

Model 72

- 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

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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.

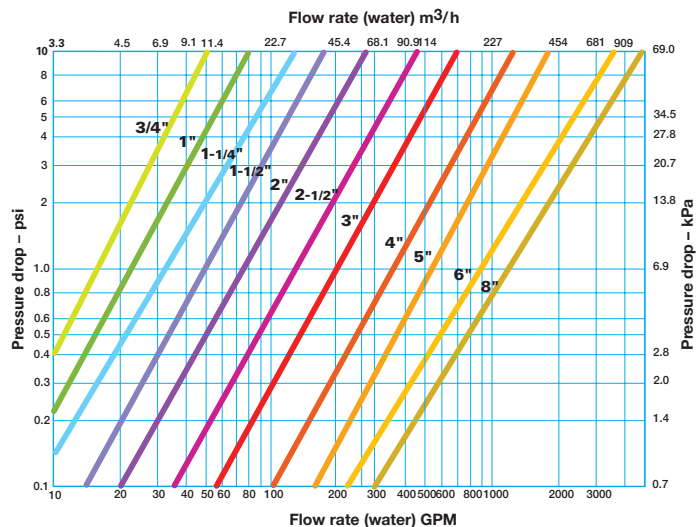
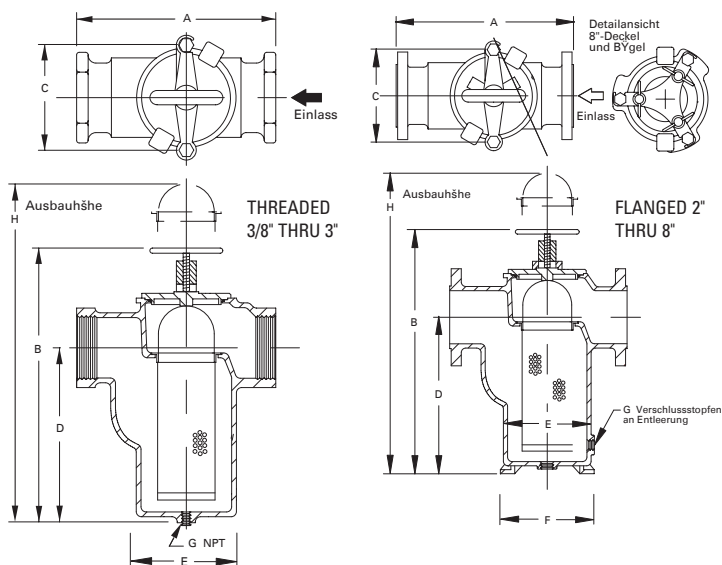
Wall thicknesses are exceptionally heavy. The basket seats are precision machined to give a tight seal and prevent any material from bypassing the basket. The Eaton Model 72 simplex basket strainer is a top quality, heavy-duty unit designed to stand up to the most demanding of applications.

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)

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 C_v 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) -----			
									Carbon Bronze	Steel	Stainless Iron	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

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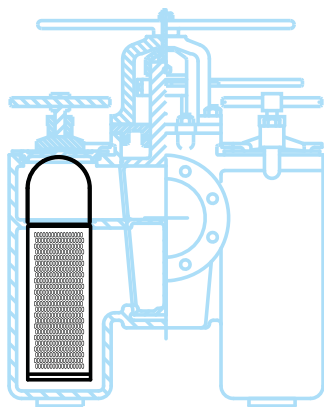
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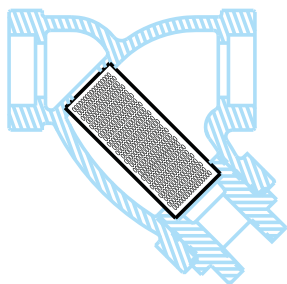
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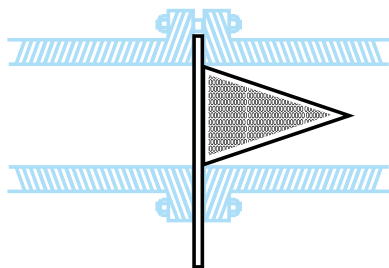
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Partial cutaway of plug type duplex strainer showing basket in position



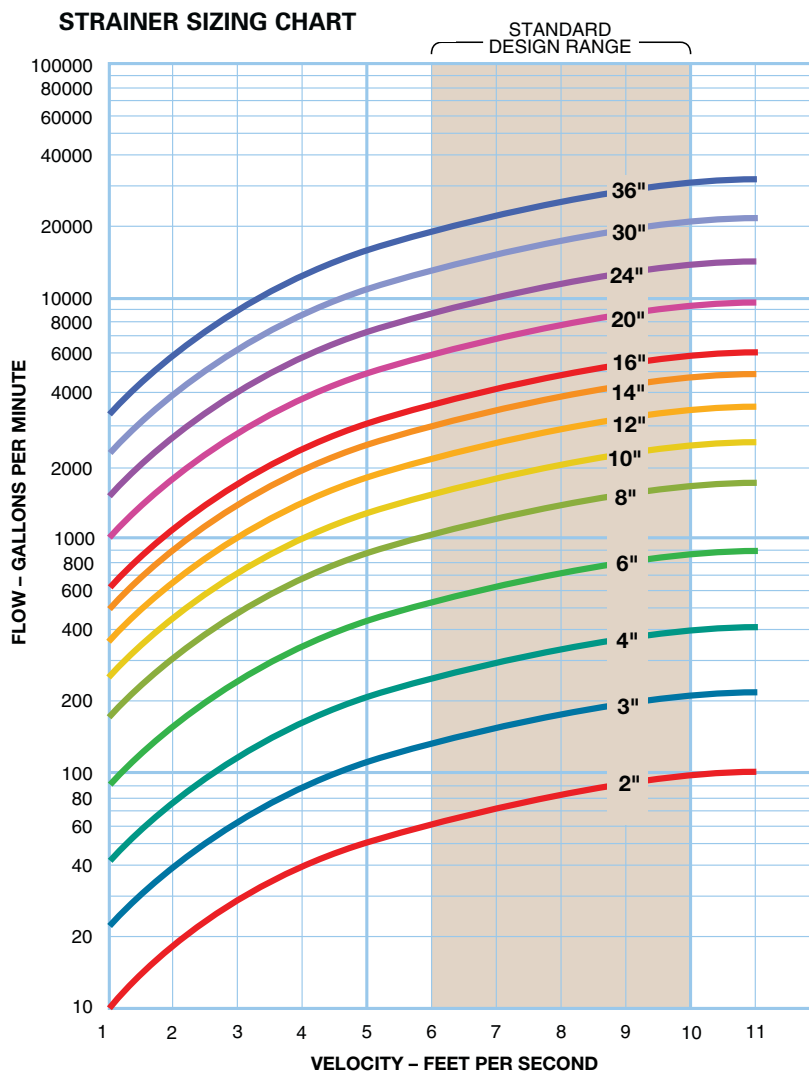
Cutaway of Y strainer shows strainer screen in position



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.



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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.

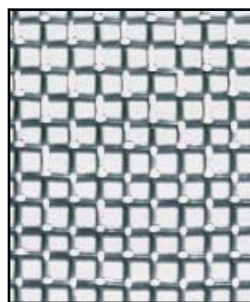
Perforated basket sheet specifications

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

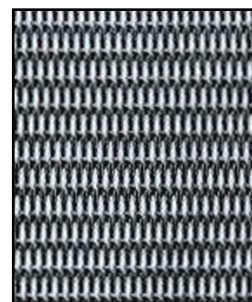
Mesh basket sheet specifications

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

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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

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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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