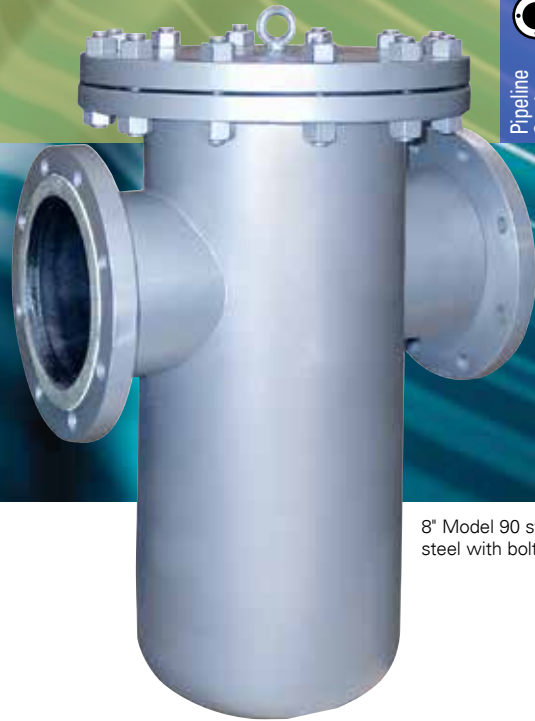
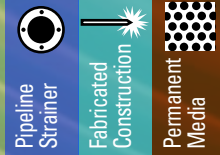
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Fabricated Simplex Strainer

Model 90



8" Model 90 strainer, carbon steel with bolted cover

- Carbon steel or stainless steel*
- Sizes 1" to 48"
- Flanged ANSI class 150 or 300

Features

- Straight through flow design
- Low pressure loss
- Slant top basket design
- Basket perforations from 1/32" to 1"
- 20 to 400 mesh linings for fine straining applications

Options

- ANSI Class 600, 900, 1500 or DIN EN flanges
- European standards - DIN/PED available
- Hinged cover or davit assembly for easier maintenance
- Alloy construction for body and baskets
- RTJ-style connections
- Vent valves
- Drain valves
- Gauge taps
- Backflushing system for manual or automated cleaning
- Pressure differential gauge and switches
- Steam jacket for highly viscous fluids
- Rotated or offset nozzle placement
- High pressure capabilities
- Construction according to "AD 2000-Merkblätter", DIN EN 13445 or ASME Code
- Brazilian NR-13 available
- Coatings and linings available upon request

* Stainless steel strainers include painted carbon steel, external, non-wetted fasteners as standard

Customize to improve performance and meet higher pressure requirements

A slant top design improves the flow through the strainer and results in significantly lower pressure drops. This design also results in a more compact basket that weighs less than an ordinary basket. This makes it possible for one person to remove it from the strainer housing, when it comes time to clean or changeout the basket.

Common modifications

- Rotated inlet and outlet nozzles to eliminate an elbow in the downstream piping
- Lowering or raising either the inlet or the outlet nozzle, this eliminates serious alignment and support problems.

Cover type openings

For applications with infrequent basket changing, Eaton offers a simple, cost-effective, bolted cover type. It's available with a davit assembly cover for larger strainers with heavy covers, this makes it possible for a one-person operation.

For applications with more frequent changing, Eaton offers a hinged, quick opening cover secured by swing bolts. This is adaptable for higher pressure applications. For

medium size strainers, 8" to 16," a davit assembly bolted cover is available. This permits one operator to engage the hinge and open the cover.

Backflush/backwash option

In systems with heavy, well-defined solids and sediment, this option backflushes the system without shutting the system down. A piping connection with an on/off backflush valve is fabricated at the strainer bottom and has a connection to the bottom of the strainer basket. When solids accumulate in the bottom of the basket, the backflush valve opens and the differential between the operating pressure and the backflush system removes the solids. The second step, backwashing, reverses the flow and removes residual dirt.

Optional steam jacketing

Available in carbon steel or stainless steel rated for service up to 450 °F (232 °C). This is ideal for the high temperatures required to process and transport heavy, viscous fluids without affecting the function or normal maintenance of the strainer. Steam jacketing maintains critical fluid temperature throughout the strainer.

Design and fabrication "AD 2000-Merkblätter", DIN EN 13445 or ASME Code and ANSI B31.1 are available.



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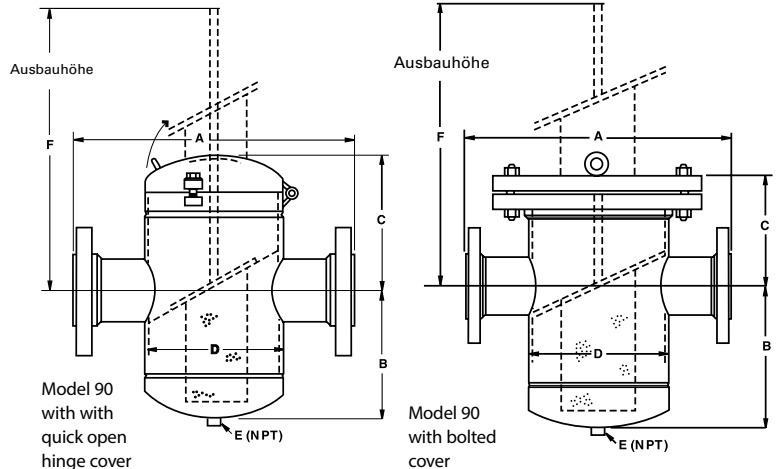
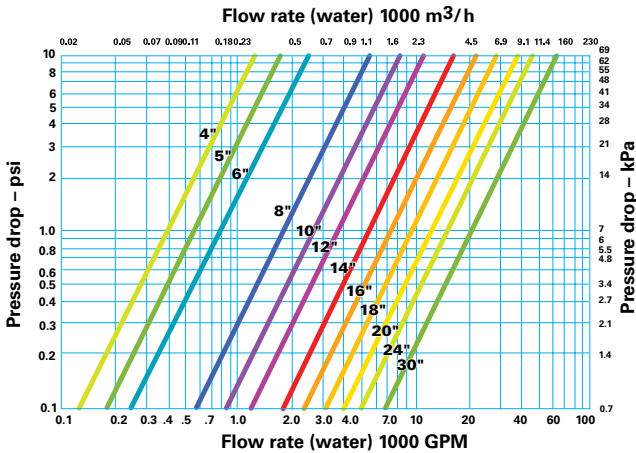
Model 90 Fabricated Simplex Strainer

Model 90 with quick open hinge cover

Nom size	Dimensions (in / mm)							Weight (lb / kg)			
	Class 150	Class 300	B	Class 150/300		E	F	Class 150		Class 300	
	A	A		C	D			Cover	Unit	Cover	Unit
2	14 / 356	14 / 356	12 / 305	8 5/8 / 219	6 5/8 / 168	1/2	26 / 660	6 / 2.7	71 / 32	6 / 2.7	90 / 41
3	15 / 381	15 / 381	12 1/2 / 318	8 5/8 / 219	6 5/8 / 168	1/2	26 / 660	6 / 2.7	73 / 33	6 / 2.7	105 / 48
4	16 / 406	16 / 406	14 / 356	9 1/2 / 241	8 5/8 / 219	1	21 / 533	9 / 4.1	122 / 55	9 / 4.1	158 / 72
5	16 / 406	17 1/2 / 445	15 / 381	11 1/4 / 286	10 3/4 / 273	1	22 / 559	9 / 4.1	128 / 58	9 / 4.1	176 / 80
6	20 / 508	21 / 533	17 / 432	11 1/4 / 286	10 3/4 / 273	1	24 / 610	12 / 5.4	168 / 76	12 / 5.4	236 / 107
8	22 / 559	23 / 584	21 / 533	13 / 330	12 3/4 / 324	1 1/2	28 / 711	15 / 6.8	226 / 103	15 / 6.8	278 / 126
10	32 / 813	33 / 838	25 / 635	15 3/4 / 400	16 / 406	1 1/2	33 / 838	30 / 14	360 / 163	30 / 14	483 / 219
12	35 / 889	36 / 914	28 / 711	17 3/4 / 451	18 / 457	1 1/2	39 / 991	37 / 17	535 / 243	37 / 17	734 / 333
14	37 / 940	38 / 965	33 / 838	19 3/4 / 502	20 / 508	2	45 / 1143	46 / 21	804 / 365	46 / 21	1030 / 467
16	42 / 1067	43 / 1092	36 / 914	23 1/4 / 591	24 / 610	2	49 / 1245	68 / 31	1188 / 539	68 / 31	1437 / 652
18	42 / 1067	43 / 1092	39 / 991	23 1/4 / 591	24 / 610	2	53 / 1346	68 / 31	1255 / 569	68 / 31	1553 / 704
20	43 / 1092	44 1/2 / 1130	44 / 1118	27 3/4 / 705	30 / 762	2	59 / 1499	71 / 32	1322 / 600	71 / 32	1656 / 751
24	48 / 1219	49 3/4 / 1264	60 / 1524	27 3/4 / 705	30 / 762	2	78 / 1981	88 / 40	1860 / 844	88 / 40	2344 / 1063

Model 90 with bolted cover

Nom-size	Dimensions (in / mm)							Weight (lb / kg)				
	Class 150	Class 300	B	Class 150	Class 300	E	F	Class 150		Class 300		
	A	A		C	C			Cover	Unit	Cover	Unit	
2	14 / 356	14 / 356	12 / 305	7 / 178	9 / 229	6 5/8 / 168	1/2	23 / 584	28 / 13	110 / 50	50 / 23	160 / 73
3	15 / 381	15 / 381	12 1/2 / 318	8 / 203	9 / 229	6 5/8 / 168	1/2	24 / 610	28 / 13	120 / 54	50 / 23	175 / 79
4	16 / 406	16 / 406	14 / 356	8 1/4 / 210	9 1/2 / 241	8 5/8 / 219	1	21 / 533	45 / 20	147 / 67	81 / 37	219 / 99
5	16 / 406	17 1/2 / 445	15 / 381	9 1/2 / 241	11 / 279	10 3/4 / 273	1	22 / 559	45 / 20	153 / 69	81 / 37	237 / 108
6	20 / 508	21 / 533	17 / 432	9 1/2 / 241	11 / 279	10 3/4 / 273	1	24 / 610	70 / 32	203 / 92	127 / 58	328 / 149
8	22 / 559	23 / 584	21 / 533	11 / 279	12 1/2 / 318	12 3/4 / 324	1 1/2	28 / 711	110 / 50	281 / 127	184 / 83	407 / 185
10	32 / 813	33 / 838	25 / 635	13 / 330	14 1/2 / 368	16 / 406	1 1/2	33 / 838	170 / 77	450 / 204	307 / 139	710 / 322
12	35 / 889	36 / 914	28 / 711	14 1/2 / 368	16 / 406	18 / 457	1 1/2	39 / 991	209 / 95	644 / 292	390 / 177	1024 / 464
14	37 / 940	38 / 965	33 / 838	15 3/4 / 400	17 1/2 / 445	20 / 508	2	45 / 1143	272 / 123	951 / 431	492 / 223	1397 / 634
16	42 / 1067	43 / 1092	36 / 914	18 1/4 / 464	20 / 508	24 / 610	2	49 / 1245	411 / 186	1409 / 639	754 / 342	2011 / 912
18	42 / 1067	43 / 1092	39 / 991	18 1/4 / 464	20 / 508	24 / 610	2	53 / 1346	411 / 186	1486 / 674	754 / 342	2127 / 965
20	43 / 1092	44 1/2 / 1130	44 / 1118	21 3/4 / 552	24 / 610	30 / 762	2	59 / 1499	411 / 186	1553 / 704	754 / 342	2231 / 1012
24	48 / 1219	49 3/4 / 1264	60 / 1524	21 3/4 / 552	24 / 610	30 / 762	2	78 / 1981	681 / 309	2291 / 1039	1403 / 636	3497 / 1586



North America
44 Apple Street
Tinton Falls, NJ 07724
Toll Free: 800 656-3344
(North America only)
Tel: +1 732 212-4700

Europe/Africa/Middle East
Auf der Heide 2
53947 Nettersheim, Germany
Tel: +49 2486 809-0

Internormen Product Line
Friedensstraße 41
68804 Altlufsheim, Germany
Tel: +49 6205 2094-0

Begerow Product Line
An den Nahewiesen 24
55450 Langenlonsheim, Germany
Tel: +49 6704 204-0

China
No. 3, Lane 280,
Linhong Road
Changning District, 200335
Shanghai, P.R. China
Tel: +86 21 5200-0099

Singapore
4 Loyang Lane #04-01/02
Singapore 508914
Tel: +65 6825-1668

Brazil
Av. Julia Gaioli, 474 – Bonsucesso
07251-500 – Guarulhos, Brazil
Tel: +55 11 2465-8822

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US
EF-SSEA-19
6-2014

Model 950B

2" - 12"

- Carbon steel or stainless steel
- Sizes 2" to 12"
- Flanged ANSI class 150 or 300

Features

- Offset inlet/outlet design
- Basket perforations from 1/32" to 1"
- 20 to 400 mesh linings for fine straining applications

Options

- Quick open cover or davit assembly bolted cover
- Alloy construction for body and baskets
- Construction according to "AD 2000-Merkblätter", DIN EN 13445 or ASME Code
- Steam jacket for highly viscous fluids
- Coatings and linings available upon request

Duplex housing for continuous operation

The Eaton Model 950B fabricated duplex strainers operate continuously and feature two strainer basket housings connected by four individually operated valves. When the basket in the first housing becomes full, switching the flow to the second is easy using the butterfly valve assembly. Remove, clean or replace the first basket for use again; the pipeline never shuts down.

Cover type openings

For applications with infrequent basket changing, Eaton offers a simple, cost-effective, bolted cover type. It's available with a davit assembly cover for larger strainers with heavy covers, this makes it possible for a one-person operation.

For applications with more frequent changing, Eaton offers a hinged, quick opening cover secured by swing bolts. This is adaptable for higher pressure applications. For medium size strainers, 8" to 12," a davit assembly bolted



12" Model 950B duplex strainer with quick open cover

cover is available. This permits one operator to engage the hinge and open the cover.

Strainer screens

Strainer screens are stainless steel or other specified materials.

Backflush/backwash option

In systems with heavy, well-defined solids and sediment, this option backflushes the system without shutting the system down. A piping connection with an on/off backflush valve is fabricated at the strainer bottom and has a connection to the bottom of the strainer basket. When solids accumulate in the bottom of the basket, the backflush valve opens and the differential between the oper-

ating pressure and the back-flush system removes the solids. The second step, back-washing, reverses the flow and removes residual dirt.

Optional steam jacketing

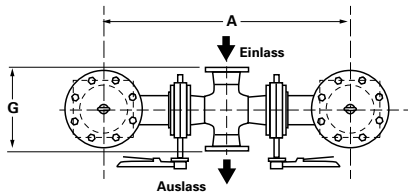
Available in carbon steel or stainless steel rated for service up to 450 °F (232 °C). This is ideal for the high temperatures required to process and transport heavy, viscous fluids without affecting the function or normal maintenance of the strainer. Steam jacketing maintains critical fluid temperature throughout the strainer.

Design and fabrication to "AD 2000-Merkblätter", DIN EN 13445 or ASME Code and ANSI B31.1 are available.

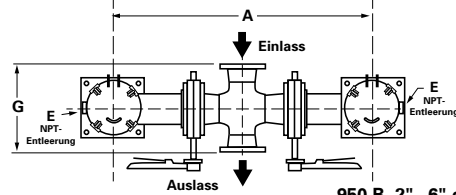


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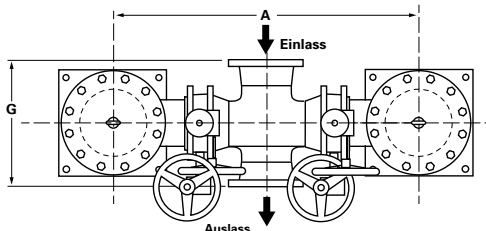
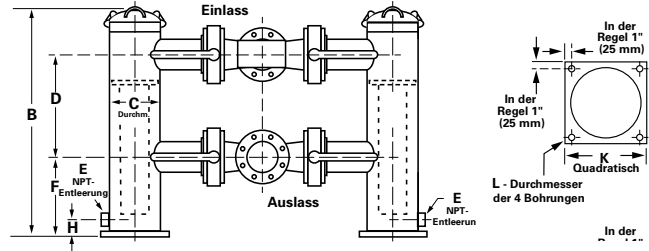
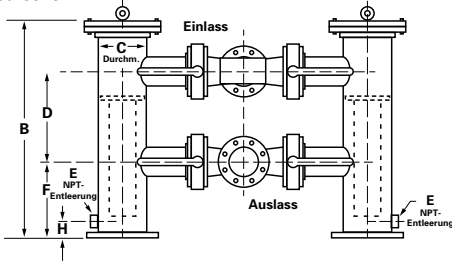
Model 950B 2" - 12" Fabricated Offset Duplex Strainer



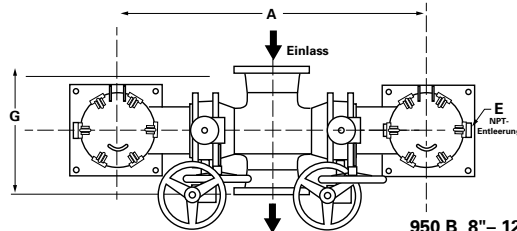
950 B 2"-6" bolted cover



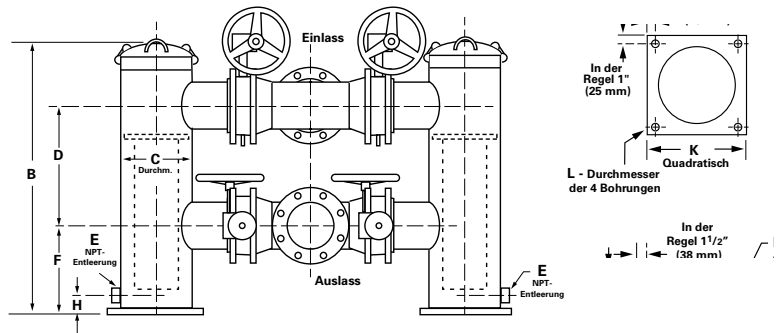
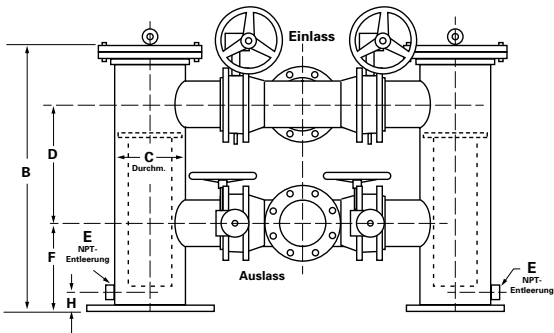
950 B 2"-6" quick open cover



950 B 8"-12" bolted cover



950 B 8"-12" quick open cover



Dimensions (in/mm)

Pipe size	A	Quick open B	Bolted B	C	D	E	F	G	H	K	Weight quick open (lb / kg)	Weight bolted (lb / kg)	
2	35.25 / 895	36.63 / 930	34.25 / 884	6.63 / 168	16.00 / 406	1	12.00 / 305	10.25 / 203	3.00 / 76	8.00 / 203	0.75 / 19	320 / 145	345 / 156
3	39.50 / 1003	38.63 / 981	38.00 / 965	6.63 / 168	16.00 / 406	1	14.00 / 356	12.50 / 318	3.00 / 76	8.00 / 203	0.75 / 19	410 / 186	430 / 195
4	43.75 / 1111	41.50 / 1054	41.00 / 1041	8.63 / 219	18.00 / 457	1	14.00 / 356	14.50 / 368	3.00 / 76	10.00 / 254	0.75 / 19	650 / 294	700 / 317
6	53.00 / 1346	43.25 / 1099	42.00 / 1087	10.75 / 273	18.00 / 457	1	14.00 / 356	18.50 / 470	3.00 / 76	12.00 / 305	0.75 / 19	1300 / 589	1100 / 499
8	56.25 / 1429	48.00 / 1219	46.00 / 1168	12.75 / 324	25.00 / 635	1-1/2	10.00 / 254	22.25 / 565	3.25 / 83	17.00 / 432	0.75 / 19	1685 / 763	1800 / 815
10	64.75 / 1645	51.75 / 1314	52.00 / 1321	16.00 / 406	26.00 / 660	1-1/2	10.00 / 254	25.25 / 641	3.50 / 89	19.00 / 483	0.75 / 19	2120 / 960	2300 / 1042
12	72.50 / 1842	57.75 / 1467	54.00 / 1372	18.00 / 457	28.00 / 711	1-1/2	12.00 / 305	29.25 / 743	4.00 / 102	21.00 / 533	1.00 / 25	3270 / 1481	3500 / 1586

North America
44 Apple Street
Tinton Falls, NJ 07724
Toll Free: 800 656-3344
(North America only)
Tel: +1 732 212-4700

Europe/Africa/Middle East
Auf der Heide 2
53947 Nettersheim, Germany
Tel: +49 2486 809-0

Internormen Product Line
Friedensstraße 41
68804 Altlußheim, Germany
Tel: +49 6205 2094-0

Begerow Product Line
An den Nahewiesen 24
55450 Langenlonsheim, Germany
Tel: +49 6704 204-0

China
No. 3, Lane 280,
Linhong Road
Changning District, 200335
Shanghai, P.R. China
Tel: +86 21 5200-0099

Singapore
4 Loyang Lane #04-01/02
Singapore 508914
Tel: +65 6825-1668

Brazil
Av. Julia Gaioli, 474 - Bonsucesso
07251-500 - Guarulhos, Brazil
Tel: +55 11 2465-8822

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US
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Model 950B

14" - 24"

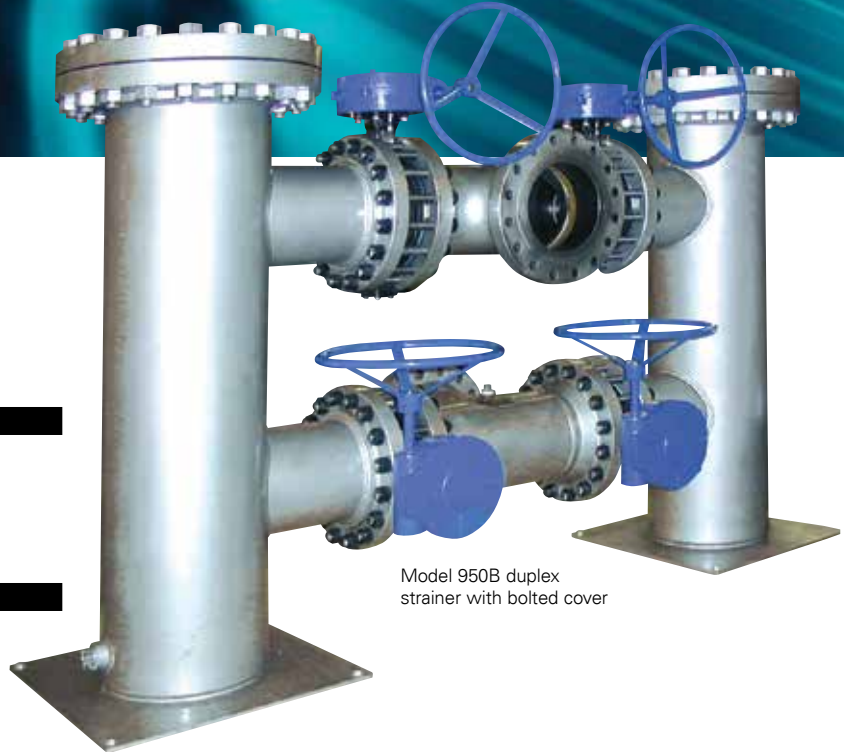
- Carbon steel or stainless steel
- Sizes 14" to 24"
- Flanged ANSI class 150 or 300

Features

- Offset inlet/outlet design
- Basket perforations from 1/32" to 1"
- 20 to 400 mesh linings for fine straining applications

Options

- Quick open cover or davit assembly bolted cover
- Alloy construction for body and baskets
- Construction according to "AD 2000-Merkblätter", DIN EN 13445 or ASME Code
- Steam jacket for highly viscous fluids
- Coatings and linings available upon request



Model 950B duplex strainer with bolted cover

Duplex housing for continuous operation

The Eaton Model 950B fabricated duplex strainers operate continuously and feature two strainer basket housings connected by valves. When the basket in the first housing becomes full, switching the flow to the second is easy using the butterfly valve assembly. Remove, clean or replace the first basket for use again; the pipeline never shuts down.

Cover type openings

For applications with infrequent basket changing, Eaton offers a simple, cost-effective, bolted cover type. It's available with a davit assembly cover for larger strainers with heavy covers, this makes it possible for a one-person operation.

For applications with more frequent changing, Eaton offers a hinged, quick opening cover secured by swing bolts. This is adaptable for higher

pressure applications. For medium size strainers, 14" to 16," a davit assembly bolted cover is available. This permits one operator to engage the hinge and open the cover.

Strainer screens

Strainer screens are stainless steel or other specified materials.

Backflush/backwash option

In systems with heavy, well-defined solids and sediment, this option backflushes the system without shutting it the system down. A piping connection with an on/off backflush valve is fabricated at the strainer bottom and has a connection to the bottom of the strainer basket. When solids accumulate in the bottom of the basket, the backflush valve opens and the differential between the

operating pressure and the backflush system removes the solids. The second step, backwashing, reverses the flow and removes residual dirt.

Optional steam jacketing

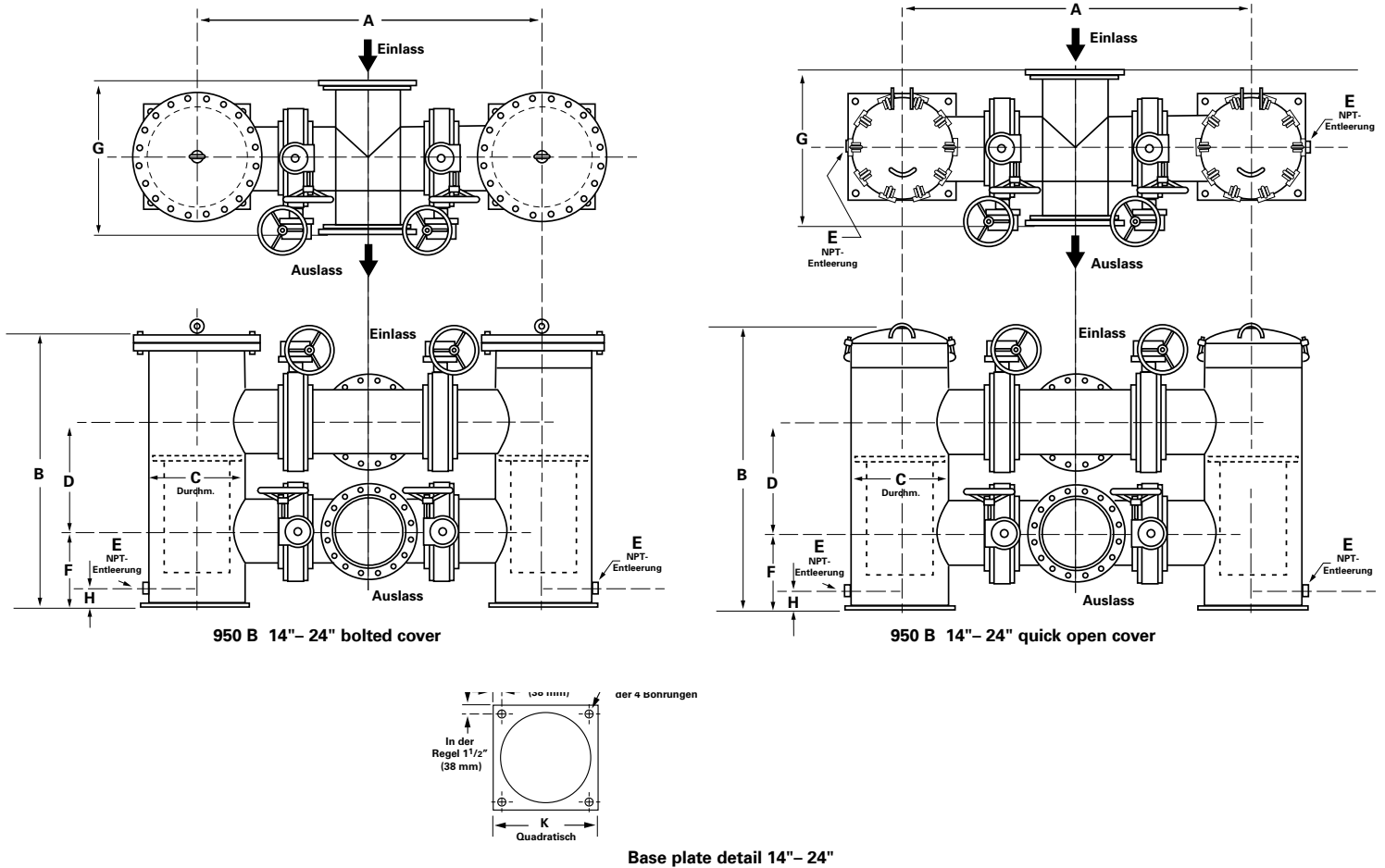
Available in carbon steel or stainless steel rated for service up to 450 °F (232 °C). This is ideal for the high temperatures required to process and transport heavy, viscous fluids without affecting the function or normal maintenance of the strainer. Steam jacketing maintains critical fluid temperature throughout the strainer.

Eaton customizes the strainers to meet special application requirements. Design and fabrication to "AD 2000-Merkblätter", DIN EN 13445 or ASME Code and ANSI B31.1 are available.



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Model 950B 14" - 24" Fabricated Offset Duplex Strainer



Dimensions (in/mm)

Pipe size	Quick open		Bolted		D	E	F	G	H	K	Weight		
	A	B	B	C							(lb/kg)	(lb/kg)	
14	84.00 / 2134	63.00 / 1600	63.00 / 1600	20.00 / 508	27.00 / 685	1-1/2	16.00 / 406	32.00 / 813	4.00 / 102	23.00 / 584	1.00 / 25	3700 / 1678	4000 / 1814
16	86.00 / 2184	68.00 / 1727	68.00 / 1727	24.00 / 610	27.00 / 685	1-1/2	18.00 / 457	34.00 / 864	4.00 / 102	26.00 / 660	1.13 / 29	4240 / 1923	4680 / 2123
18	90.00 / 2286	73.00 / 1854	69.00 / 1753	24.00 / 610	30.00 / 762	2	19.00 / 483	38.00 / 965	4.75 / 121	26.00 / 660	1.13 / 29	5760 / 2613	6200 / 2813
20	106.00 / 2692	90.00 / 2286	90.00 / 2286	30.00 / 762	36.00 / 914	2	22.00 / 559	40.00 / 1016	4.75 / 121	38.00 / 965	1.13 / 29	8450 / 3833	8900 / 4037
24	121.00 / 3073	100.00 / 2540	100.00 / 2540	30.00 / 762	48.00 / 1219	2	24.00 / 610	48.00 / 1168	4.75 / 121	38.00 / 965	1.13 / 29	9300 / 4354	10050 / 4559

North America
44 Apple Street
Tinton Falls, NJ 07724
Toll Free: 800 656-3344
(North America only)
Tel: +1 732 212-4700

Europe/Africa/Middle East
Auf der Heide 2
53947 Nettersheim, Germany
Tel: +49 2486 809-0

Internormen Product Line
Friedensstraße 41
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China
No. 3, Lane 280,
Linhong Road
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Tel: +86 21 5200-0099

Singapore
4 Loyang Lane #04-01/02
Singapore 508914
Tel: +65 6825-1668

Brazil
Av. Julia Gaioli, 474 – Bonsucesso
07251-500 – Guarulhos, Brazil
Tel: +55 11 2465-8822

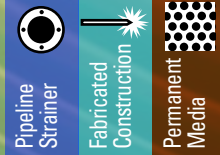
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US
EF-SSEA-21
6-2014

Fabricated T-Type Strainer

Model 91



Quick opening spin off cover with davit assembly

- Carbon steel or stainless steel*
- Sizes 2" to 48"
- Flanged or butt weld

Features

- ANSI class 150, 300, 600 or DIN EN flanges
- Vertical or horizontal orientation
- Low pressure drop
- Convoluted screen for more surface area with perforations from 1/16" to 1/2"
- 20 to 60 mesh linings for fine straining applications

Options

- Quick open hinged or davit cover assembly bolted cover
- Alloy construction for body and baskets
- Construction according to "AD 2000-Merkblätter", DIN EN 13445 or ASME Code
- Steam jacket for highly viscous fluids
- Straight through or right angle configuration
- Flanged class 600 or butt weld piping connections

Customize to improve performance and meet higher pressure requirements

The Eaton Model 91 fabricated T strainer, typically used for pump protection or other low solids applications has several advantages over other strainer designs. Its compact design is perfect for applications with restricted space, either vertical or horizontal installations are possible, and when cleaning the strainer, draining the vessel is not necessary. It also can be adapted for straight through or right angle flow, making it ideal for retrofit situations.

Strainer design

The convoluted design of the strainer screen doubles the screen area and completely changes the dirt accumulation pattern on the screen, more effectively using the screen's straining area and increasing the time between cleanings. The combination of a convoluted strainer screen and unrestricted flow path results in a very low pressure drop, ideal for applications such as condensate and boiler feed pump suction.

Strainer screens

Strainer screens are stainless steel or other specified materials.

Cover type openings

For applications with infrequent basket changing, Eaton offers a simple, cost-effective, bolted cover type. It's available with a davit assembly cover for larger strainers with heavy covers, this makes it possible for a one-person operation.

For applications with more frequent changing, Eaton offers a hinged, quick opening cover secured by swing bolts. This is adaptable for higher pressure applications. For medium size strainers, 14" to 16," a davit assembly bolted cover is available. This permits one operator to open the cover.

Optional steam jacketing

Available in carbon steel or stainless steel rated for service up to 450 °F (232 °C). This is ideal for the high temperatures required to process and transport heavy, viscous fluids without affecting the function or normal maintenance of the strainer. Steam jacketing maintains critical fluid temperature throughout the strainer.

Eaton customizes the strainers to meet special application requirements. Design and fabrication to "AD 2000-Merkblätter", DIN EN 13445 or ASME Code and ANSI B31.1 are available.

* Stainless steel strainers include carbon steel, external, non-wetted fasteners as standard.

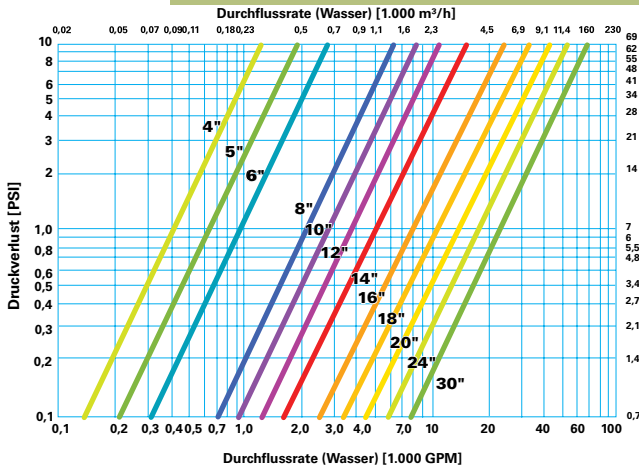


Model 91 with hinged cover

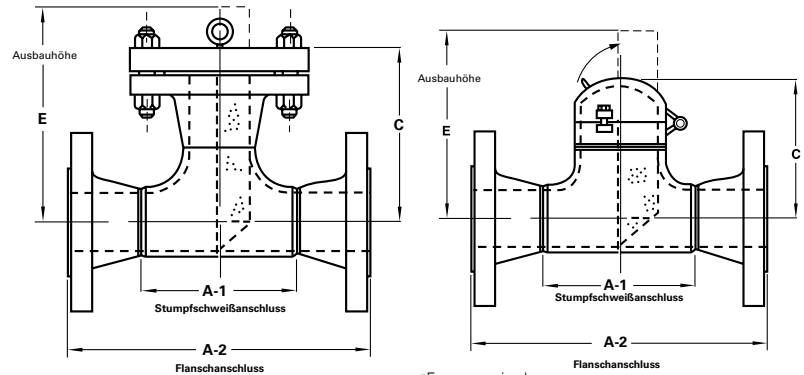
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Model 91 Fabricated T-Type Strainer



Dimensions are for reference only. For installation purposes, contact Eaton for certified drawings.



*Force required to lift cover in lb.

Model 91 with bolted cover

Nom size	Dimensions (in / mm)										Weight (lb/kg)			
	Butt weld connections				Flanged connections						Class 150		Class 300	
	Class 150		Class 300		Class 150		Class 300		Class 300		Cover		Unit	
	A-1	C	A-1	C	A-2	C	A-2	C	E					
2	5 / 127	5-1/4 / 133	5 / 127	6-1/8 / 156	10 / 254	5-3/4 / 146	10-1/2 / 267	6-1/8 / 156	13 / 330	4 / 1.8	25 / 11.3	8 / 3.6	38 / 17.2	
3	6-3/4 / 171	7-1/8 / 181	6-3/4 / 171	7-5/8 / 194	12-1/4 / 311	7-1/8 / 181	13 / 330	7-5/8 / 194	14 / 356	9 / 4.1	50 / 22.7	16 / 7.3	69 / 31.3	
4	8-1/4 / 210	8-1/8 / 206	8-1/4 / 210	8-3/4 / 222	14-1/4 / 362	8-1/8 / 206	15 / 381	8-3/4 / 222	16 / 406	17 / 7.7	75 / 34.0	27 / 12.2	115 / 52.2	
5	9-3/4 / 248	9-3/8 / 238	9-3/4 / 248	10-1/8 / 257	16-3/4 / 425	9-3/8 / 238	17-1/2 / 445	10-1/8 / 257	19 / 483	20 / 9.1	80 / 36.3	35 / 15.9	151 / 68.5	
6	11-1/4 / 286	10-1/8 / 257	11-1/4 / 286	11 / 279	18-1/4 / 464	10-1/8 / 257	19 / 483	11 / 279	22 / 559	26 / 11.8	110 / 49.9	50 / 22.7	206 / 93.4	
8	14 / 356	12-1/8 / 308	14 / 356	13 / 330	22 / 559	12-1/8 / 308	22-3/4 / 578	13 / 330	25 / 635	45 / 20.4	185 / 83.9	81 / 36.7	336 / 152.4	
10	17 / 432	13-3/4 / 349	17 / 432	15 / 381	25 / 635	13-3/4 / 349	26-1/4 / 667	15 / 381	29 / 737	70 / 31.8	324 / 147.0	127 / 57.6	491 / 222.7	
12	20 / 508	15-3/4 / 400	20 / 508	17-1/8 / 435	29 / 737	15-3/4 / 400	30-1/4 / 768	17-1/8 / 435	31 / 787	110 / 49.9	410 / 186.0	184 / 83.5	730 / 331.1	
14	22 / 559	17-3/8 / 441	22 / 559	18-3/4 / 476	32 / 813	17-3/8 / 441	33-1/4 / 845	18-3/4 / 476	38 / 965	131 / 59.4	615 / 279.0	236 / 107.0	966 / 438.2	
16	24 / 610	18-1/2 / 470	24 / 610	20 / 508	34 / 864	18-1/2 / 470	35-1/2 / 902	20 / 508	41 / 1041	170 / 77.1	776 / 352.0	307 / 139.3	1,264 / 573.4	
18	27 / 686	20-5/8 / 524	27 / 686	22-1/8 / 562	38 / 965	20-5/8 / 524	39-1/2 / 1003	22-1/8 / 562	46 / 1168	209 / 94.8	920 / 417.3	390 / 176.9	1,587 / 719.9	
20	30 / 762	22-3/8 / 568	30 / 762	23-7/8 / 606	41-3/8 / 1051	22-3/8 / 568	42-3/4 / 1086	23-7/8 / 606	51 / 1295	272 / 123.4	1,180 / 535.2	492 / 223.2	1,980 / 898.1	
24	34 / 864	24-7/8 / 632	34 / 864	26-3/8 / 670	46 / 1168	24-7/8 / 632	47-1/4 / 1200	26-3/8 / 670	56 / 1422	411 / 186.4	2,190 / 993.4	594 / 269.4	2,722 / 1,234.7	

Model 91 with quick open hinge cover

Nom size	Dimensions (in / mm)										Weight (lb/kg)			
	Butt weld connections				Flanged connections						Class 150		Class 300	
	Class 150		Class 300		Class 150		Class 300		Class 300		Cover		Unit	
	A-1	C	A-1	C	A-2	C	A-2	C	E					
6	11-1/4 / 286	9-1/4 / 235	11-1/4 / 286	9-1/4 / 235	18-1/4 / 464	9-1/4 / 235	19 / 483	9-1/4 / 235	22 / 559	5 / 2.3	108 / 49.0	5 / 2.3	142 / 64.4	
8	14 / 356	11-1/8 / 283	14 / 356	11-1/8 / 283	22 / 559	11-1/8 / 283	22-3/4 / 578	11-1/8 / 283	25 / 635	9 / 4.1	156 / 70.8	9 / 4.1	208 / 94.3	
10	17 / 432	13-1/2 / 343	17 / 432	13-1/2 / 343	25 / 635	13-1/2 / 343	26-1/4 / 667	13-1/2 / 343	29 / 737	12 / 5.4	231 / 104.8	12 / 5.4	330 / 149.7	
12	20 / 508	15-5/8 / 397	20 / 508	15-5/8 / 397	29 / 737	15-5/8 / 397	30-1/4 / 768	15-5/8 / 397	31 / 787	15 / 6.8	342 / 55.1	15 / 6.8	458 / 207.7	
14	22 / 559	17-1/8 / 435	22 / 559	17-1/8 / 435	32 / 813	17-1/8 / 435	33-1/4 / 845	17-1/8 / 435	38 / 965	20 / 9.1	435 / 197.3	20 / 9.1	610 / 276.7	
16	24 / 610	18-5/8 / 473	24 / 610	18-5/8 / 473	34 / 864	18-5/8 / 473	35-1/2 / 902	18-5/8 / 473	41 / 1041	26 / 11.8	540 / 244.9	26 / 11.8	781 / 354.3	
18	27 / 686	21-1/8 / 537	27 / 686	21-1/8 / 537	38 / 965	21-1/8 / 537	39-1/2 / 1003	21-1/8 / 537	46 / 1168	32 / 14.5	660 / 299.4	32 / 14.5	990 / 449.1	
20	30 / 762	23-5/8 / 600	30 / 762	23-5/8 / 600	41-3/8 / 1051	23-5/8 / 600	42-3/4 / 1086	23-5/8 / 600	51 / 1295	40 / 18.1	806 / 365.6	40 / 18.1	1,222 / 554.3	
24	34 / 864	27-1/8 / 689	34 / 864	27-1/8 / 689	46 / 1168	27-1/8 / 689	47-1/4 / 1200	27-1/8 / 689	56 / 1422	58 / 26.3	1085 / 492.2	58 / 26.3	1,755 / 796.1	

North America
44 Apple Street
Tinton Falls, NJ 07724
Toll Free: 800 656-3344
(North America only)
Tel: +1 732 212-4700

Europe/Africa/Middle East
Auf der Heide 2
53947 Nettersheim, Germany
Tel: +49 2486 809-0

Internormen Product Line
Friedensstraße 41
68804 Altlufsheim, Germany
Tel: +49 6205 2094-0

Begerow Product Line
An den Nahewiesen 24
55450 Langenlonsheim, Germany
Tel: +49 6704 204-0

China
No. 3, Lane 280,
Linhong Road
Changning District, 200335
Shanghai, P.R. China
Tel: +86 21 5200-0099

Singapore
4 Loyang Lane #04-01/02
Singapore 508914
Tel: +65 6825-1668

Brazil
Av. Julia Gaioli, 474 – Bonsucesso
07251-500 – Guarulhos, Brazil
Tel: +55 11 2465-8822

For more information, please
email us at filtration@eaton.com
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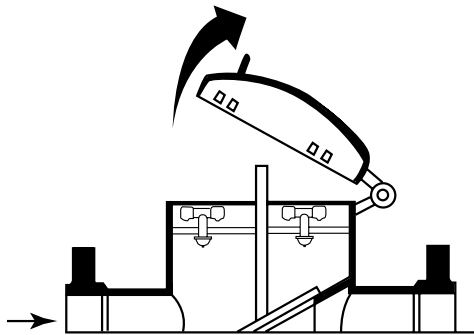
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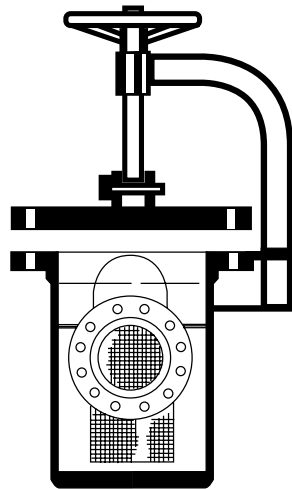
Fabricated Pipeline Strainers

Configuration options



Quick open hinged cover

The hinged cover in medium size ranges (8"-16") permits a single operator to open and close the cover.

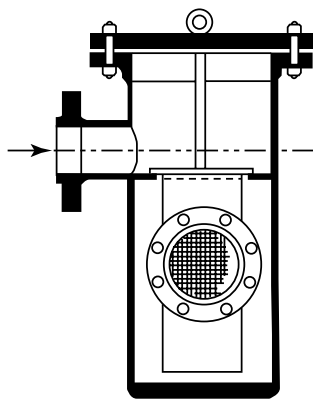


Integral davit assembly cover

The davit assembly cover can reduce any cover lift process to a one-man operation.

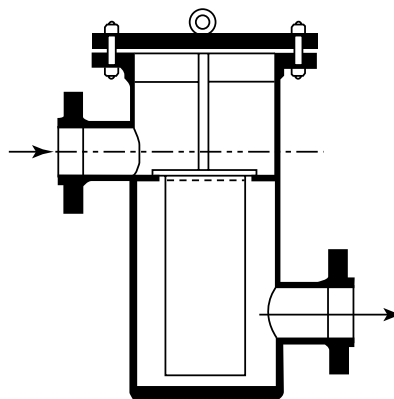
Cover openings

The process of removing and replacing strainer access covers can result in costly maintenance or safety issues. In sizes larger than eight inches, the cover can easily exceed 150 lb (68 kg), which may require additional personnel or equipment. To eliminate the risks associated with this process, Eaton developed the integral davit assembly and hinged cover designs.



Rotated nozzles

Right angle design can eliminate the requirement for an elbow in the downstream piping.



Offset nozzles

By lowering or raising either nozzle, serious alignment and support problems can be avoided.

Nozzle placement

Fabricated strainers are available with many nozzle design options to adapt to existing or planned piping schemes.

Steam jacket option

Custom fabricated simplex basket and T strainers in all sizes are available with an optional carbon steel or stainless steel steam jacket, rated for service up to 450 °F (232 °C). The steam jacket keeps the strainer at the high temperatures required to transport heavy, viscous fluids without affecting the function or normal maintenance of the strainer.



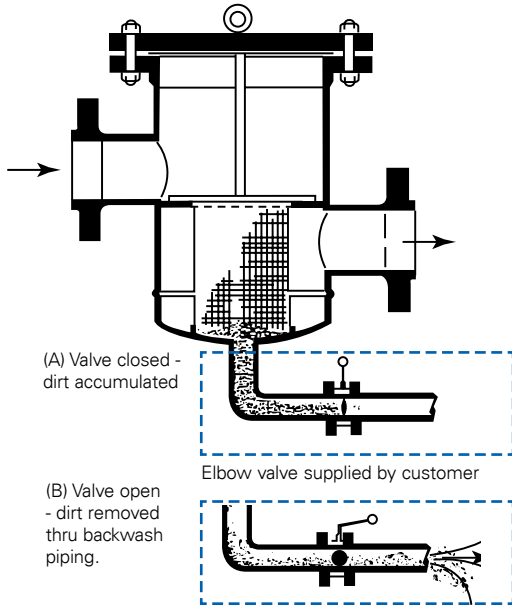
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Fabricated Pipeline Strainers

Backflush/backwash option

Available in custom fabricated Model 90 simplex strainer and Model 950B duplex strainer.



In many systems with heavy and well-defined solids, sediment accumulates. When the backflush valve is open, the differential between the operating pressure and the backflush system removes the sediment without shutting the system down. Figures A and B show the backflushing process.

Backwashing is a process similar to backflushing, but with a reverse flow into an empty strainer. Fluid flowing back through the element removes residual sediment left in the filter from backflushing.

Basket effective area

Strainer model	Pipe size (in)	Perforation size	Nominal area of pipe (sq in)	Gross screen area (sq in)	Free area (sq in)	Ratio free area to pipe area
90	2	5/32	3.35	78	49	14.60
90	3	5/32	7.39	94	59	8.00
90	4	5/32	12.73	151	95	7.46
90	5	5/32	20.00	204	128	6.40
90	6	5/32	28.90	283	178	6.16
90	8	5/32	50.02	478	301	6.02
90	10	5/32	78.85	691	435	5.52
90	12	5/32	111.93	942	593	5.30
90	14	5/32	135.28	1320	832	6.15
90	16	5/32	176.71	1659	1045	5.91
90	18	5/32	223.68	1979	1247	5.57
90	20	5/32	277.95	2513	1583	5.70
90	24	5/32	402.00	4071	2565	6.38
950B	2	5/32	3.35	78	49	1460
950B	3	5/32	7.39	94	59	8.00
950B	4	5/32	12.73	151	95	7.46
950B	5	5/32	20.00	204	128	6.40
950B	6	5/32	28.90	283	178	6.16
950B	8	5/32	50.02	478	301	6.02
950B	10	5/32	78.85	691	435	5.52
950B	12	5/32	111.93	942	593	5.30
950B	14	5/32	135.28	1320	832	6.15
950B	16	5/32	176.71	1659	1045	5.91
950B	18	5/32	223.68	1979	1247	5.57
950B	20	5/32	277.95	2513	1583	5.70
950B	24	5/32	402.00	4071	2565	6.38
91	2	5/32	3.35	23	14.26	4.26
91	3	5/32	7.39	41	25.42	3.44
91	4	5/32	12.73	58	35.96	2.82
91	5	5/32	20.00	82	50.84	2.54
91	6	5/32	28.90	105	65.10	2.25
91	8	5/32	50.02	167	103.54	2.07
91	10	5/32	78.85	234	145.08	1.84
91	12	5/32	111.93	322	199.64	1.78
91	14	5/32	135.28	419	259.78	1.92
91	16	5/32	176.71	511	316.82	1.72
91	18	5/32	223.68	639	398.18	1.77
91	20	5/32	277.95	781	484.22	1.74
91	24	5/32	402.00	1057	655.34	1.63

North America
44 Apple Street
Tinton Falls, NJ 07724
Toll Free: 800 656-3344
(North America only)
Tel: +1 732 212-4700

Europe/Africa/Middle East
Auf der Heide 2
53947 Nettersheim, Germany
Tel: +49 2486 809-0

Internormen Product Line
Friedensstraße 41
68804 Altlufsheim, Germany
Tel: +49 6205 2094-0

Begerow Product Line
An den Nahewiesen 24
55450 Langenlonsheim, Germany
Tel: +49 6704 204-0

China
No. 3, Lane 280,
Linhong Road
Changning District, 200335
Shanghai, P.R. China
Tel: +86 21 5200-0099

Singapore
4 Loyang Lane #04-01/02
Singapore 508914
Tel: +65 6825-1668

Brazil
Av. Julia Gaioli, 474 – Bonsucesso
07251-500 – Guarulhos, Brazil
Tel: +55 11 2465-8822

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Automatic Self-cleaning Strainers

Model 2596

Continuous flow, simplified maintenance and worry-free operation



Model 2596 - typical applications

- Automatic self-cleaning strainers are used to strain fresh, brackish or salt intake water for plant services such as cooling, process and fire protection. The strainers allow water to be recycled within the plant, reducing costs.
- Process industry—protect heat exchangers, pumps, valves and spray nozzles.
- Power industry—pump seal protection and cooling water.
- Pulp and paper industry—remove and separate bark and chips for recycling and prevent clogging of nozzles.
- Sewage and water treatment plants—strain secondary effluent prior to discharge and provide clean plant service water.
- Primary metal industry—provide clean water for quenching, descaling and blast furnace cooling.

The Eaton Model 2596 automatic self-cleaning strainer is a motorized strainer designed for the continuous removal of entrained solids from liquid in pipeline systems. This strainer is ideal for applications that demand uninterrupted flow, a major consideration in plant operations.

Eaton automatic self-cleaning strainers are available in the following pipe sizes, 2" to 8" cast iron or stainless steel, 10"

to 16" cast ductile iron only and 10" to 60" fabricated carbon steel and stainless steel. Custom designs and exotic materials are available upon request. A wide range of screen designs are offered from $\frac{1}{8}$ " perforation to 200 mesh.

They are used for straining 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.

The determining factors are the level of solids content and the ability to handle the backwash discharge flow. They are a worthwhile investment when loading is high or upset conditions occur.

These strainers also provide worry-free operation. Continuous flow is assured, even while the system is being backwashed, providing uninterrupted protection for

nozzles, pumps, valves, heat exchangers and other process equipment.

Frequent cleaning and servicing of manual strainers is costly, and if not properly done, serious disruptions to the entire piping system can occur. Eaton automatic self-cleaning strainers will significantly reduce these maintenance costs. They are ideal replacements for either simplex or duplex manual strainers.

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Model 2596 Automatic Self-cleaning Strainers

Model 2596 features / benefits

- **Quality construction:** Eaton automatic self-cleaning strainers are designed and constructed in accordance with "AD 2000-Merkblätter", DIN EN 13445 or ASME Code. ASME code stamp and approval according to PED 97/23/EU (modules H, H1 or G) are available. Seismic qualification is also available.
- **Idl™ seal:** the unique Eaton Idl shaft seal 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:** only a small portion of system flow is used during backwash due to the efficient hydraulic design.
- **Choice of screen elements:** DuraWedge® perforated or mesh elements.
- **Minimal power consumption:** 1/4 HP drive motor in 2" through 16", 1/3 hp in 18" through 24", 1/2 HP in 30", 1 HP in 36" through 42" and 2 HP in 48" strainers.
- **No bypass of contaminants:** 2" to 8" element caps are epoxy sealed to screen media. O-ring seals on body cover prevent bypass around element. 10" to 60" element caps are epoxy sealed to screen media. A machined cover and body provide metal-to-metal sealing and prevents bypass around the element. For those elements whose retention is below 300 micron (60 mesh) an elastomer seal is provided on top and bottom of the element.
- **Cover seat design:** O-ring permits resealing without time-consuming gasket replacements and adjustment.
- **Manual operation if required:** utilizing extended shaft.

Model 2596 application considerations

For coarse straining applications, such as raw water intakes from lakes, ponds and streams, the convoluted perforated elements will perform well and offer the most economical unit pricing.

On applications in which pre-screening of the fluid has been performed, but finer filtering of the fluids is desired, the sinter-bonded mesh element may be selected.

On applications in which the fluid being strained encounters fibrous materials, the DuraWedge element will minimize the impact of the fibers stapling to the screen.

Debris: Cleaning the straining element is accomplished by using the pressure differential between line pressure and atmosphere. During the cleaning cycle, when the backwash valve is opened to atmosphere, a portion of the strained fluid reverses flow back across the isolated section of element, lifts off the debris and ejects it out of the strainer.

Sticky or greasy debris are more difficult to backwash and may require longer backwash cycle durations. Sand, dirt and pipe scale should backwash easily. The quantity of debris coming into the strainer also can be a problem. Ensure that the volume of the suspended solids does not exceed 200 ppm or 0.02 percent. If the application requires heavier loading consult Eaton.

Backwash requirements: The quantity of fluid required to clean a straining element is dependent upon the type and quantity of debris. Under normal conditions, approximately five percent of the line flow will be used for cleaning of the straining element during the cleaning cycle. To minimize the loss of fluid through the backwash, Eaton recommends to add a manual throttling valve downstream of the automated valve.

Pressure and temperature

- Cast iron and ductile iron are rated at 150 psi @ 150 °F (10.3 bar @ 65 °C)
- Fabricated units are rated 150 psi @ 150 °F (10.3 bar @ 65 °C). However, other ratings are available, consult Eaton.
- The minimum operating pressure is 20 psi (1.38 bar).

Cenpeller™ technology

A common problem in many automatic self-cleaning strainers is inefficient backwashing due to debris lodged in the strainer element.

The Model 2596 2" - 8" strainer features a vane plate positioned at the inlet of the strainer element where it contacts the process media before it enters the element. The vane plate causes the incoming liquid to move in a circular motion forcing the debris to lay up against the

surface of the strainer element rather than lodging in the element's openings. Lodged debris can negatively impact the differential pressure across the strainer, resulting in a shut down of the strainer and manual cleaning of the element.

Cenpeller Technology helps prevent this situation and delivers easier and more efficient backwashing.



North America
44 Apple Street
Tinton Falls, NJ 07724
Toll Free: 800 656-3344
(North America only)
Tel: +1 732 212-4700

Europe/Africa/Middle East
Auf der Heide 2
53947 Nettersheim, Germany
Tel: +49 2486 809-0

Internormen Product Line
Friedensstraße 41
68804 Altlufsheim, Germany
Tel: +49 6205 2094-0

Begerow Product Line
An den Nahewiesen 24
55450 Langenlonsheim, Germany
Tel: +49 6704 204-0

China
No. 3, Lane 280,
Linhong Road
Changning District, 200335
Shanghai, P.R. China
Tel: +86 21 5200-0099

Singapore
4 Loyang Lane #04-01/02
Singapore 508914
Tel: +65 6825-1668

Brazil
Av. Julia Gaioli, 474 – Bonsucesso
07251-500 – Guarulhos, Brazil
Tel: +55 11 2465-8822

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Model 2596

2"-8"



Eaton's Model 2596 automatic self-cleaning cast pipeline strainers are available in 2", 3", 4", 6" and 8" sizes. A 4"L size is also available which allows for greater flow rates. The Model 2596 is recognized across industries for its continuous flow, simplified maintenance and worry-free operation.

Features / benefits

- Flow rates up to 1,800 gpm (409 m³/h)
- A broad selection of screen options
- Automatic backwashing
- Exclusive idL™ seal for leak free service
- Unitized modular assembly for easy maintenance
- Cenpeller™ technology for more efficient and complete backwashing
- Cast iron or stainless steel construction
- Standard motor

Options

- 25 micron and 40 micron stainless steel element with a flow rate of up to 800 gpm (218 m³/h)

The Eaton Model 2596 automatic self-cleaning strainer is designed for the continuous removal of entrained solids from liquids in pipeline systems.

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 while the remaining screen area continues to strain—providing uninterrupted flow. This efficient design uses only a small amount of the liquid being strained to carry debris away from the strainer element.

The Model 2596 features the idL shaft seal that positively prevents leakage from the backwash shaft at the top of the strainer. This unique quad seal keeps the exterior of the strainer dry and prevents

external leakage or weeping of the process media down the sides of the strainer.

The 2" to 8" size strainers feature Eaton's Cenpeller technology, which directs incoming liquid into a circular flow—forcing the debris to lay up against the surface of the strainer element in a way that makes backwashing easier and more efficient and greatly reduces the need for manual cleanouts.

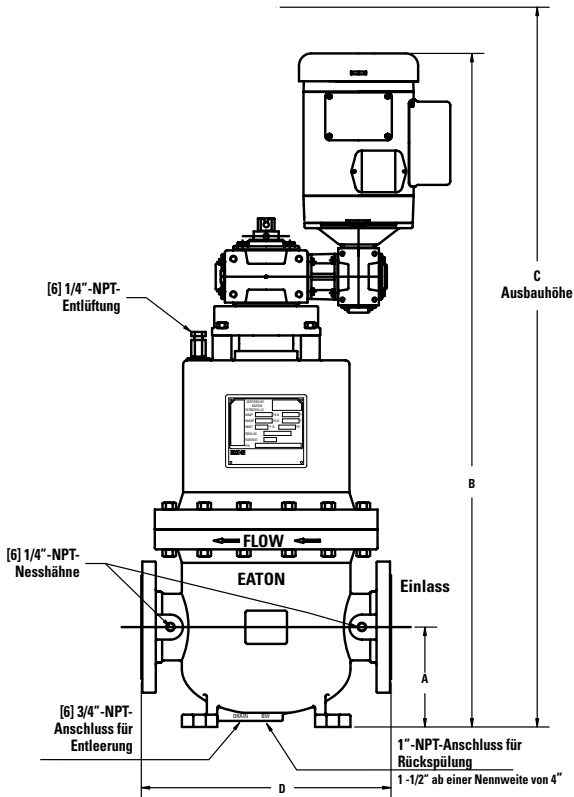


To simplify maintenance the Model 2596 features a unitized modular assembly. The motor, gear reducer and the internal operating mechanism are housed within the strainer cover and lift off as a unit. This makes all components easily accessible and reduces associated maintenance costs.

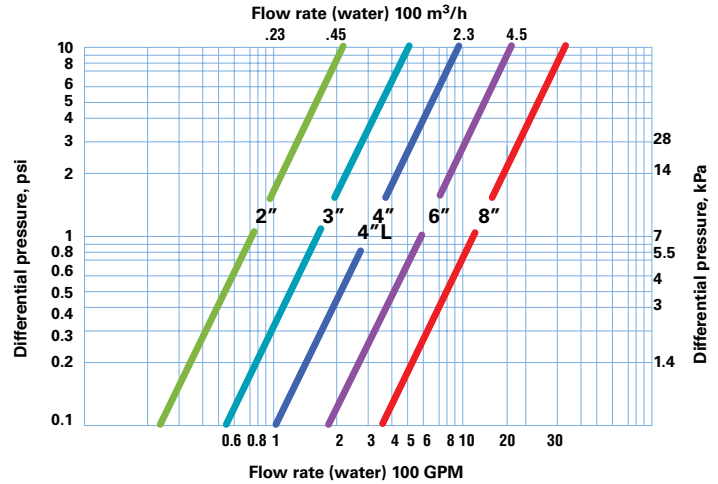


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Model 2596 2" to 8" Automatic Self-cleaning Strainers



Model 2596 2" - 8" flow rates



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

Size	Approximate dimensions (in/mm)				Approximate weight (lb/kg)		
	A	B	C	D	Dry	Wet	Cover
2"	6 / 152	40-1/2 / 1029	42-1/2 / 1080	15 / 381	328 / 149	382 / 173	164 / 74
3"	6 / 152	40-1/2 / 1029	42-1/2 / 1080	15 / 381	344 / 156	399 / 181	164 / 74
4"	7 / 178	42 / 1067	44 / 1118	15 / 381	353 / 160	413 / 187	164 / 74
4" L	8 / 203	52 / 1321	55 / 1397	23-1/2 / 597	805 / 365	998 / 453	438 / 199
6"	8 / 203	55 / 1397	58 / 1473	23-1/2 / 597	836 / 379	1081 / 490	438 / 199
8"	8 / 203	55 / 1397	58 / 1473	23-1/2 / 597	901 / 409	1129 / 512	438 / 199

Dimensions are for reference only. For installation purposes, request certified drawings.

C _V factors 25 µm		C _V factors 40 µm	
Size	Value	Size	Value
2"	76	2"	77
3"	156	3"	163
4"	233	4"	260
4L"	272	4L"	288
6"	528	6"	605
8"	708	8"	887

Application limits

- Cast iron class 125 flange (-20 to 150 °F/-29 to 65 °C): 200 psi/13.8 bar (2" - 8")
- Cast 316 stainless steel class 150 flange (-20 to 100 °F/-29 to 38 °C): 275 psi/19 bar (2" - 4")

Screen elements

DuraWedge® element

DuraWedge is a nonclogging, rugged stainless steel element for the most demanding applications. It is constructed from V-shaped profile wire. A wide range of opening sizes is available.



Convuluted element

A sturdy, economical stainless steel element for general service use. Available perforated openings of 1/8", 1/16" and 1/32". Available mesh sizes of 20, 40, 60, 80, 100, 150 and 200 mesh.



Low micron element

Stainless steel with a high degree of permeability will substantially lower pressure differential, increase flow capacity and extend the filter life. Sintered mesh construction prevents media migration into processed product. Available in 25 µm and 40 µm retention.



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Tinton Falls, NJ 07724
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53947 Nettersheim, Germany
Tel: +49 2486 809-0

Internormen Product Line
Friedensstraße 41
68804 Altlußheim, Germany
Tel: +49 6205 2094-0

Begerow Product Line
An den Nahewiesen 24
55450 Langenlonsheim, Germany
Tel: +49 6704 204-0

China
No. 3, Lane 280,
Linhong Road
Changning District, 200335
Shanghai, P.R. China
Tel: +86 21 5200-0099

Singapore
4 Loyang Lane #04-01/02
Singapore 508914
Tel: +65 6825-1668

Brazil
Av. Julia Gaioli, 474 – Bonsucesso
07251-500 – Guarulhos, Brazil
Tel: +55 11 2465-8822

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US
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Model 2596

10"-16"



Model 2596 10"

Eaton's Model 2596 automatic self-cleaning cast pipeline strainers are available in 10", 12", 14" and 16" sizes. The Model 2596 is recognized across industries for its continuous flow, simplified maintenance and worry-free operation.

Features / benefits

- Flow rates up to 6,500 gpm (1,476 m³/h)
- A broad selection of screen options
- Automatic backwashing
- Exclusive idL™ seal for leak free service
- Unitized modular assembly for easy maintenance
- Cast ductile iron construction

The Eaton Model 2596 automatic self-cleaning strainer is designed for the continuous removal of entrained solids from liquids in pipeline systems.

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 while the remaining screen area continues to strain—providing uninterrupted flow. This efficient design uses only a small amount of the liquid being strained to carry debris away from the strainer element.

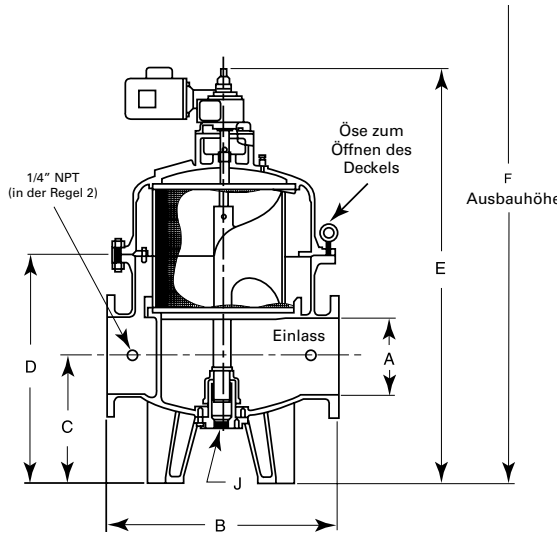
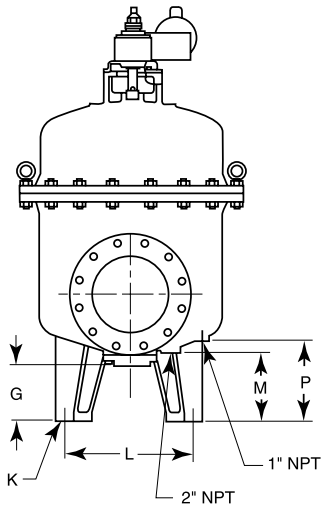
The Model 2596 features the idL shaft seal that positively prevents leakage from the backwash shaft at the top of the strainer. This unique quad seal keeps the exterior of the strainer dry and prevents external leakage or weeping of the process media down the sides of the strainer.

To simplify maintenance the Model 2596 features a unitized modular assembly. The motor, gear reducer and the internal operating mechanism are all housed within the strainer cover and lift off as a unit. This makes all components easily accessible and reduces associated maintenance costs.

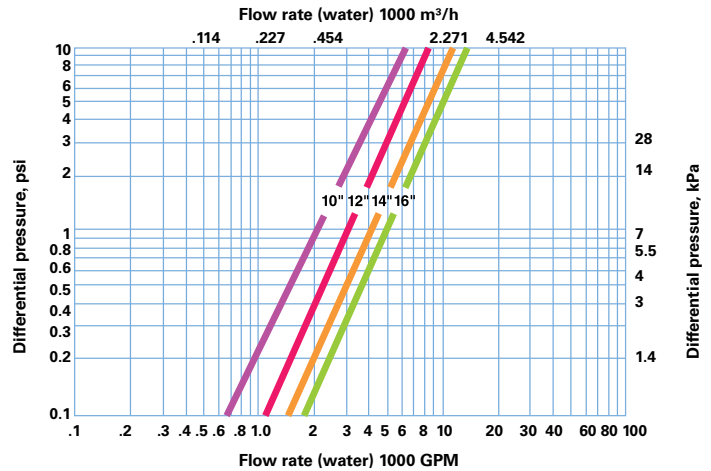


Powering Business Worldwide

Model 2596 10" to 16" Automatic Self-cleaning Strainers



Model 2596 10" - 16" flow rates



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

Application limits

- Ductile iron class 125 flange (-20 to 150 °F/-29 to 65 °C): 150 psi (10.3 bar)

Application limit 16" size

- Ductile iron class 125 flange (-20 to 150 °F/-29 to 65 °C): 150 psi (10.3 bar)
Based on ASME Code. Lower pressure ratings at higher temperatures

A	Approximate dimensions (in/mm)										Approximate weight (lb/kg)			
	B	C	D	E	F	G	J	K	M	P	L	Dry	Wet	Cover
10"	38-1/4 / 972	19-3/4 / 502	35-3/4 / 908	64-3/4 / 1645	90 / 2286	8-9/16 / 217	2 / 51	7/8 / 22	10-11/16 / 271	12-1/2 / 318	24-1/2 / 622	1840 / 835	2615 / 1186	705 / 320
12"	36-1/4 / 921	19-3/4 / 502	35-3/4 / 908	64-3/4 / 1645	90 / 2286	8-9/16 / 217	2 / 51	7/8 / 22	10-11/16 / 271	12-1/2 / 318	24-1/2 / 622	1880 / 853	2675 / 1213	705 / 320
14"	44 / 1118	22-1/16 / 560	42-5/16 / 1075	76-1/2 / 1943	112 / 2845	8-9/16 / 217	2 / 51	7/8 / 22	10-7/8 / 276	13-1/2 / 343	29-5/8 / 752	2810 / 1275	4360 / 1978	1050 / 476
16"	44 / 1118	22-1/2 / 571	42-5/16 / 1075	76-1/2 / 1943	112 / 2845	8-9/16 / 217	2 / 51	7/8 / 22	10 / 276	13-1/2 / 343	29-5/8 / 752	2850 / 1293	4400 / 1996	1050 / 476

North America
44 Apple Street
Tinton Falls, NJ 07724
Toll Free: 800 656-3344
(North America only)
Tel: +1 732 212-4700

Europe/Africa/Middle East
Auf der Heide 2
53947 Nettersheim, Germany
Tel: +49 2486 809-0

Internormen Product Line
Friedensstraße 41
68804 Altlufsheim, Germany
Tel: +49 6205 2094-0

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An den Nahewiesen 24
55450 Langenlonsheim, Germany
Tel: +49 6704 204-0

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No. 3, Lane 280,
Linhong Road
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Singapore 508914
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Av. Julia Gaioli, 474 – Bonsucesso
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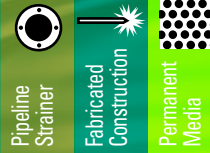
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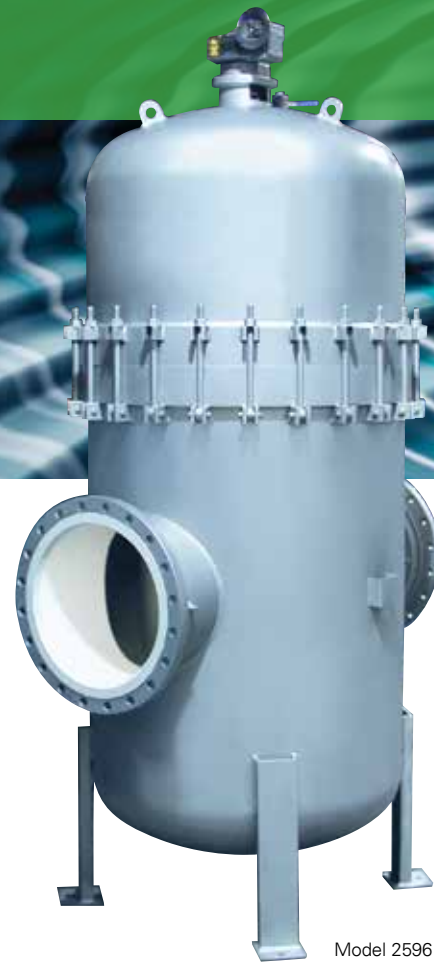
Automatic Self-cleaning Strainers

Model 2596

10"-60"



Eaton's Model 2596 fabricated automatic self-cleaning pipeline strainers are available in 10", 12", 14", 16", 18", 20", 24", 30", 36", 48" and 60" sizes. Continuous flow, simplified maintenance and worry-free operation characterize the Model 2596 across numerous industries.



Model 2596 20"

Features / benefits

- Flow rates up to 35,000 gpm (7,949 m³/h)
- A broad selection of screen options
- Automatic backwashing
- Exclusive idL™ seal for leak free service, available up to 24" only
- Unitized modular assembly for easy maintenance
- Fabricated carbon steel construction

Options

- Various grades of stainless steel, copper nickel, MONEL® and other exotic materials of construction
- "AD 2000-Merkblätter", DIN EN 13446 or ASME Code and approval according to PED 97/23/EU (modules H, H1 or G) available
- Flanged, screwed or socket weld backwash connections
- Internal and external epoxy paint or other coatings, upon request, on all carbon steel components for fresh water service applications
- Custom designs are available upon request

MONEL® is a registered trademark of Special Metals Corporation group of Companies.

The Eaton Model 2596 automatic self-cleaning strainer is designed for the continuous removal of entrained solids from liquids in pipeline systems.

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 while the remaining screen area continues to strain—providing uninterrupted flow. This efficient design uses only a small amount of the liquid being strained to carry debris away from the strainer element.

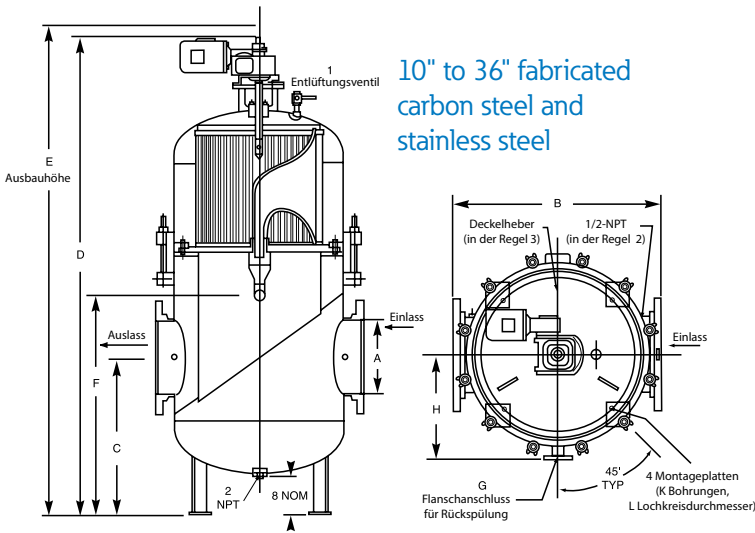
The Model 2596 features the idL shaft seal that positively prevents leakage from the backwash shaft at the top of the strainer. This unique quad seal keeps the exterior of the strainer dry and prevents external leakage or weeping of the process media down the sides of the strainer.

To simplify maintenance the Model 2596 features a unitized modular assembly. The motor, gear reducer and the internal operating mechanism are housed within the strainer cover and lift off as a unit. This makes all components easily accessible and reduces associated maintenance costs.

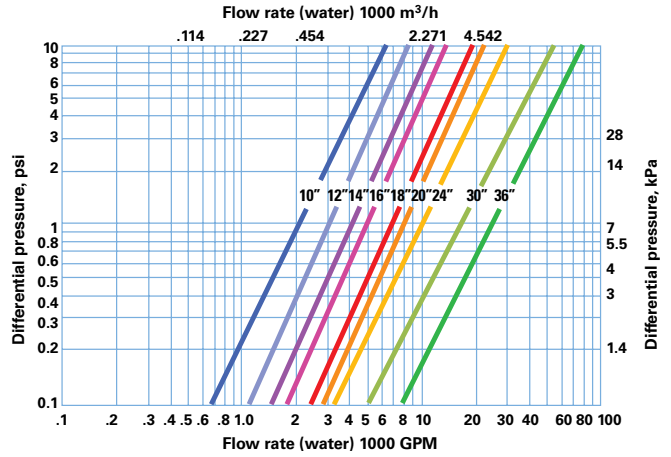


Powering Business Worldwide

Model 2596 10" to 60" Fabricated Automatic Self-cleaning Strainers



Model 2596 10" - 36" flow rates



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

Note:

K= Diameter bolt hole (4) required 90° apart

L= Diameter bolt circle

Dimensions are for reference only. For installation purposes, request certified drawings.

A	Approximate dimensions (in / mm)								Approximate weight (lb/kg)				
	B	C	D	E	F	G	H	K	L	Dry	Wet	Cover	
10"	38 / 965	30 / 762	88 / 2235	90 / 2286	40 / 1016	2 / 50.8	16 / 406	3/4 / 19.05	22-13/100 / 562	1200 / 544	2400 / 1089	650 / 295	
12"	42 / 1067	30 / 762	88 / 2235	90 / 2286	40 / 1016	2 / 50.8	18 / 457	3/4 / 19.05	26-13/100 / 664	1300 / 590	2700 / 1225	700 / 318	
14"	44 / 1118	32 / 813	101 / 2565	103 / 2616	46 / 1168	2 / 50.8	22 / 559	7/8 / 22.23	32-13/100 / 816	2000 / 907	4400 / 1996	850 / 386	
16"	44 / 1118	33 / 838	101 / 2565	103 / 2616	46 / 1168	2 / 50.8	22 / 559	7/8 / 22.23	32-13/100 / 816	2050 / 930	4450 / 2019	850 / 386	
18"	50 / 1270	36 / 914	117 / 2972	120 / 3048	48 / 1219	3 / 76.2	23 / 584	7/8 / 22.23	34-13/100 / 867	3500 / 1588	8300 / 3765	1280 / 581	
20"	54 / 1372	37 / 940	120 / 3048	123 / 3124	50 / 1270	3 / 76.2	25 / 635	7/8 / 22.23	38-13/100 / 969	3700 / 1678	10000 / 4536	1480 / 671	
24"	54 / 1372	39 / 991	124 / 3150	127 / 3226	54 / 1372	3 / 76.2	25 / 635	7/8 / 22.23	38-13/100 / 969	3830 / 1737	10160 / 4609	1480 / 671	
30"	64 / 1626	51 / 1295	147 / 3734	151 / 3835	76 / 1930	3 / 76.2	30 / 762	7/8 / 22.23	48-13/100 / 1223	5000 / 2268	13400 / 6078	2000 / 907	
36"	84 / 2134	56 / 1422	176 / 4470	182 / 4623	72 / 1829	6 / 152.4	37 / 940	1-1/8 / 28.58	66 / 1676	9360 / 4246	24735 / 11220	4520 / 2050	

48" and 60" can be fabricated upon request, consult Eaton.

Sizes 10" to 60"

Application limits

- Fabricated strainers are designed within the limits of the customer's specifications and design criteria along with any applicable code requirement, e.g. "AD 2000-Merkblätter", DIN EN 13446 or ASME Code.

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

North America
44 Apple Street
Tinton Falls, NJ 07724
Toll Free: 800 656-3344
(North America only)
Tel: +1 732 212-4700

Europe/Africa/Middle East
Auf der Heide 2
53947 Nettersheim, Germany
Tel: +49 2486 809-0

Internormen Product Line
Friedensstraße 41
68804 Altludersheim, Germany
Tel: +49 6205 2094-0

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An den Nahewiesen 24
55450 Langenlonsheim, Germany
Tel: +49 6704 204-0

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Shanghai, P.R. China
Tel: +86 21 5200-0099

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Singapore 508914
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07251-500 – Guarulhos, Brazil
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TECHNICAL INFORMATION

Model 2596 Automatic Self-cleaning Strainers

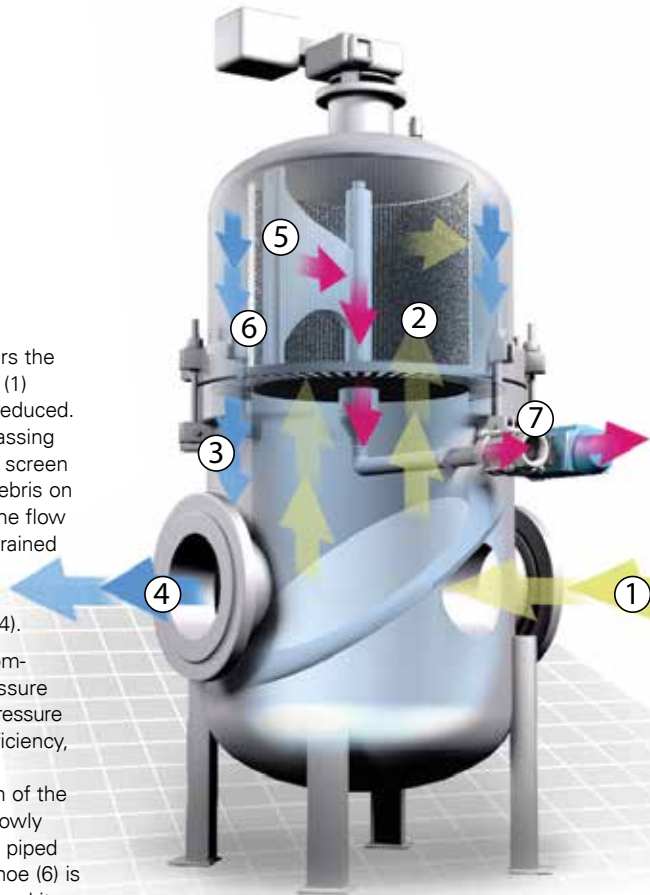
Backwash arm

Model 2596 strainer: how it works

The debris-laden fluid enters the strainer's bottom chamber (1) where the line velocity is reduced. Flow continues upward, passing radially through the sealed screen element (2), which traps debris on the inside of the screen. The flow is uninterrupted and the strained fluid flows to the outer annulus (3) and exits through the outlet nozzle (4).

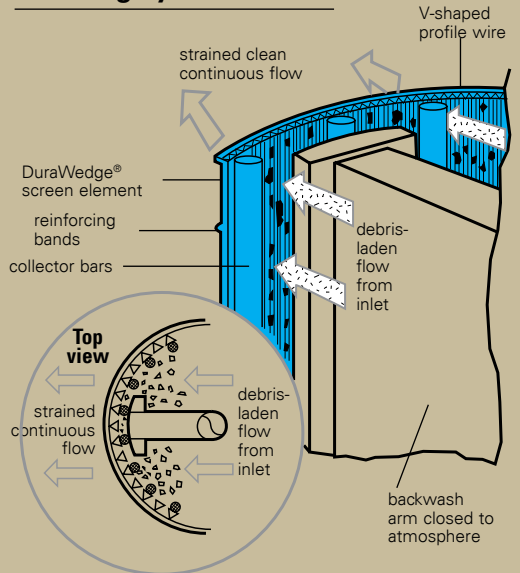
Backwash cleaning is accomplished by utilizing the pressure differential between line pressure and atmosphere. A high-efficiency, full flow backwash arm (5) extending the entire length of the screen element, rotates slowly inside of the screen and is piped to atmosphere. The port shoe (6) is in proximity to the screen and its opening is equivalent to the "debris collector" sections created by the convolutions and/or 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 dislodged from this segment of the screen into the backwash arm and out the strainer through the backwash piping (7). During the backwashing cycle the main flow is uninterrupted and continues to be strained in the normal manner.



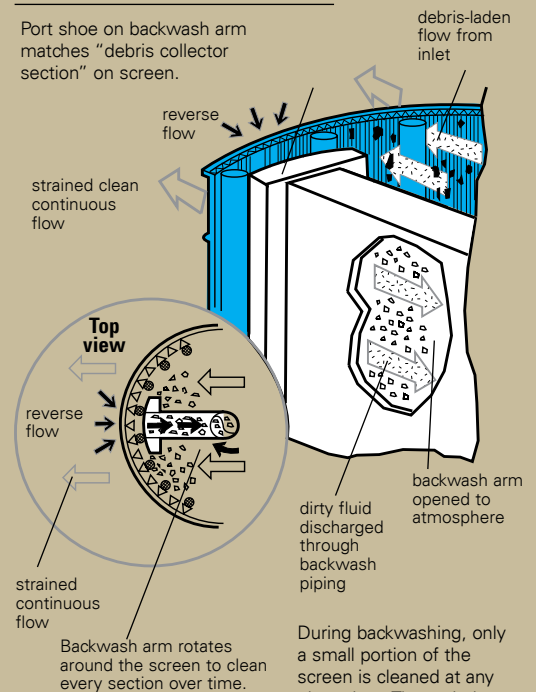
Designed to monitor and operate the backwash cleaning system, Eaton automatic control systems are simple to operate, reliable and easily maintained. They are set to clean on differential pressure with a timed backup. The design allows field adjustments to suit the demands of the service conditions, ensuring effective cleaning with a minimum use of backwash fluid. Systems are available in automatic, intermittent or continuous backwashing modes.

Straining cycle



Backwashing cycle

Port shoe on backwash arm matches "debris collector section" on screen.



During backwashing, only a small portion of the screen is cleaned at any given time. The majority of the screen continues to screen as normal.

TECHNICAL INFORMATION

Model 2596 Automatic Self-cleaning Strainers

Sizes 2" to 8" cast construction Model 2596 automatic self-cleaning pipeline strainers are available for six different 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. Flow rates up to 1,800 gpm (409 m³/h).



Model 2596 automatic self-cleaning strainers in 10" to 16" cast models provide flow rates up to 6,500 gpm (1,476 m³/h).



Fabricated Model 2596 automatic self-cleaning strainers are available in eight different sizes from 10" to 36", 48" and 60". Custom designs and exotic materials are also available on request, consult Eaton.

Model 2596 flow rate comparison chart

I/O Size & construction	GPM	Flow rate* m ³ /h
2" cast	50 - 120	11.4 - 27.3
3" cast	100 - 260	22.7 - 59.1
4"/4L" cast	170 - 450	38.6 - 102.2
6" cast	370 - 1,000	84 - 227.1
8" cast	500 - 1,800	113.6 - 408.8
10" cast	900 - 2,800	204.4 - 635.9
12" cast	1,200 - 4,000	272.5 - 908.5
14" cast	1,600 - 5,000	363.4 - 1,135.6
16" cast	2,000 - 6,500	454.2 - 1,476.3
10" fabricated	900 - 2,800	204.4 - 635.9
12" fabricated	1,200 - 4,000	272.5 - 908.5
16" fabricated	2,000 - 6,500	454.2 - 1,476.3
18" fabricated	2,500 - 8,500	567.8 - 1,930.6
20" fabricated	2,900 - 10,200	658.7 - 2,316.7
24" fabricated	3,200 - 15,000	726.8 - 3,406.9
30" fabricated	5,000 - 24,000	1,135.6 - 5,451
36" fabricated	7,800 - 35,000	1,771.6 - 7,949.4

*Pressure drop data is approximate and indicates results to be expected with clean water, under normal flows with standard screens and in clean strainer. For DuraWedge and sinter bonded elements, consult Eaton.

North America
44 Apple Street
Tinton Falls, NJ 07724
Toll Free: 800 656-3344
(North America only)
Tel: +1 732 212-4700

Europe/Africa/Middle East
Auf der Heide 2
53947 Nettersheim, Germany
Tel: +49 2486 809-0

Internormen Product Line
Friedensstraße 41
68804 Altluisheim, Germany
Tel: +49 6205 2094-0

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An den Nahewiesen 24
55450 Langenlonsheim, Germany
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No. 3, Lane 280,
Linhong Road
Changning District, 200335
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Model 2596 Automatic Self-cleaning Strainers

Control systems & elements

Eaton automatic control systems (ACS) are specifically designed to monitor and operate the backwash cleaning system of Eaton automatic strainers. Simple to operate, reliable and easily maintained. The design allows field adjustments to suit the demands of the service conditions, ensuring effective cleaning with a minimum use of backwash fluid.

Standard control system features

ACS-1 This system features a NEMA 4 rated (water and dust tight) panel box complete with adjustable timer, differential pressure override, 10 amp control relay for backwash valve activation, display lights to indicate power on, backwash valve open and high differential pressure. A selector switch is also included to manually control the backwash valve functions of off-on-auto. The panel also has contact terminals for a motor starter and an external alarm connection. The panel requires 110 VAC input, UL approval is available as an option. The panel has a differential pressure switch and an electrically actuated ball valve that controls the backwash function.

ACS-2 This system has all of the features of the ACS-1 and includes a motor starter in addition to the other standard equipment.

ACS-3 This system has all of the features of the ACS-2 system and includes a 460V/120V step down transformer.

Optional designs to meet specific requirements with special wiring arrangements, panel boxes (NEMA 7, 9), control valves and air actuation among others, can be furnished.

Modes of operation

The automatic intermittent mode is adjustable by setting the timer in the panel that controls the frequency of backwashing and the "open" time of the backwash valve. Field adjustments should be made to suit the application. A differential pressure switch to initiate backwashing under high load conditions also can be adjusted.

The continuous backwashing mode is recommended where the backwashing fluid can be recycled to its source or when very high solid loadings are encountered.

In both the automatic intermittent and continuous backwashing modes the backwash arm continuously rotates at a low 2-4 RPM.



Components

Motors An electric motor and gear box are furnished as part of the strainer. The standard TEFC motor is 120V/220V, single phase 60 Hz or 230V/460V three phase 60 Hz, at customer option. Other motors are available.

Differential pressure switch A diaphragm-type differential pressure switch is a standard component in all control systems. It compensates for sudden high pressure loading by overriding the time cycle and initiating backwashing. The differential pressure setting as well as a delay time setting can be adjusted. Two psid above the clean reading is the differential setting recommended. A delay timer will continue the cleaning to customer's requirement. The time delay can be adjusted from 0.6 seconds to 24 hours, depending on system's needs.

Backwash valve Electrically actuated (115 VAC/60 Hz) ball valves are also standard in the control systems. Materials of construction are suitable for water service. Other materials, valve types and pneumatic actuation are optional.

Backwash valve sizes

Strainer size	Valve size
2", 3", 4"	1"
6", 8"	1 1/2"
10", 12", 14", 16"	2"
18", 20", 24", 30"	3"
36"	6"
48", 60"	8"



Powering Business Worldwide

Model 2596 Automatic Self-cleaning Strainers

Eaton offers a full range of element choices for automatic strainers. All are manufactured to the toughest industry standards and are designed for long term use in even the most demanding applications.

DuraWedge® element

The nonclogging and rugged DuraWedge element is made of stainless steel, formed with precision V-shaped profile wire. Available only from Eaton.



Convoluted element



This is a sturdy, economical stainless steel element for general service use. It is ideal in applications where leaves, twigs and large amounts of miscellaneous debris are encountered. The generous spaces created by the convolutions provide an area for the debris to collect. "Packing" does not occur due to the gradual contoured shape of the convolutions. During backwashing the debris is easily dislodged and carried away through the backwash arm and out of the strainer.

Features

- Two point contact straining from the "smooth" side prevents plugging or packing of debris and particles.
- Effective dislodging of dirt, debris and fibers from the element during backwash. This is accomplished by the increased velocity of the reverse flow (during backwash) from the "open side".
- Fiber stapling is reduced because of smooth surfaces and the design contour of the profile wire.
- Vertical collector bars form spaces to accumulate debris and dirt, preventing snow plowing of materials by the rotating backwash arm and port shoe.
- No bypass. Elements are sealed.
- Fully-welded design with circumferential reinforcing bands provides structural integrity.

Features

- Circumferential reinforcing bands for added resistance to pressure and flexing ensures long service life.
- Designed for easy removal and cleaning.
- Convoluted sections are individually isolated by the port shoe during backwash for increased cleaning efficiency.
- No snow plowing. Convoluted profile provides collection spaces for debris.
- Extended area design offered only by Eaton.
- No bypass.
- Sinter bonded mesh available - An Eaton exclusive.

DuraWedge element selection

Strainer size	Standard openings
2", 3", 4", 6", 8"	1/16", 1/32", 0.015"
10", 12", 14", 16"	1/8", 1/16", 1/32", 0.015", 0.009"
18", 20", 24"	3/16", 1/8", 1/16", 1/32", 0.015", 0.009"

Convoluted element selection

Strainer size	Standard openings
Convoluted perforated element	
2", 3", 4", 6", 8"	1/8", 1/16", 1/32"
10", 12", 14", 16"	1/8", 1/16", 1/32"
18", 20", 24"	5/32", 1/8", 1/16"
Convoluted mesh element	
All sizes	20 mesh (0.015") to 200 mesh (0.003")

North America
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(North America only)
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Europe/Africa/Middle East
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China
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Shanghai, P.R. China
Tel: +86 21 5200-0099

Singapore
4 Loyang Lane #04-01/02
Singapore 508914
Tel: +65 6825-1668

Brazil
Av. Julia Gaioli, 474 – Bonsucesso
07251-500 – Guarulhos, Brazil
Tel: +55 11 2465-8822

For more information, please email us at filtration@eaton.com or visit www.eaton.com/filtration

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US
EF-SSEA-29
6-2014

TECHNICAL DATA

Model 2596 Automatic Self-cleaning Strainers

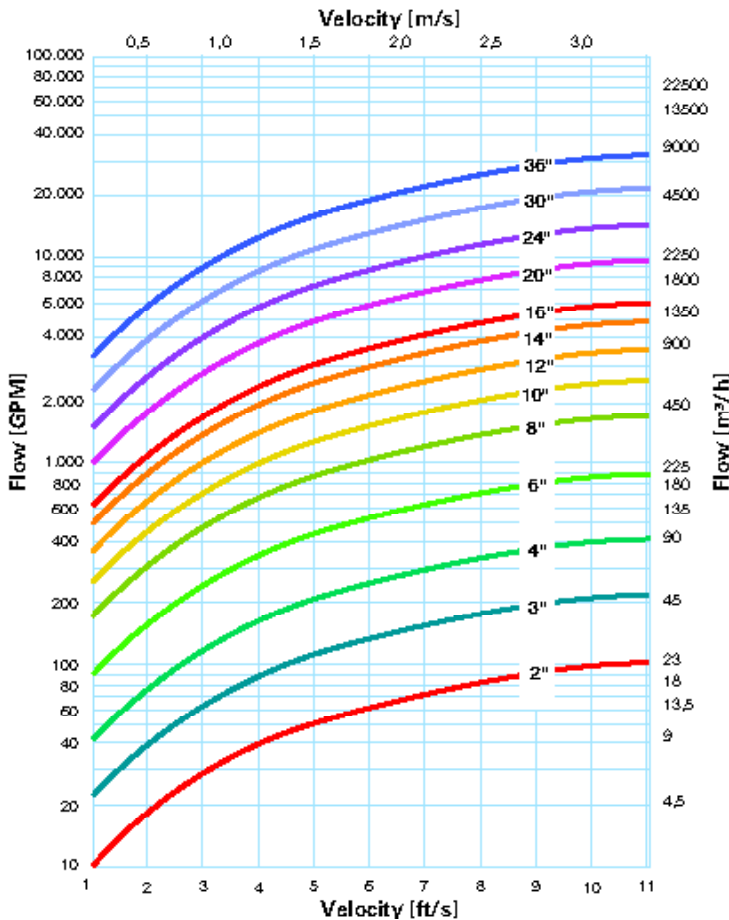
Basic sizing guidelines

1. Select the correct screen and opening size, do not make smaller than necessary.
2. The quantity, type and nature of debris to be removed are considered.
3. The strainer meets the design pressure and temperature requirements of the pipeline.
4. Backwash line should discharge to atmosphere in close proximity to the strainer.

Standard design parameters

1. Self-cleaning strainers have a design flow range where the unit will best perform its two main functions, straining and self-cleaning.
2. Inlet flow velocity to the strainer should be in the 6 to 10 feet per minute (1.83 to 3.05 m/s) range. There may be applications where the operating flow will fall outside the normal design range. When this occurs, please contact Eaton for recommendations.
3. Minimum operating pressure is 20 psi (1.38 bar) for standard units. Consult Eaton for equipment options when the system pressure is less than 20 psi (1.38 bar).
4. Suspended solids should not exceed 200 ppm or 0.02% of volume (see below). For heavier loadings consult Eaton.

Strainer sizing chart



Suspended solids sizing chart and conversion table

PPM	%	Lb. / 1000 Gal.	kg/1,000 m³
10,000	1.0	80	9.59
8,000	0.8	60	7.19
6,000	0.6	40	4.79
4,000	0.4	20	2.40
2,000	0.2	10	1.19
1,000	0.1	8	0.95
800	0.08	6	0.72
600	0.06	4	0.48
400	0.04	2	0.24
200	0.02	1	0.119
100	0.01	0.8	0.096
80	0.008	0.6	0.071
60	0.006	0.4	0.048
40	0.004	0.2	0.024
20	0.002	0.1	0.012
10	0.001	0.08	0.0096
8	0.0008	0.06	0.0072
6	0.0006	0.04	0.0048
4	0.0004	0.02	0.0024
2	0.0002	0.01	0.0012
1,0	0.0001	0.0083	0.0010

STANDARD DESIGN RANGE is indicated by a green shaded area with arrows pointing up and down, covering the flow range from approximately 200 GPM to 100,000 GPM.



Powering Business Worldwide

TECHNICAL DATA

Model 2596 Automatic Self-cleaning Strainers

Volume conversion factors

To convert from one unit to another, locate the starting unit in the left column. Multiply by factor horizontally to the right under desired unit.

To obtain: multiply by:	U.S. gallon	Imperial gallon	U.S. pint	U.S. Pound water	U.S. Cubic foot	U.S. Cubic inch	Liter	Cubic meter
U.S. Gallon	1	0.833	8.0	8.337	0.13368	231.0	3.78533	0.003785
Imperial Gallon	1.2009	1	9.60752	10.0	0.16054	277.42	4.54596	0.004546
U.S. Pint	0.125	0.1041	1	1.042	0.01671	28.875	0.473168	0.000473
U.S. Pound Water	0.11995	0.1	0.9596	1	0.016035	27.708	0.45405	0.00454
U.S. Cubic Foot	7.48052	6.22888	59.8442	62.365	1	1728.0	28.31702	0.028317
U.S. Cubic Inch	0.004329	0.00361	0.034632	0.03609	0.0005787	1	0.016387	0.0000164
Liter	0.2641779	0.2199756	2.113423	2.202	0.0353154	61.02509	1	0.001000
Cubic Meter	264.170	219.969	2113.34	2202	35.31446	61023.38	999.972	1

Pressure conversion factor

To convert from one unit to another, locate the starting unit in the left column. Multiply by factor horizontally to the right under desired unit.

To obtain: multiply by:	Pound sq. in.	Pound sq. ft.	Atmosphere	Kilogram sq. cm.	Inch water	Foot water	Inch mercury	mm mercury	Bar
Pounds/Sq. In	1	144.0	0.068046	0.070307	27.7276	2.3106	2.0360	51.7150	0.06895
Pounds/Sq. Ft.	0.0069545	1	0.000473	0.000488	0.1926	0.01605	0.014139	0.35913	0.000479
Atmosphere	14.696	2116.22	1	1.0332	407.484	33.9570	29.921	760.0	1.01325
Kilogram/Sq. Cm.	14.2233	2048.16	0.96784	1	394.27	32.864	28.959	735.558	0.9807
Inch Water	0.03607	5.194	0.002454	0.00254	1	0.08333	0.0734	1.865	0.00249
Foot Water	0.43278	62.3205	0.029449	0.03043	12.0	1	0.8811	22.381	0.02984
Inch Mercury	0.49115	70.726	0.033421	0.03453	13.617	1.1349	1	25.40	0.03386
mm Mercury	0.019337	2.7845	0.0013158	0.0013595	0.5361	0.04468	0.03937	1	0.001333
Bar	14.5038	2088.55	0.98692	1.0197	33.51	402.1	29.53	750.0	1

Strainer basket opening equivalents

Mesh	Inches	Millimeters	Microns
200	0.0027	0.0686	68
150	0.0041	0.1041	104
100	0.0065	0.1651	165
80	0.007	0.1778	177
60	0.009	0.2286	228
40	0.015	0.8636	380
20	0.034	0.8636	862

Tighter retentions available, consult Eaton.

Strainer basket opening equivalents

Perf	Inches	Millimeters	Microns
1/32	0.033	0.838	838
3/64	0.045	1.143	1143
1/16	0.070	1.778	1776
3/32	0.094	2.387	2387
1/8	0.125	3.175	3175
5/32	0.150	3.810	3810
3/16	0.1875	4.762	4762
1/4	0.250	6.350	6350
3/8	0.375	9.525	9525
1/2	0.500	12.700	12,700

Flow velocity conversion factors

$$\text{Velocity in ft/s} = \text{GPM} \times 0.4085 / \text{ID}^2 \text{ inches}$$

Flow conversion factors

m ³ /h	=	3.671 I.G.M.
I.G.P.M.	=	41.14 Barrels/Day
T.P.H.	=	3.74 I.G.M.
I.G.P.M.	=	1.2 U.S. G.P.M.
I.G.P.M.	=	4.54 l/min
l/min	=	0.22 I.G.P.M.
U.S. G.P.M.	=	0.833 I.G.P.M.
Barrel	=	35 Imp. Gallons
Barrel	=	42 U.S. Gallons

Viscosity equivalents

SSU (Saybolt seconds universal)	Centipoise	Engler degrees 20 °C	Redwood standard
30	1	—	—
50	5	2	44
100	20	3.5	88
200	40	16	175
300	65	30	263
400	85	43	350
500	105	57	440
600	130	72	525
700	150	90	615
800	175	115	700
900	195	132	790
1000	210	150	880
2000	425	350	1750
3000	625	540	2600
4000	860	740	3500
5000	1050	930	4550
6000	1300	1120	5250
7000	1500	1320	6150
8000	1700	1510	7300
9000	1920	—	—
10,000	2150	—	—

North America
44 Apple Street
Tinton Falls, NJ 07724
Toll Free: 800 656-3344
(North America only)
Tel: +1 732 212-4700

Europe/Africa/Middle East
Auf der Heide 2
53947 Nettersheim, Germany
Tel: +49 2486 809-0

Internormen Product Line
Friedensstraße 41
68804 Altlufsheim, Germany
Tel: +49 6205 2094-0

Begerow Product Line
An den Nahewiesen 24
55450 Langenlonsheim, Germany
Tel: +49 6704 204-0

China
No. 3, Lane 280,
Linhong Road
Changning District, 200335
Shanghai, P.R. China
Tel: +86 21 5200-0099

Singapore
4 Loyang Lane #04-01/02
Singapore 508914
Tel: +65 6825-1668

Brazil
Av. Julia Gaioli, 474 – Bonsucesso
07251-500 – Guarulhos, Brazil
Tel: +55 11 2465-8822

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US
EF-SSEA-30
6-2014

Magnetically Coupled Strainer

MCS 500™

High flow strainer

Mechanically
Cleaned

Permanent
Media

MCS 500 strainer's magnetically coupled actuation eliminates the need for dynamic seals. This technology provides quick and easy access for maintenance, reduces potential leaks and requires few moving parts while providing a long service life.



Environmentally sustainable design

Features

- No dynamic seals
- Minimal purge for low waste operation
- Easy in-line installation
- Continuous 24/7 operation
- Maintenance-friendly design means lower labor costs
- Eco-friendly
- 316 stainless steel housing

Options

- Multi-station configuration
- EPT/EPDM (Nordel™) or Viton® seal material
- Advanced programmable microprocessors
- Construction according to "AD 2000-Merkblätter", DIN EN 13445 or ASME Code
- Automatic pressure transmitters
- Purge welding
- Air bleed capability
- 304 stainless steel controller enclosure
- Gauge ports: 1/4"

The MCS Series™ is engineered to conserve valuable process water while protecting costly equipment from debris. It offers minimal purge volumes in fresh water applications—allowing you to save on the cost of make up liquids, chemical treatment and heating energy.

Featuring fast cleaning magnetically coupled actuation, this design offers an optimized configuration to help improve and reduce costly maintenance and downtime. In addition, this actuation method eliminates the need for cover thru-holes and their associated seals.

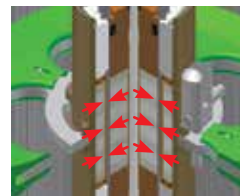
Typical applications

- paper coatings • pcc/gcc slurries • phenolic resins • petroleum based greases • ethanol processing
- cip fluids (sodium hydroxide) • hot fry oils • starch • lime slurries • curtain coaters • nutricosmetics
- machining coolants • adhesives • paints • inks • chocolate • edible oils • detergents • tallow

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The actuation piston and cleaning disc are coupled by powerful rare earth magnets—a simple design that delivers tremendous benefits by eliminating the need for shaft or external drive seals.

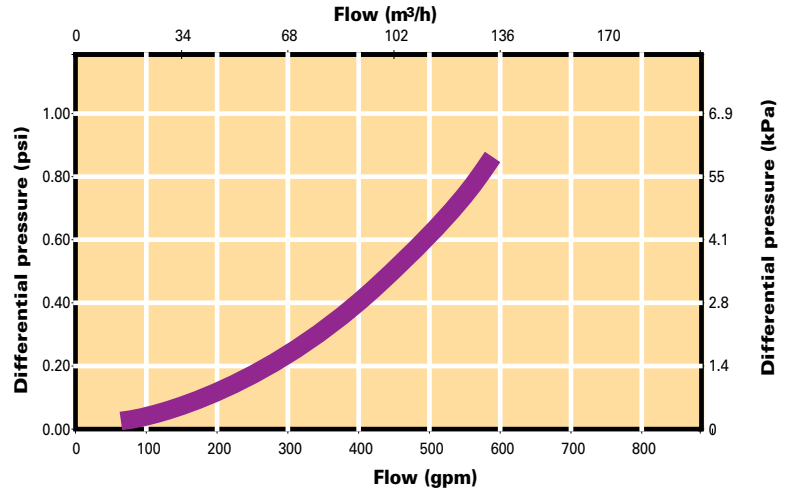
MCS 500 Magnetically Coupled Strainer

MCS 500 high flow strainer specifications

Approx. weight	350 lb (159 kg)
Service height	66 in (1,676 mm)
Flow rates at 100 µm	Up to 500 gpm (114 m³/h)
Operating pressure	30 - 150 psi (2 - 10.5 bar)
Operating temperature, max.	180 °F (82 °C)
Viscosity	Water/water-like fluids
Standard retention*	150 - 1,100 microns
Housing material	316 stainless steel
Elastomers	EPT/EPDM (Nordel) or Viton
Process connections	6 in 150# flanged/DN 200 flanged
Purge connection	1 1/2 in NPT/1 1/2 in BSPT
Air for actuator drive (clean, dry, non lubricated air)	80 psi (5.5 bar) min. - 116 psi (8 bar) max. 5.0 cfm (141.5 l/min)
Electrical for controllers	115 VAC or 230 VAC 50/60 Hz
Semi-auto voltage	24 VAC, 115 VAC, 230 VAC 24 VDC 115/230 VAC

*Tighter retentions available. Please contact Eaton for more information.

MCS 500 flow rates



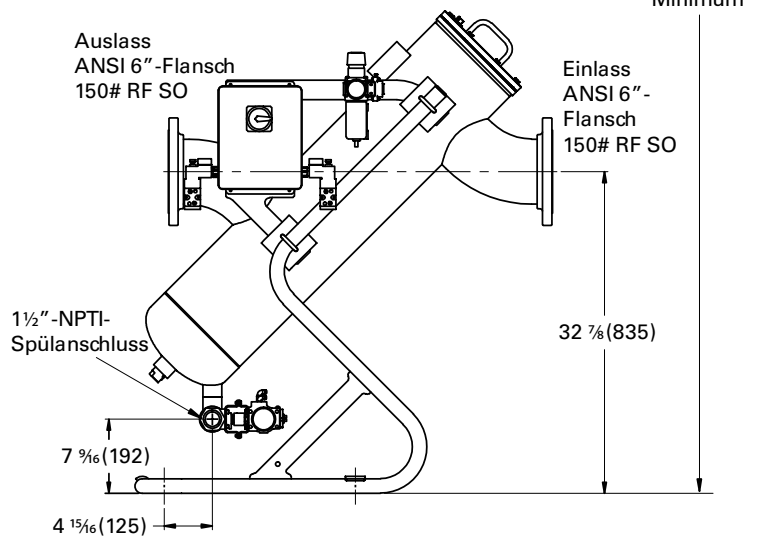
Up to eight MCS units can be configured into a multi-plex system for high volume requirements.

Slotted wedge wire strainer element options

Inch	Micron	Mesh	% Open area
.002	50	325	6
.003	75	200	9
.004	100	150	12
.006	150	100	17
.008	180	80	19
.008	200	70	21
.009	230	60	23
.015	380	40	33
.024	600	30	44
.030	700	20	50
.045	1140	15	60



Additional retentions available, consult Eaton.



North America
44 Apple Street
Tinton Falls, NJ 07724
Toll Free: 800 656-3344
(North America only)
Tel: +1 732 212-4700

Europe/Africa/Middle East
Auf der Heide 2
53947 Nettersheim, Germany
Tel: +49 2486 809-0

Internormen Product Line
Friedensstraße 41
68804 Altluisheim, Germany
Tel: +49 6205 2094-0

Begerow Product Line
An den Nahewiesen 24
55450 Langenlonsheim, Germany
Tel: +49 6704 204-0

China
No. 3, Lane 280,
Linhong Road
Changning District, 200335
Shanghai, P.R. China
Tel: +86 21 5200-0099

Singapore
4 Loyang Lane #04-01/02
Singapore 508914
Tel: +65 6825-1668

Brazil
Av. Julia Gaioli, 474 - Bonsucesso
07251-500 - Guarulhos, Brazil
Tel: +55 11 2465-8822

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US
EF-SSEA-31
6-2014

Magnetically Coupled Strainer

MCS 1500™

High flow strainer

Mechanically
Cleaned

Permanent
Media

Environmentally sustainable design

Eaton's MCS 1500 magnetically coupled strainer is perfect for high-capacity straining needs. Its magnetically coupled actuation eliminates the need for dynamic seals. This technology provides quick and easy access for maintenance, reduces potential leaks and requires few moving parts while providing a long service life.



Features

- No dynamic seals
- Minimal purge for low waste operation
- Easy in-line installation
- Continuous 24/7 operation
- Maintenance-friendly design means lower labor costs
- Eco-friendly
- 316 stainless steel housing

Options

- Multi-station configuration
- EPT/EPDM (Nordel™) or Viton® seal material
- Advanced programmable microprocessors
- Construction according to "AD 2000-Merkblätter", DIN EN 13445 or ASME Code
- Automatic pressure transmitters
- Purge welding
- High pressure units
- Air bleed capability
- 304 stainless steel controller enclosure
- Gauge port: 1/4"

The MCS Series™ is engineered to conserve valuable process water while protecting costly equipment from debris. It offers minimal purge volumes in fresh water applications, allowing you to save on the cost of make up liquids, chemical treatment and heating energy.

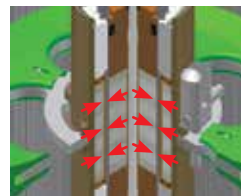
Featuring fast cleaning magnetically coupled actuation, this design offers an optimized configuration to help improve and reduce costly maintenance and downtime. In addition, this actuation method eliminates the need for cover thru-holes and their associated seals.

Typical applications

- paper coatings • pcc/gcc slurries • phenolic resins • petroleum based greases • ethanol processing
- cip fluids (sodium hydroxide) • hot fry oils • starch • lime slurries • curtain coaters • nutraceuticals
- machining coolants • adhesives • paints • inks • chocolate • edible oils • detergents • tallow

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The actuation piston and cleaning disc are coupled by powerful rare earth magnets—a simple design that delivers tremendous benefits by eliminating the need for shaft or external drive seals.

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MCS 1500 High Flow Magnetically Coupled Strainer



Up to eight MCS units can be configured into a multiplex system for high volume requirements.

Slotted wedge wire strainer element options

Inch	Micron	Mesh	% Open area
.002	50	325	6
.003	75	200	9
.004	100	150	12
.006	150	100	17
.007	180	80	19
.008	200	70	21
.009	230	60	23
.015	380	40	33
.024	600	30	44
.030	700	20	50
.045	1140	15	60



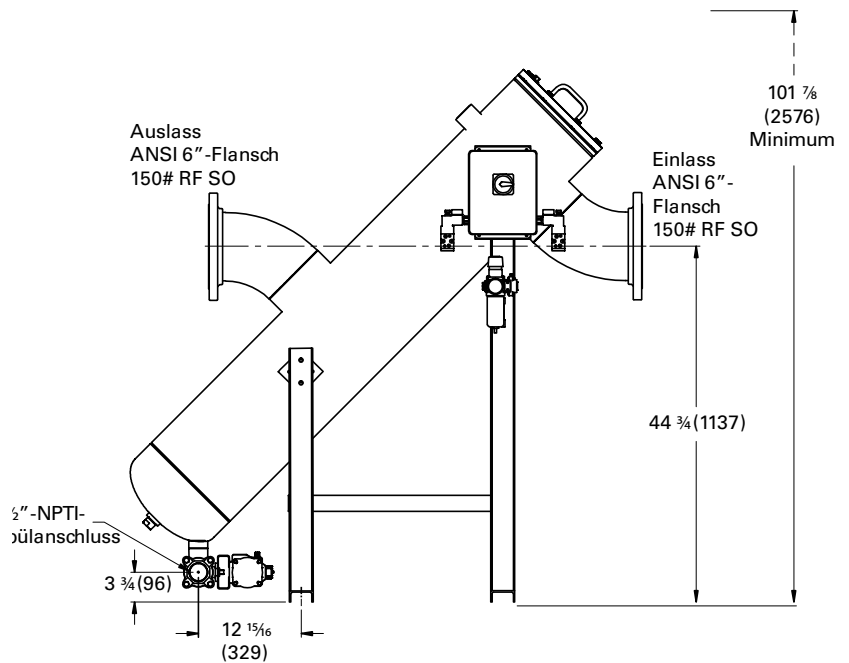
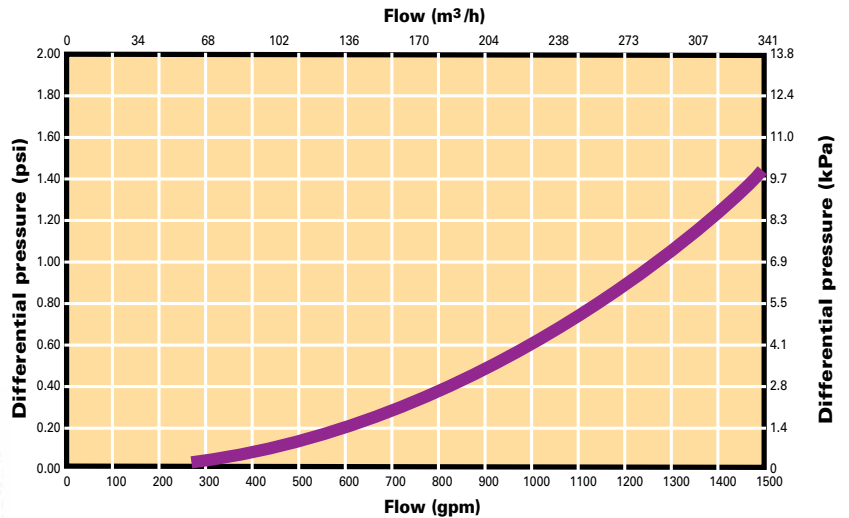
Additional retentions available, consult Eaton.

MCS 1500 high flow strainer specifications

Approx. weight	775 lb (352 kg)
Service height	102 in (2,591 mm)
Flow rate range at 100 µm	Up to 1,500 gpm (340 m³/h)
Operating temperature, max.	180 °F (82 °C)
Operating pressure	30 - 150 psi (2 - 10.5 bar)
Viscosity	Water/water-like fluids
Standard retention*	150 - 1,100 microns
Housing material	316 stainless steel
Elastomers	EPT/EPDM (Nordel) or Viton
Process connections	8 in 150# flanged/DN 200 flanged
Purge connection	2 in NPT/2 in BSPT
Air for actuator drive (clean dry non lubricated air)	80 psi (5.5 bar) min. - 116 psi (8 bar) max. 5.0 cfm (141.5 l/min)
Electrical for controllers	115 VAC or 230 VAC 50/60 Hz
Semi-auto voltage	24 VAC, 115 VAC, 230 VAC 24 VDC 115/230 VAC

*Tighter retentions available. Please contact Eaton for more information.

MCS 1500 flow rates



North America
44 Apple Street
Tinton Falls, NJ 07724
Toll Free: 800 656-3344
(North America only)
Tel: +1 732 212-4700

Europe/Africa/Middle East
Auf der Heide 2
53947 Nettersheim, Germany
Tel: +49 2486 809-0

Internormen Product Line
Friedensstraße 41
68804 Altlufsheim, Germany
Tel: +49 6205 2094-0

Begerow Product Line
An den Nahewiesen 24
55450 Langenlonsheim, Germany
Tel: +49 6704 204-0

China
No. 3, Lane 280,
Linhong Road
Changning District, 200335
Shanghai, P.R. China
Tel: +86 21 5200-0099

Singapore
4 Loyang Lane #04-01/02
Singapore 508914
Tel: +65 6825-1668

Brazil
Av. Julia Gaioli, 474 - Bonsucesso
07251-500 - Guarulhos, Brazil
Tel: +55 11 2465-8822

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US
EF-SSEA-32
6-2014



TECHNICAL INFORMATION

Mechanically Cleaned Systems

Disc power

In Eaton's MCS mechanically cleaned strainer unit, incoming fluids (1) are channeled from the interior cylinder through a wire screen (2) to the outer cylinder and out the discharge port (3). A magnetically coupled cleaning disc (4) travels down and up inside the cylinder to periodically clear the filter screen. Particles are collected at the bottom of the housing where they can be discharged (5).



Eaton's unique circular cleaning disc design (MCF 824 Series design shown) ensures intimate contact with the screen to thoroughly and uniformly clean the media.



How it works

Eaton's mechanically cleaned filters and strainers are based on a simple concept: A cylindrical stainless steel housing contains a filter screen; unfiltered liquids enter the inlet; solids are deposited on the interior surface of the filtration screen; and filtered fluid exits at the outlet.

When the media requires cleaning (based on time, differential pressure or manual selection), a spring loaded cleaning disc travels down and up, wiping the media clean of concentrated solids in both strokes. Once the debris is removed from the slotted screen, the cleaning disc directs the contaminant to the bottom of the housing and out of the flow path. This cleaning process happens while the filter remains in service, thereby maintaining process efficiency and dramatically reducing loss of valuable product.



Eaton MCS strainers feature the advantage of a magnetically coupled disc mechanism (6). This unique design eliminates the need for internal seals and reduces maintenance costs.

	MCS 500™	MCS 1500™
Approx. weight - lb (kg)	350 (159)	775 (352)
Service height - in (mm)	66 (1,676)	102 (2,591)
Volumetric capacity - gal (l)	18.7 (70.8)	49.2 (186.2)
Purge chamber capacity - gal (l)	0.56 (2.1)	1.1 (4.1)
Filtration surface area - in ² (cm ²)	610 (3,935)	1,508 (9,729)
Flow rate range at 100 µm - gpm (m ³ /h)	up to 500 (up to 114)	up to 1,500 (up to 342)
Temp. - max. °F (°C)	180 (82)	180 (82)
Pressure - max. psi (bar)	150 (10.5)	150 (10.5)



Powering Business Worldwide

Mechanically Cleaned Filter Media and Options

Screen elements



Slotted wedge wire

DCF/MCF/MCS filter screens feature special wedge wire that is honed perfectly circular to guarantee contact with the cleaning disc so the slot openings are smallest at the screen's surface. This design helps prevent particle plugging of the slot openings while assuring total rated solids removal.



Perforated

Perforated screens feature precise and uniform perforation patterns for complete removal of larger solids. These elements are ideal for straining large volumes of viscous fluids. 1/16", 1/8" and 1/4" perforations are available.

Screen retentions

Slotted wedge wire

Inch	Micron	% Open mesh	Area
.0006	15	—	2
.001	25	—	3
.0015	38	400	5
.002	50	325	6
.003	75	200	9
.004	100	150	12
.006	150	100	17
.007	180	80	19
.008	200	70	21
.009	230	60	23
.015	380	40	33
.024	600	30	44
.030	700	20	50
.045	1140	15	60

Perforated

Inch	Micron	% Open mesh	Area
1/16	1575	12	40
1/8	3175	6	40
1/4	6360	3	57

Additional retentions available. Consult Eaton.

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Control system choice

The control options for mechanically cleaned filters are as broad as the applications they serve. Available controllers include:

PLC microcomputer controls deliver programmable stand-alone performance or can integrate with control networks. Allen-Bradley and Siemens controls are standard PLC options.

Continuous cleaning valve (CCV) is the standard configuration where the cleaning disc continuously cycles, driven by shop airflow. Purge is controlled by a manual valve or push-button.

Electric timer for timed stroke (single) or stroke and purge (dual) in a NEMA 4-, 7- or 12-rated enclosure. Dual pneumatic timers are available for explosion proof environments.

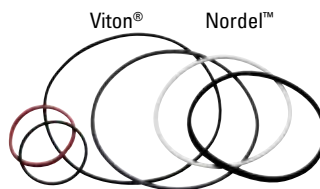
Semi-automatic electric control units for use with customer supplied controls for stroke and purge.



Disc and seal choices

To meet the widest range of operating conditions and process liquid characteristics, Eaton mechanically cleaned systems are available with a number of lid and screen seal elastomers and cleaning discs.

Lid and screen seals



Cleaning discs



North America
44 Apple Street
Tinton Falls, NJ 07724
Toll Free: 800 656-3344
(North America only)
Tel: +1 732 212-4700

Europe/Africa/Middle East
Auf der Heide 2
53947 Nettersheim, Germany
Tel: +49 2486 809-0

Internormen Product Line
Friedensstraße 41
68804 Altlußheim, Germany
Tel: +49 6205 2094-0

Begerow Product Line
An den Nahewiesen 24
55450 Langenlonsheim, Germany
Tel: +49 6704 204-0

China
No. 3, Lane 280,
Linhong Road
Changning District, 200335
Shanghai, P.R. China
Tel: +86 21 5200-0099

Singapore
4 Loyang Lane #04-01/02
Singapore 508914
Tel: +65 6825-1668

Brazil
Av. Julia Gaioli, 474 – Bonsucesso
07251-500 – Guarulhos, Brazil
Tel: +55 11 2465-8822

For more information, please
email us at filtration@eaton.com
or visit www.eaton.com/filtration

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• Filtration • Strainers • Gas/Liquid Separation

Eaton Complete family of filtration solutions

Bag and cartridge filtration systems

Ideal for the removal of large amounts of very fine material from the process media.

- Single or multi-bag housings in stainless steel, carbon steel or corrosion-resistant plastic
- Choose from a huge selection of filter bags in a variety of materials and retention ratings
- High performance, cost-effective liquid process filter cartridges for common and difficult industrial applications



Mechanically cleaned filters

A sustainable solution for the automatic removal of debris from liquids with no bags to buy, change or landfill.

- Tubular backwashing
- Disc cleaning
- Pneumatic, motorized or magnetically coupled actuation



Standard cast pipeline strainers

Protecting pumps, filters, nozzles, flow-meters, valves, heat exchangers, condensers, oil burners, boilers and other process system components from damaging pipeline debris is what Eaton pipeline strainers do best.

- Heavy-duty Y strainer
- Simplex basket strainers
- Duplex basket strainers



Mechanically cleaned strainers and fabricated pipeline strainers

High-flow capabilities in hundreds of configurations and sizes.

- Sizes up to 60 inches
- Continuous operation
- Motorized or magnetically coupled actuation
- Custom designs and exotic materials of construction are available

Hydraulic and lubrication oil filtration systems

- 4,000 different filter elements, including corresponding filter housings
- Condition monitoring
- Hydraulic filter accessories



Depth filtration

High-quality filtration systems and media for the food and beverage, chemical, pharmaceutical and biotechnology industries.

- Depth filter sheets and stacked disc cartridges
- Filter cartridges
- Filtration systems
- Measuring and testing devices



Gas/liquid separators

Remove over 99% of moisture and particulate matter 10 microns and larger from air, gas and steam lines.

An exclusive vortex containment plate (VCP) prevents re-entrainment and eliminates the need for complex baffles or deflectors. Offered in a variety of different models for application flexibility.

EATON

Powering Business Worldwide

Speciality & custom systems

In addition to our standard solutions, Eaton offers many industry specific filtration, strainer and separation products with a proven record of accomplishment. Eaton engineers can customize and design modular solutions that provide a full range of retention capabilities and construction materials in manual and automated designs.



Media options

Eaton offers thousands of options for both disposable media systems and equipment that utilizes permanent filtration and strainer elements.

- Permanent media elements for self-cleaning filters and strainers
- Filter bags to fit a wide range of filter housings—with filtration efficiencies up to 99.98%
- Filter cartridges with a variety of retention ratings, sizes, end caps, material and gaskets
- Depth filter sheets for coarse, clarifying and fine filtration as well as microbe reduction and removal.



North America
44 Apple Street
Tinton Falls, NJ 07724
Toll Free: 800 656-3344
(North America only)
Tel: +1 732 212-4700

Europe/Africa/Middle East
Auf der Heide 2
53947 Nettersheim, Germany
Tel: +49 2486 809-0

Internormen Product Line
Friedensstraße 41
68804 Altludersheim, Germany
Tel: +49 6205 2094-0

Begerow Product Line
An den Nahewiesen 24
55450 Langenlonsheim, Germany
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