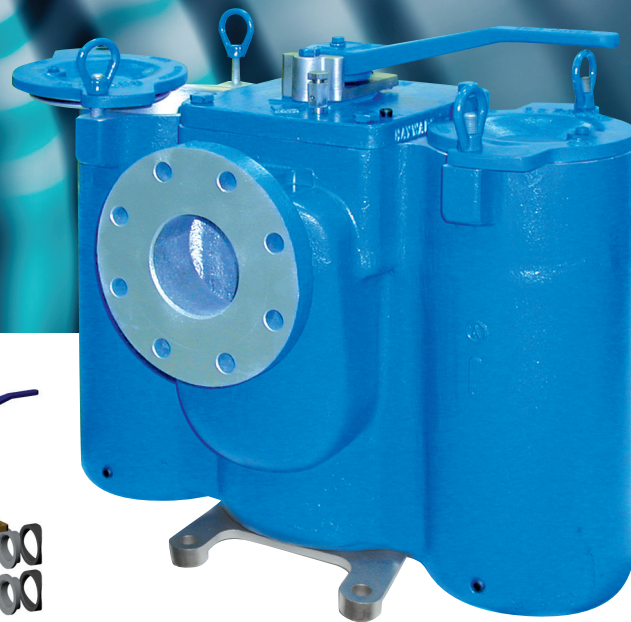
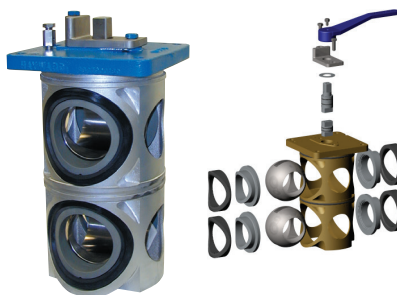


Model 53BTX



- 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

Teflon® and Viton® are registered trademarks of E. I. du Pont de Nemours and company. MONEL® is a registered trademark of Special Metals Corporation group of Companies. HASTELLOY® is a registered trademark of Haynes International Inc.



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



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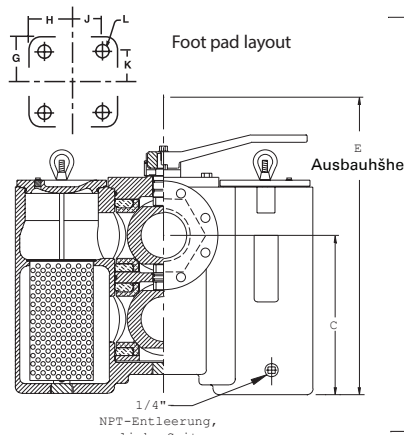
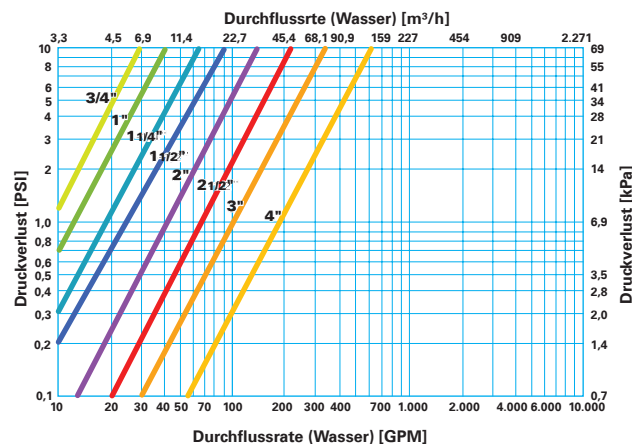
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Model 53BTX Ball Type Duplex Basket Strainer

Selection table

Size	Body & cartridge material	End connection	Seat/Seal	Divert 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.



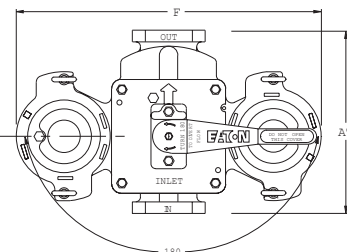
Front view flanged and threaded models

Cy factors*

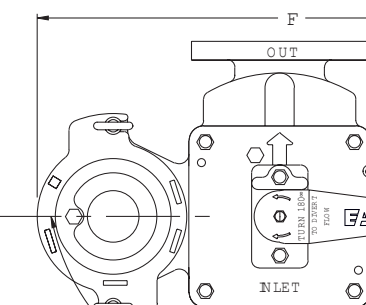
Size	Value	Size	Value
3/4"	13	2"	42
1"	13	2-1/2"	65
1-1/4"	18	3"	110
1-1/2"	25	4"	175

* For water with clean, perforated basket

Top view threaded model



Top view flanged model



Dimensions (in/mm)

Pipe size	AF	AT	C	E	F	G	H	J	K	L	Weight – Iron flanged (lb / kg)	Weight – Iron threaded (lb / kg)	Weight – Bronze flanged (lb / kg)	Weight – Bronze threaded (lb / kg)	Weight – Carbon & SS flanged (lb / kg)	Weight – Carbon & SS 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

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

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TECHNICAL INFORMATION

Standard Cast Pipeline Strainers

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.

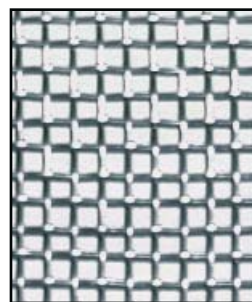
Perforated basket sheet specifications

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

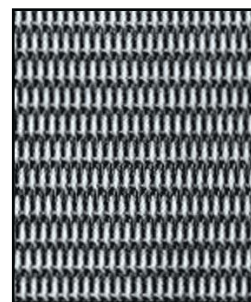
Mesh basket sheet specifications

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
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Friedensstraße 41
68804 Altludersheim, Germany
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55450 Langenlonsheim, Germany
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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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TECHNICAL INFORMATION

Standard Cast Pipeline Strainers

Basket Effective Area

Strainer Model	Pipe Size	Perforation Size	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	Perforation Size	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 in
Yield: 36,000 lb/sq in
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
Yield: 30,000 lb/sq in
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
Yield: 30,000 lb/sq in
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
Compressive Strength: 109,000 lbs/sq in
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
Yield: 40,000 lb/sq in
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.



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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

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

Eaton Brazil
Voice: +55 11 2465 8822

Eaton China
Voice: +86-21 5200 0422

Eaton
Europe/Africa/Middle East
Voice: +49-2486-809-0

Eaton Singapore
Voice: +65 6825 1668

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/hr
 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

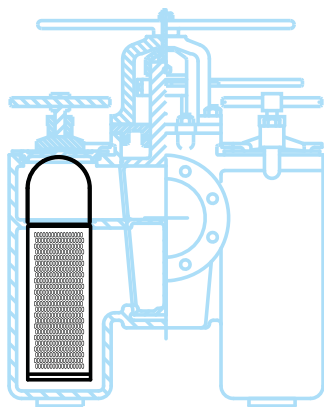
The pressure loss across a strainer can be calculated using the system's flow rate and the C_v factor for that strainer.

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 flow rate, it will have a 1.7 psi 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."

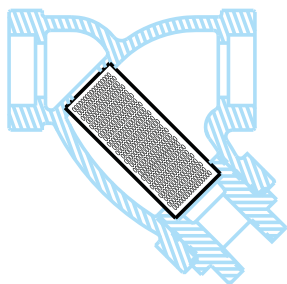
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For more information, e-mail us at
filtration@eaton.com

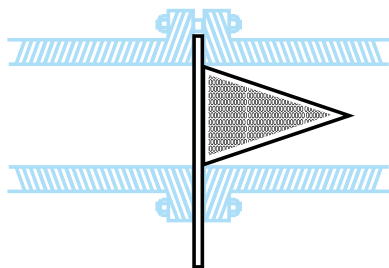
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Partial cutaway of plug type duplex strainer showing basket in position



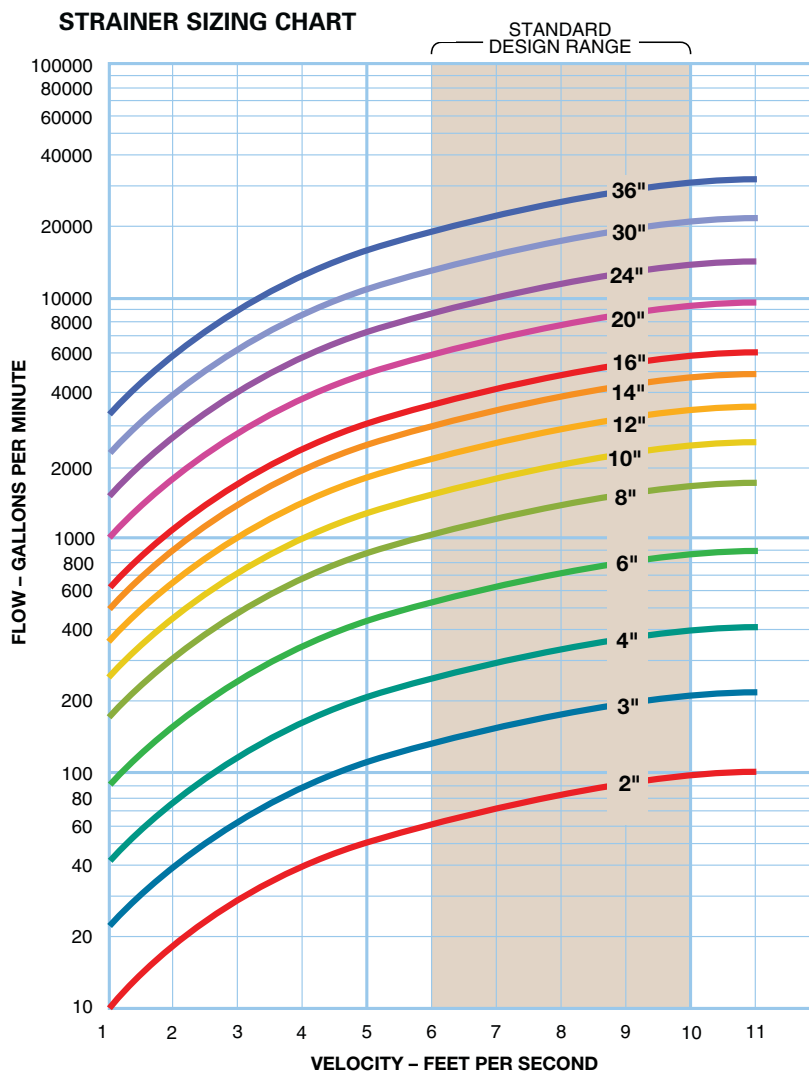
Cutaway of Y strainer shows strainer screen in position



Cone type temporary strainer is shown bolted between two pipe flanges

Basic Sizing Guidelines

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



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

Eaton Brazil
 Voice: +55 11 2465 8822

Eaton China
 Voice: +86-21 5200 0422

Eaton
Europe/Africa/Middle East
 Voice: +49-2486-809-0

Eaton Singapore
 Voice: +65 6825-1668

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filtration@eaton.com

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Powering Business Worldwide



EF-SCPS-01
 3-2013

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 1/4" NPT cover vent taps and inlet/outlet nozzle taps are available for most strainers.



Powering Business Worldwide



Typical pressure differential gauge with switch.

Differential Pressure Gauge

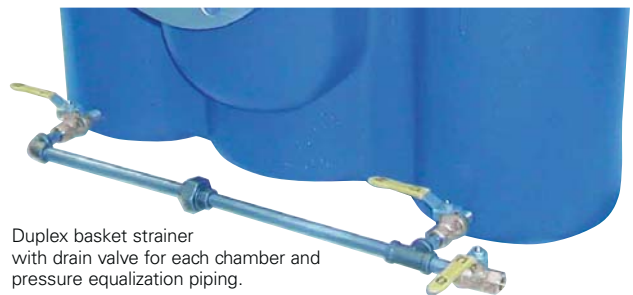
This gauge shows the pressure differential across the strainer and helps determine when to change out the strainer basket. It has a 0 - 30 psid pressure range and features a 3-1/2" gauge face. Rated at 3000 psi, it comes with a 1/4" NPT connection in either brass or stainless steel.

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, 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 with either 1/4" or 1/2" NPT connections.

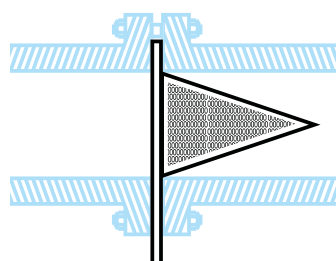


Elastomer Seals

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.

Temporary Strainers

- 2" to 24"
- Flanged
- Stainless Steel or Monel



Cone type temporary strainer is shown bolted between two pipe flanges

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

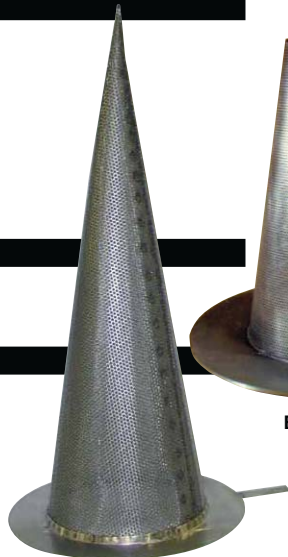
OPTIONS

- Alloy construction, RTJ-style connections

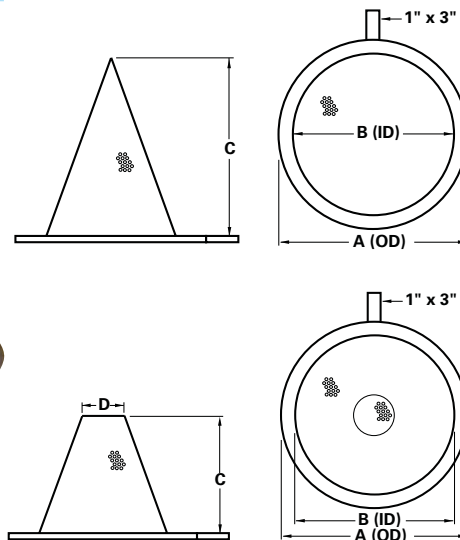
DESIGNED FOR USE IN

- 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	3.88	4.13	1.75	6.0
2-1/2	4.63	4.63	4.88	2.25	7.0
3	5.13	5.13	5.63	2.75	9.0
4	6.63	6.63	6.88	3.50	12.0
5	7.50	7.50	9.25	4.63	14.0
6	8.50	8.50	10.25	5.50	17.0
8	10.75	10.75	12.38	7.13	23.0
10	12.13	13.13	15.50	9.00	27.0
12	15.88	15.88	17.38	10.88	32.0
14	17.50	17.50	19.13	12.63	33.0
16	20.00	20.00	22.00	14.50	39.0
18	21.38	21.38	23.88	16.38	44.0
20	23.63	23.63	26.63	18.38	49.0
24	28.00	28.00	30.88	20.38	58.0

Dimensions (in) Model 92 Basket Type

Pipe Size	A Class 150	A Class 300	A Class 600	B	C	D
2	3.88	3.88	4.13	1.75	3.5	1.0
2-1/2	4.63	4.63	4.88	2.25	4.0	1.0
3	5.13	5.13	5.63	2.75	4.5	1.0
4	6.63	6.63	6.88	3.50	6.0	2.0
5	7.50	7.50	9.25	4.63	7.5	2.0
6	8.50	8.50	10.25	5.50	9.0	2.0
8	10.75	10.75	12.38	7.13	12.0	2.0
10	13.13	13.13	15.50	9.00	14.0	3.0
12	15.88	15.88	17.38	10.88	16.5	3.0
14	17.50	17.50	19.13	12.63	17.0	4.0
16	20.00	20.00	22.00	14.50	19.0	4.0
18	21.38	21.38	23.88	16.38	21.0	6.0
20	23.63	23.63	26.63	18.38	24.0	6.0
24	28.00	28.00	30.88	22.38	28.0	10.0

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

Eaton Brazil
 Voice: +55 11 2465 8822

Eaton China
 Voice: +86-21 5200 0422

Eaton
Europe/Africa/Middle East
 Voice: +49-2486-809-0

Eaton Singapore
 Voice: +65 6825 1668

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filtration@eaton.com

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