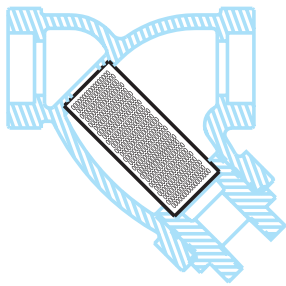
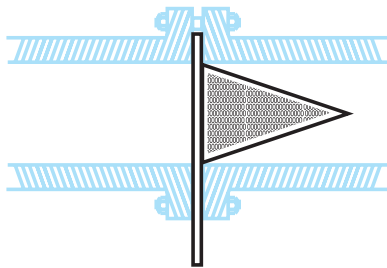


Partial cutaway of plug type duplex strainer showing basket in position



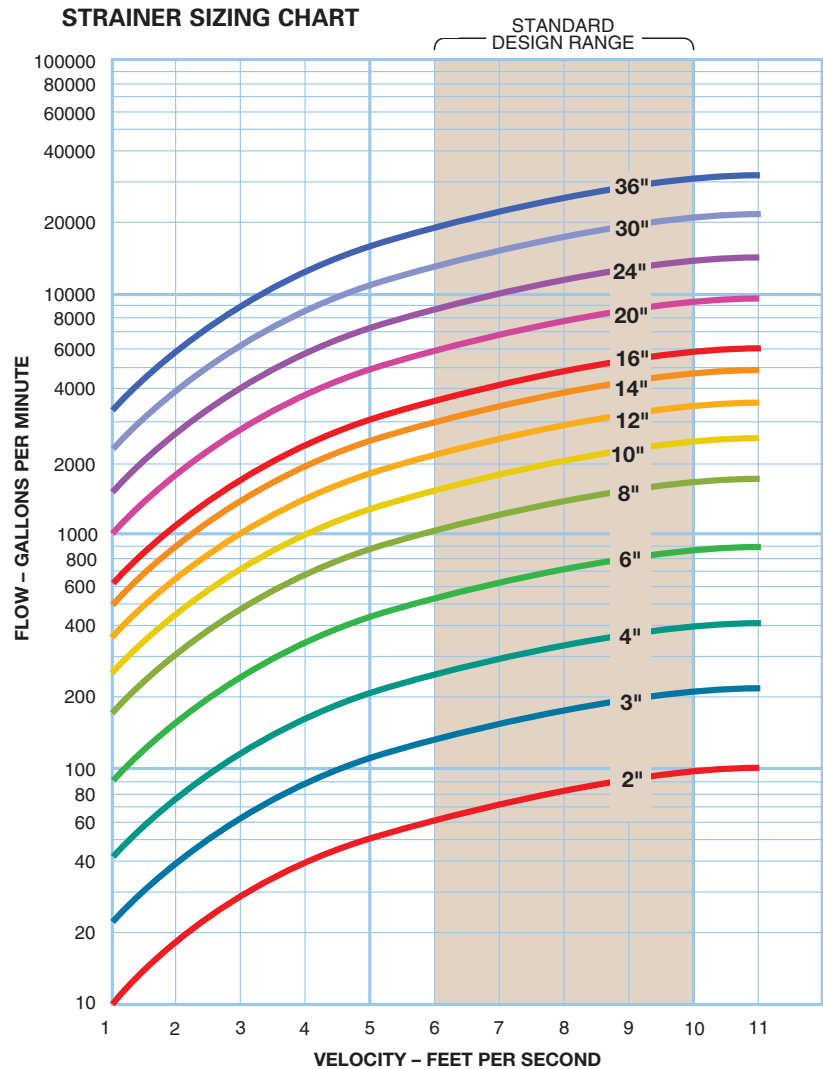
Cutaway of Y strainer shows strainer screen in position



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.





# Model 72



- Sizes  $\frac{3}{8}$ " 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
- Perforated or mesh 316 stainless basket
- Mounting feet for stable installation for flanged units 2" and larger

## OPTIONS

- Basket perforations from  $\frac{1}{32}$ " to  $\frac{1}{2}$ "
- Basket mesh from 20 to 400
- Monel baskets
- Viton, PTFE-encapsulated, or EPDM seals
- Vent valves
- Gauge/vent taps -  $\frac{1}{4}$ " NPT
- Magnetic basket inserts
- Pressure differential gauge and switch

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 plug). Sizes 2" and larger are equipped with legs that bolt to the floor for rock solid installation.

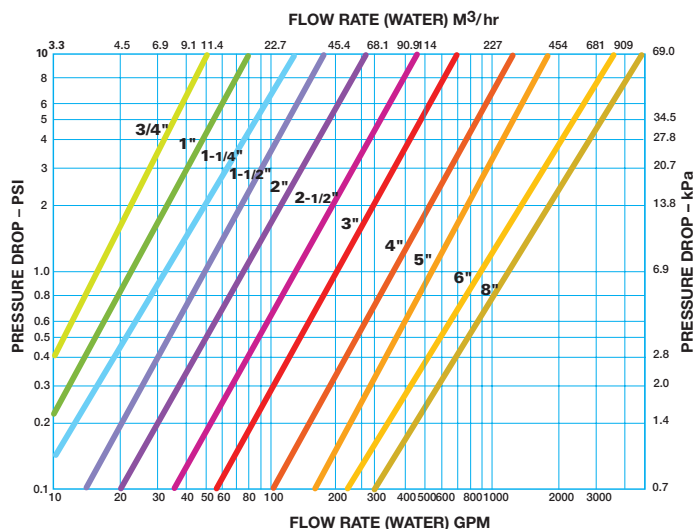
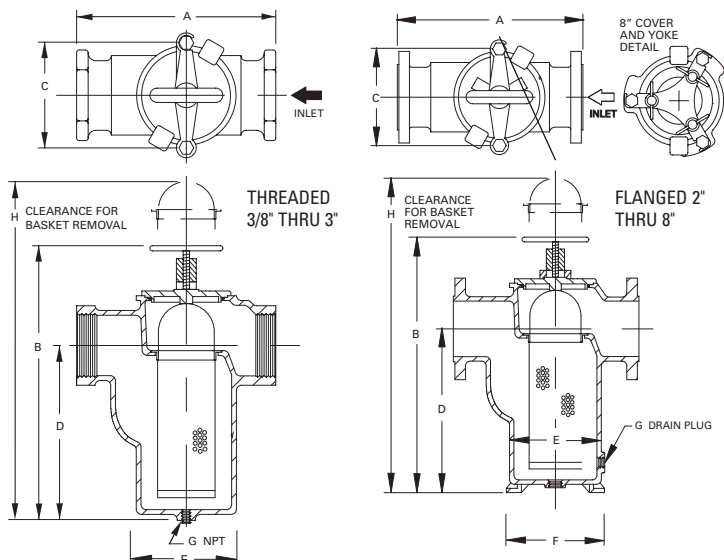
Wall thicknesses are exceptionally heavy. The basket seats are precision machined to give a tight seal and prevent any material from bypassing the basket. The Eaton Model 72 simplex basket strainer is a top quality, heavy-duty unit designed to stand up to the most demanding of applications.

## Model 72 Simplex

Size	Material	End Connection	Seals	Pressure Rating
$\frac{3}{8}$ " to 3"	Iron and Bronze	Threaded	Buna-N	200 psi @ 100°F
1" to 3"	Carbon Steel	Threaded	Buna-N	200 psi @ 100°F
1" to 3"	Stainless Steel	Threaded	Viton®	200 psi @ 100°F
1" to 8"	Iron	Flanged 125#	Buna-N	200 psi @ 100°F
1" to 8"	Bronze	Flanged 150#	Buna-N	200 psi @ 100°F
1" to 8"	Carbon Steel	Flanged 150#	Buna-N	200 psi @ 100°F
1" to 8"	Stainless Steel	Flanged 150#	Viton®	200 psi @ 100°F

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# 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 (lbs / 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. 72C<sub>v</sub> 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)

Size	A	B	C	D	E	F	G	H	Net Wt (lbs / 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 / 1041	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 / 1168	270 / 122.7	235 / 107	200 / 91	235 / 107
8	27.00 / 686	40.50 / 1029	—	27.00 / 686	13.75 / 349	17.50 / 445	1/2	60.00 / 1524	600 / 272.7	550 / 250	500 / 227	550 / 250

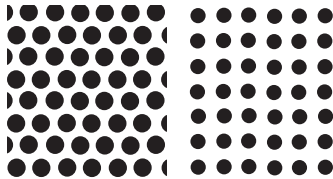
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# TECHNICAL INFORMATION

## Standard Cast Pipeline Strainers

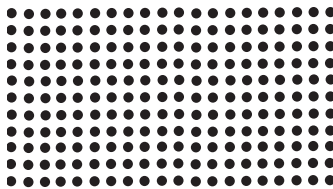
### Basket and Screen Data

#### Pattern Examples

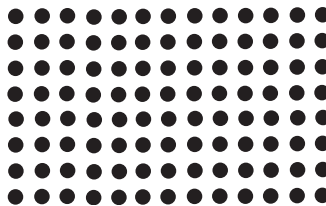


Staggered Holes

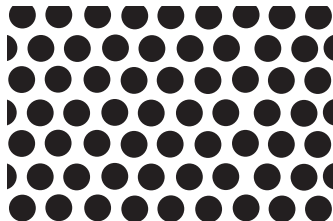
Straight Holes



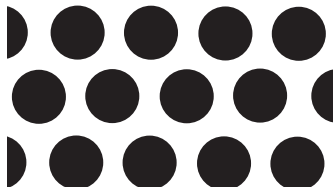
1/32" – Actual Size



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 perfect 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 tolerated.

#### 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. The rule of thumb used by commercial perforated sheet manufacturers is that hole dimensions smaller than the plate thickness are impractical and costly to manufacture. Eaton baskets and screens have between 28% to 63% open area with gauge thickness from 18" (0.048") to 25" (0.021"), 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

All 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.

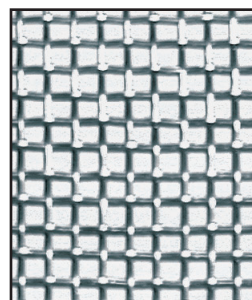
#### Perforated Basket Sheet Specifications

Perforation Size Inches	Sheet Thickness USS Gauge #	Hole Pattern	% Open Area
0.020	26	Straight	16.0
1/32	26	Straight	28.0
3/64	26	Straight	30.2
0.045	26	Staggered	36.0
1/16	26	Straight	31.0
1/8	26	Staggered	47.9
5/32	26	Staggered	63.0
1/4	26	Staggered	42.0
3/8	26	Staggered	52.0
1/2	26	Staggered	47.9

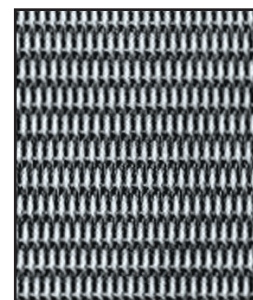
#### Mesh Basket Sheet Specifications

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	0.0015	0.0381	38	36.0

#### Wire Mesh Weaves



Plain Square Weave



Plain Dutch Weave

# 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	3/4	1/32	0.53	19.5	5.2	9.8
50	1	1/32	0.86	19.5	5.2	6.1
50	1-1/4	1/8	1.49	39.7	19.0	12.8
50	1-1/2	1/8	2.03	39.7	19.0	9.4
50	2	1/8	3.35	64.0	30.7	9.2
50	2-1/2	1/8	4.78	64.0	30.7	6.4
50	3	3/16	7.39	85.6	42.8	5.8
50	4	3/16	12.73	146.1	73.0	5.7
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
50	10	3/16	78.8	800	400	5.1
50	12	3.16	113.1	1200	600	5.3
50	14	3/16	137.9	2000	1000	7.3
50	16	3/16	182.6	2000	1000	5.5
50	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
72	10	3/16	78.8	800	400	5.1
72	12	3/16	113.1	1200	600	5.3
72	14	3/16	137.9	2000	1000	7.3
72	16	3/16	182.6	2000	1000	5.5
72	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 10<sup>6</sup> 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)	0	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

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

$\Delta P$  = Pressure Drop in kPa  
 $Q$  = Flow in M<sup>3</sup>/hr  
 $C_v$  = Flow Coefficient

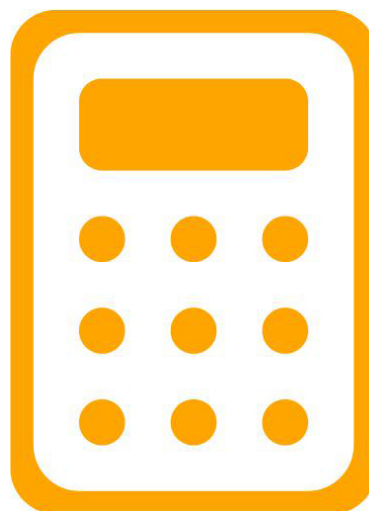
##### Standard Units

$$\Delta P = \left[ \frac{Q}{C_v} \right]^2$$

$\Delta P$  = Pressure Drop in psi  
 $Q$  = Flow in gpm  
 $C_v$  = Flow Coefficient

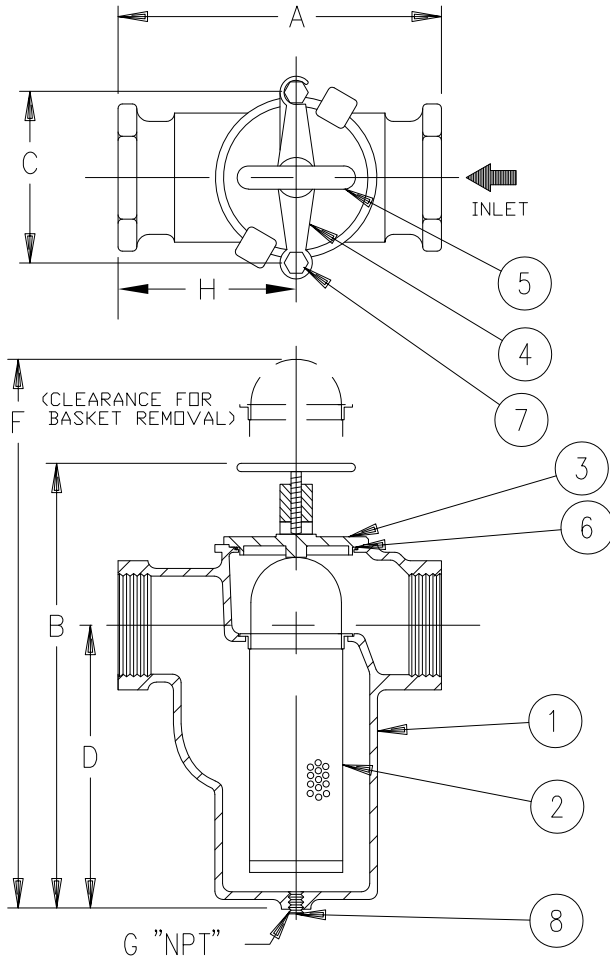
The pressure loss across a strainer can be calculated using the system's flow rate and the  $C_v$  factor for that strainer.

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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 DIFFERENTIAL  
 PRESSURE DROP  
 CALCULATOR**

REVISIONS				
REV	DESCRIPTION	BY	ECO	DATE
G	UPDATED TITLE BLOCK	R. DHONDE	0106104	12/25/2014



NO.	PART NAME	MATERIAL
1	BODY	CAST IRON ASTM A126 CL B
2	SCREEN	
	PERF. DIA. MESH	
3	COVER	CAST IRON ASTM A126 CL B
4	YOKE	DUCTILE IRON
5	YOKE SCREW	STEEL
6	O-RING	BUNA-N
7	STUD	STEEL
8	PIPE PLUG	CAST IRON


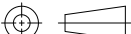
NOTES:

1. INLET/OUTLET "NPT" THREADED CONNECTIONS PER ASME B1.20.1.
2. MAX. WORKING PRESSURE: 200 PSI @ 100° F  
(13.8 BAR @ 37.8° C)
3. 1/2" STRAINER WITH REDUCER BUSHING.

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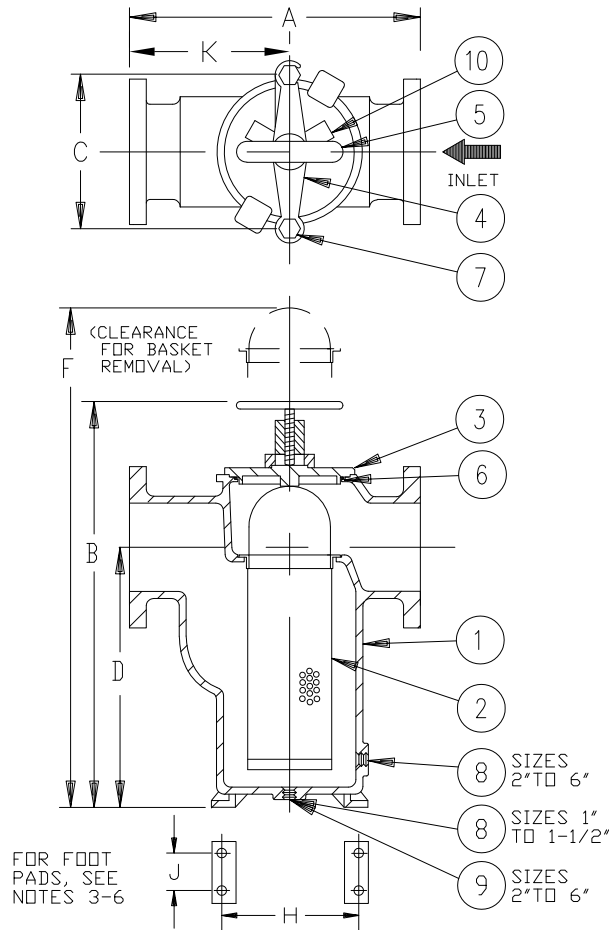
PIPE SIZE (NOMINAL)	DIMENSIONS								WEIGHT	PART NO.
	A IN. MM.	B IN. MM.	C IN. MM.	D IN. MM.	F IN. MM.	G (NOM.) IN. MM.	H IN. MM.	(DRY) LBS. KGS.		
*3/8" (10mm)	4.75 / 121	6.63 / 168	2.88 / 73	4.00 / 102	11 / 279	3/8 (10)	2.50 (64)	4 / 1.8	ST0720037T4C	
1/2" (15mm)	4.00 / 102	6.63 / 168	2.88 / 73	4.00 / 102	11 / 279	3/8 (10)	2.18 (54)	4 / 1.8	ST0720050T4C	
3/4" (20mm)	5.38 / 137	8.38 / 213	4.00 / 102	5.00 / 127	13 / 330	1/2 (15)	3.13 (80)	7 / 3.2	ST0720075T4C	
1" (25mm)	5.38 / 137	8.38 / 213	4.00 / 102	5.00 / 127	13 / 330	1/2 (15)	3.13 (80)	7 / 3.2	ST0720100T4C	
1-1/4" (32mm)	6.75 / 172	9.88 / 251	4.88 / 124	5.88 / 149	14 / 356	1/2 (15)	3.75 (95)	12 / 5.5	ST0720125T4C	
1-1/2" (40mm)	7.38 / 187	11.00 / 279	4.88 / 124	7.00 / 178	16 / 406	3/4 (20)	4.17 (106)	15 / 6.8	ST0720150T4C	
2" (50mm)	8.75 / 222	13.38 / 340	6.75 / 172	7.63 / 194	21 / 533	1-1/4 (32)	5.13 (130)	28 / 12.7	ST0720200T4C	
2-1/2" (65mm)	10.50 / 267	14.88 / 378	8.00 / 203	8.88 / 226	26 / 660	1-1/2 (40)	6.19 (157)	42 / 19.1	ST0720250T4C	
3" (80mm)	11.63 / 295	17.75 / 451	8.00 / 203	11.50 / 292	28 / 711	1-1/2 (40)	6.75 (171)	52 / 23.6	ST0720300T4C	

\* - SEE NOTE 3

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SCALE AS DRAWN		RESTRICTION RESTRICTED		TITLE  MODEL 72 SIMPLEX STRAINER NPT THREADED CONNECTIONS SIZES 3/8" THRU 3" CAST IRON							
CUSTOMER INFO											
NAME		SHEET 1 OF 1		DATE 08/21/91		SIZE A		DWG FILENAME SD072014		REV G	
P.O. NO.											
TAG NO.		PROJECTION THIRD ANGLE									
S.O. NO.		<div>EATON CORPORATION - CONFIDENTIAL AND PROPRIETARY NOTICE TO PERSONS RECEIVING THIS DRAWING AND/OR TECHNICAL INFORMATION. THIS DOCUMENT, INCLUDING THE DRAWING AND INFORMATION CONTAINED THEREON IS CONFIDENTIAL AND IS THE EXCLUSIVE PROPERTY OF EATON AT ANY TIME. BY TAKING THE POSSESSION OF THIS DOCUMENT THE RECIPIENT ACKNOWLEDGES AND AGREES THAT THIS DOCUMENT CANNOT BE USED IN ANY MANNER ADVERSE TO THE INTEREST OF EATON AND THAT NO PORTION OF THIS DRAWING MAY BE COPIED OR OTHERWISE REPRODUCED WITHOUT THE PRIOR WRITTEN CONSENT OF EATON, IN THE CASE OF CONFLICTING CONTRACTUAL PROVISIONS, THIS NOTICE SHALL GOVERN THE STATUS OF THIS DOCUMENT. 2015 EATON CORPORATION - ALL RIGHTS RESERVED.</div>									
PART NO.	SEE TABLE										



R E V I S I O N S				
REV	DESCRIPTION	BY	ECO	DATE
J	UPDATED TITLE BLOCK	R. DHONDE	0106104	12/25/2014



NO.	PART NAME	MATERIAL
1	BODY	CAST IRON ASTM A126 CL.B
2	SCREEN	
	PERF. DIA.	
	MESH	
3	COVER	CAST IRON ASTM A126 CL.B
4	YOKE	DUCTILE IRON
5	YOKE SCREW	STEEL
6	O-RING	BUNA-N
7	STUD	STEEL
8	DRAIN PLUG	CARBON STEEL
9	BODY PLUG	CAST IRON
10	COVER CLAMP	DUCTILE IRON



NOTES:

1. INLET/OUTLET 125 LB. FLANGED CONNECTIONS PER ASME B16.1.
2. COVER CLAMP (ITEM 10) FOR 4", 5", 6" SIZES.
3. NO FOOT PADS FOR SIZES 1", 1-1/4", 1-1/2".
4. 7/16"Ø SLOTTED FOOT PADS FOR SIZE 2".
5. 1/2"Ø SLOTTED FOOT PADS FOR SIZES 2-1/2", 3".
6. 9/16"Ø HOLED FOOT PADS FOR SIZES 4", 5", 6".
7. DIMENSIONS B,D,F ARE FROM BOTTOM OF STRAINER.
8. DIMENSION "G" (NPT) IS FOR DRAIN PLUG, ITEM 8.
9. ITEM 9, BODY PLUG IS NOT TO BE USED AS DRAIN.
10. MAX. WORKING PRESSURE : 200 PSI @ 100° F  
(13.8 BAR @ 37.8° C)
11. 1 1/4" NPT STRAINER WITH CLOSE NIPPLES AND THREADED FLANGES

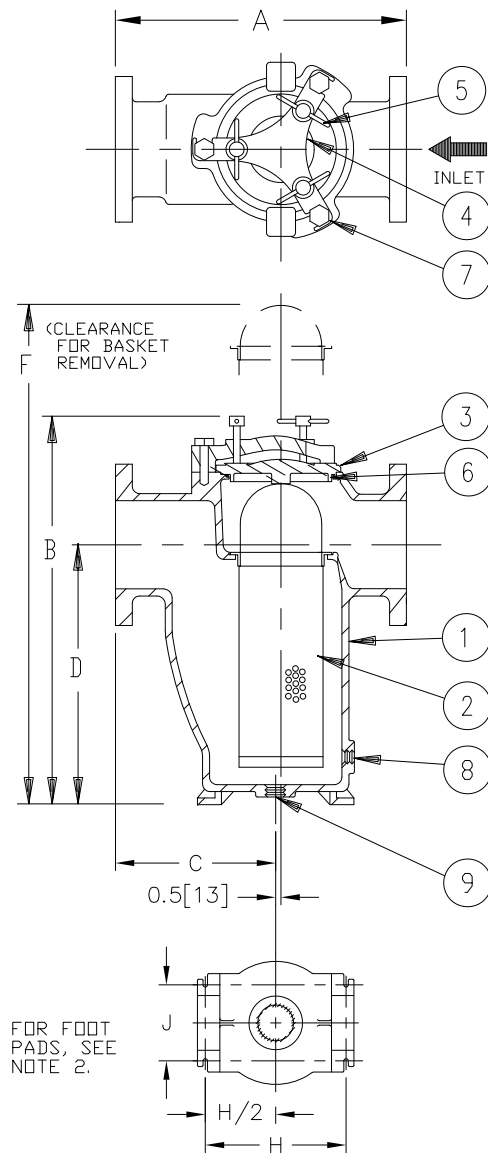
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PIPE SIZE  (NOMINAL)	DIMENSIONS										WEIGHT  (DRY)		PART NO.
	A IN. MM.	B IN. MM.	C IN. MM.	D IN. MM.	F IN. MM.	G (NOM.) IN. MM.	H IN. MM.	J IN. MM.	K IN. MM.	LBS KGS			
1" (25mm)	7.63/ 194	8.38/ 213	4.00/ 102	5.00/ 127	13/ 330	1/2 (15)	----	----	4.31/ 109	9/ 4	ST072010AF 40A		
⅜-1¼" (32mm)	10.25/ 260	9.88/ 251	4.88/ 124	5.88/ 149	14/ 356	1/2 (15)	----	----	5.63/ 143	13/ 6	ST072012AF 40A		
1-1/2" (40mm)	10.25/ 260	11.00/ 279	4.88/ 124	7.00/ 178	16/ 406	3/4 (20)	----	----	5.63/ 143	17/ 8	ST072015AF 40A		
2" (50mm)	10.50/ 268	13.75/ 349	6.75/ 172	7.63/ 194	20/ 508	1/2 (15)	5.50/140	2.50/ 64	6.13/ 156	37/ 17	ST0720200F 4C		
2-1/2" (65mm)	11.63/ 295	15.63/ 397	7.94/ 202	8.88/ 226	23/ 584	3/8 (10)	6.50/165	2.88/ 73	6.63/ 168	54/ 24	ST0720250F 4C		
3" (80mm)	13.13/ 334	18.00/ 457	8.00/ 203	10.88/ 276	27/ 686	3/8 (10)	7.00/178	3.13/ 80	7.13/ 181	76/ 34	ST0720300F 4C		
4" (100mm)	16.75/ 425	19.88/ 505	10.69/ 272	10.69/ 272	29/ 737	1/2 (15)	10.00/254	3.88/ 99	9.38/ 238	125/ 57	ST0720400F 4C		
5" (125mm)	18.13/ 460	25.13/ 638	10.69/ 272	15.19/ 386	38/ 965	1/2 (15)	10.00/254	4.63/118	10.13/ 257	170/ 77	ST0720500F 4C		
6" (150mm)	19.63/ 499	28.50/ 724	10.69/ 272	18.31/ 465	46/1168	1/2 (15)	10.00/254	5.00/127	10.81/ 275	200/ 91	ST0720600F 4C		

\* - SEE NOTE 11

SEE NOTE 11		DRAWN BY VAA		<div><div></div><div>HYDRAULICS GROUP FILTRATION DIVISION GALESBURG, MICHIGAN, USA • TINTON FALLS, NEW JERSEY, USA</div></div>							
		SCALE AS DRAWN									
CUSTOMER INFO		RESTRICTION RESTRICTED		TITLE  MODEL 72 SIMPLEX STRAINER 125# FLAT FACE FLANGE, SIZES 1" THRU 6" CAST IRON							
NAME		SHEET 1 OF 1									
P.O. NO.		PROJECTION THIRD ANGLE						DATE 11/26/91	SIZE A	DWG FILENAME SD072024	REV J
TAG NO.											
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PART NO.	SEE TABLE										

REVISIONS				
REV	DESCRIPTION	BY	ECO	DATE
B	UPDATED TITLE BLOCK	R. DHONDE	0106104	12/25/2014



NO.	PART NAME	MATERIAL
1	BODY	CAST IRON ASTM A126 CL.B
2	SCREEN	
	PERF. DIA.	
	MESH	
3	COVER	CAST IRON ASTM A126 CL.B
4	YOKE	DUCTILE IRON
5	YOKE SCREW	STEEL
6	O-RING	BUNA-N
7	STUD	STEEL
8	DRAIN PLUG	CARBON STEEL
9	BODY PLUG	CAST IRON

#### NOTES:

1. INLET/OUTLET 125 LB. FLAT FACED FLANGED CONNECTIONS PER ASME B16.1.
2. 5/8" DIAMETER SLOTTED FOOT PADS FOR 8" SIZE.
3. DIMENSION "G" (NPT) IS FOR DRAIN PLUG, ITEM 8.
4. ITEM 9, BODY PLUG IS NOT TO BE USED AS DRAIN.
5. MAX. WORKING PRESSURE: 200 PSI @ 100° F  
(13.8 BAR @ 37.8° C)

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PIPE SIZE (NOMINAL)	DIMENSIONS									WEIGHT (DRY) LBS. KGS.	PART NO.
	A IN. MM.	B IN. MM.	C IN. MM.	D IN. MM.	F IN. MM.	G (NOM.) IN. MM.	H IN. MM.	J IN. MM.			
8" (200mm)	27.00 / 686	40.00 / 1016	15.50 / 394	27.00 / 686	60 / 1524	1-1/2 (40)	15.75 / 400	8.63 / 219		500 / 227	ST0720800F4C

DRAWN BY J. JOHNSON		SCALE AS DRAWN		RESTRICTION RESTRICTED		SHEET 1 OF 1		PROJECTION THIRD ANGLE		DATE 10/11/13		SIZE A		DWG FILENAME SD072038		REV B	
CUSTOMER INFO		NAME		P.O. NO.		TAG NO.		S.O. NO.		PART NO.		SEE TABLE		EATON CORPORATION - CONFIDENTIAL AND PROPRIETARY NOTICE TO PERSONS RECEIVING THIS DRAWING AND/OR TECHNICAL INFORMATION. THIS DOCUMENT, INCLUDING THE DRAWING AND INFORMATION CONTAINED THEREON IS CONFIDENTIAL AND IS THE EXCLUSIVE PROPERTY OF EATON AT ANY TIME. BY TAKING THE POSSESSION OF THIS DOCUMENT THE RECIPIENT ACKNOWLEDGES AND AGREES THAT THIS DOCUMENT CANNOT BE USED IN ANY MANNER ADVERSE TO THE INTEREST OF EATON AND THAT NO PORTION OF THIS DRAWING MAY BE COPIED OR OTHERWISE REPRODUCED WITHOUT THE PRIOR WRITTEN CONSENT OF EATON, IN THE CASE OF CONFLICTING CONTRACTUAL PROVISIONS, THIS NOTICE SHALL GOVERN THE STATUS OF THIS DOCUMENT. 2015 EATON CORPORATION - ALL RIGHTS RESERVED.			



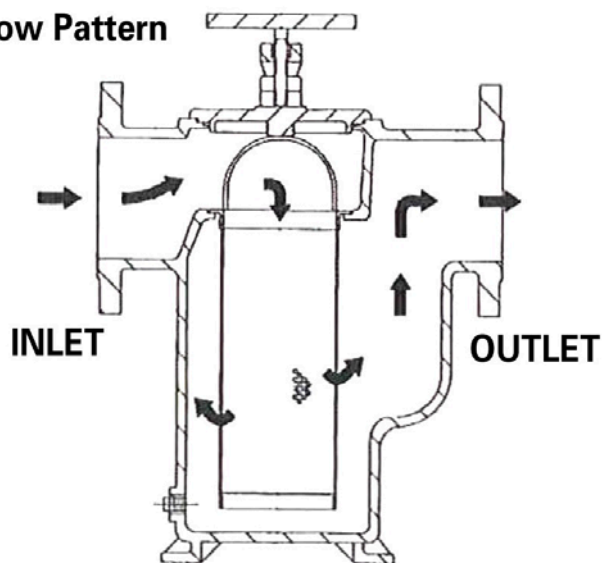
HYDRAULICS GROUP  
FILTRATION DIVISION  
GALESBURG, MICHIGAN, USA • TINTON FALLS, NEW JERSEY, USA

TITLE  
MODEL 72 SIMPLEX STRAINER, 125# FLAT  
FACE FLANGE, SIZE 8" CAST IRON

Read all the following information and instructions prior to installing and operating the equipment.  
Failure to comply with these instructions could result in bodily injury or property damage.



**Flow Pattern**



### TABLE OF CONTENTS

	Page No.
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### INTRODUCTION

A simplex strainer is a device installed in a pipeline to remove dirt and other unwanted debris from fluids. Straining is accomplished by directing the fluid through sized openings in a basket. Simplex strainers are installed where fluid flow can be interrupted while the basket is removed for cleaning. Simplex strainers are designed to withstand the rated pressure of the piping system.

For additional information regarding Simplex Basket Strainers visit our website at [www.eaton.com/filtration](http://www.eaton.com/filtration)

### RECEIVING, HANDLING, AND INSPECTION

Inspect strainer after unpacking for damage incurred during transit. Report any damage to the carrier immediately. If the strainer is not to be installed immediately, store indoors in a clean, dry environment.

Remove preservative with a solvent dampened cloth. Exercise care when using solvent.

#### Model 72 Simplex

Size	Material	End Connection	Seals	Pressure Rating
3/8" to 3"	Iron and Bronze	Threaded	Buna-N	200 psi @ 100°F
1" to 3"	Carbon Steel	Threaded	Buna-N	200 psi @ 100°F
1" to 3"	Stainless Steel	Threaded	Viton®	200 psi @ 100°F
1" to 8"	Iron	Flanged 125#	Buna-N	200 psi @ 100°F
1" to 8"	Bronze	Flanged 150#	Buna-N	200 psi @ 100°F
1" to 8"	Carbon Steel	Flanged 150#	Buna-N	200 psi @ 100°F
1" to 8"	Stainless Steel	Flanged 150#	Viton®	200 psi @ 100°F

Check to be sure the rated pressure and temperature on the strainer nameplate is not less than the maximum pressure and temperature of the installation. The rated pressure shown on the nameplate is the maximum pressure, including shock, at which the strainer may be operated.

Remove cover by turning T-bolt counterclockwise to release yoke, swing yoke clear of cover and remove cover. Check for and remove any foreign or loose materials that could be carried downstream when fluid is introduced into the strainer.

Replace strainer cover and yoke and tighten T-bolt. The basket is held in place by pressure of the cover on the basket handle. If the basket is loose, spring the handle to a higher position to insure greater compression when the cover is seated.

### INSTALLATION

Position the strainer in the line so that the fluid enters the connection marked "inlet."



**CAUTION:** Lift strainers with slings under the inlet and outlet connections. **DO NOT** lift the strainer by the yoke screw located on the strainer cover.

Be sure sufficient headroom is provided for easy removal of cover and basket.

Support the strainer in the line as follows:

#### 4" size or under:

Use pipe supports under the process piping near inlet and outlet connections. Use care to prevent bending and expansion forces from acting on the nozzles.

#### 5" size or larger:

Support on concrete or steel pads.

Connect the strainer to the line. Use same type flange faces. For example: **Do not** bolt raised face flanges to iron flat face flanges. Iron flanges must be flat face with full face gaskets.

Cast strainers are subject to face-to-face variations due to shrinkage and machining tolerances.

Prefabricated piping systems must allow adjustment at the strainer connection.

If strainer has threaded connections follow proper threaded specifications. If strainer has weld connection follow proper ANSI weld specifications.

Be sure flange gaskets are in place and fasteners are tight.

### INSTALLATION (CONTINUED)

It is recommended that the bottom drain plug be removed and a drain valve be installed at the bottom of the basket chamber for strainers sized 1" and 1-1/2" flanged connections and for strainers sized 3/8" – 3" threaded connections. It is recommended that the side drain plug be removed and a drain valve be installed at the side of the basket chamber for strainers sized 2" – 8" flanged connections as shown in Fig. 1.



**CAUTION:** The bottom plug for flanged strainers, sized 2" through 8" is NOT to be removed and the opening NOT to be used for draining. Removal of this bottom plug voids the strainer warranty.



**CAUTION:** A vent is required when fluids other than water and with temperatures in excess of 120° F are to be handled by the strainer. The vent must be piped to a safe discharge point to protect the operator. (See Fig.2). Wear protective clothing, which includes gloves, vests, and goggles when handling dangerous fluids.

Pressure gauges near the strainer inlet and outlet are recommended. Cleaning frequency is determined by the pressure drop across the strainer.

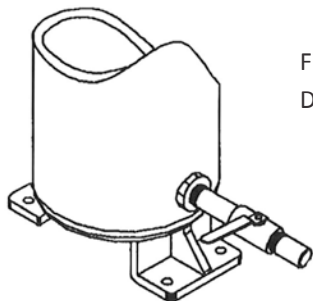


Figure 1  
Drain Valve

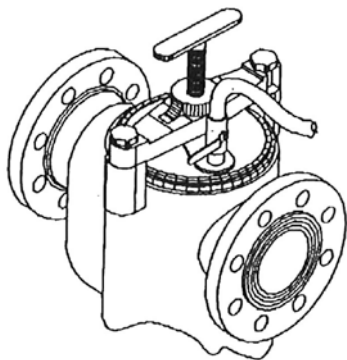


Figure 2  
Vent Piping

### OPERATION

Open vent, if strainer is so equipped (See Fig. 2), to expel air from the strainer.

Slowly introduce fluid to be strained by opening the outlet valve first, followed by opening the inlet valve.



**CAUTION:** Start system GRADUALLY. This eliminates sudden shock to the strainer and other equipment in the line.

Close the vent when air is expelled and fluid begins to flow.

### SHUT-DOWN

Tightly close valves on the inlet and outlet connections or the strainer. Open vent (See Fig. 2) and/or drain valve (See Fig.1) to relieve liquid pressure in the strainer.



**CAUTION:** DO NOT loosen cover while there is liquid or air flow from the vent.

### BASKET REMOVAL

Follow shut-down procedure.

When pressure is relieved, loosen T-bolt. Drain fluid through bottom drain to a level below the basket seat.

Swing yoke clear of cover and remove cover and dirty basket.



### BASKET REPLACEMENT

Place new or clean basket squarely on the basket seat. Be sure basket handle is sufficiently high to be compressed by strainer cover.

Inspect O-ring and seal surface: Clean seat or replace cover O-ring as necessary. Always keep spare O-rings in stock.

Replace cover, swing the yoke over the cover and make full contact with the yoke stud. Tighten the center T-bolt. If strainer is on suction service, fill basket chamber from outside source before installing cover.

Follow start-up procedure.

### BASKET CLEANING

#### When to Clean

Clean basket when there is a 5 psi increase in pressure loss across the strainer.



**CAUTION:** To prevent damage to basket, DO NOT permit strainer pressure differential between inlet and outlet connections to exceed 20 psi.

#### How to Clean

Invert basket and wash out debris by directing a stream of air or water against the basket exterior. Use solvent if strained fluid is fuel or a chemical. Follow manufacturer's instruction when using a solvent to clean the basket.



**NOTE:** Do not allow basket contents to dry as this will make cleaning most difficult.

Inspect basket at each cleaning for holes or tears and replace as required.

### SHUT-DOWN PERIODS

During shut-down periods drain the fluid and clean the basket.

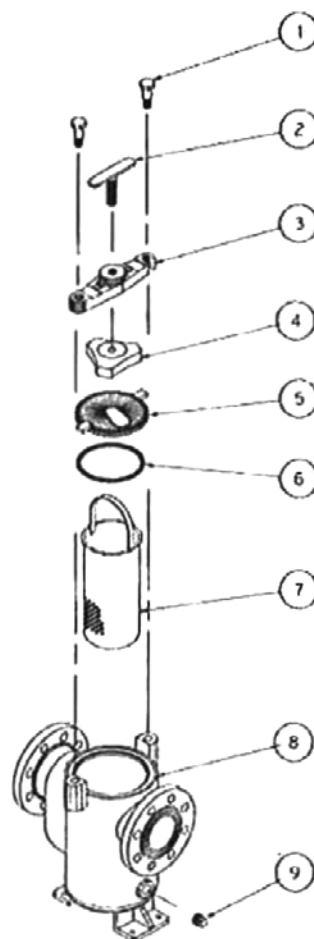
### RECOMMENDED SPARE PARTS

- 1 Eaton Replacement Basket
- 1 Eaton Replacement O-Ring

When ordering spare parts, specify all nameplate data as well as the description and quantity of parts.

Always use genuine Eaton replacement parts for guaranteed fit and performance.

Visit our web site, [www.filtration.eaton.com](http://www.filtration.eaton.com) for information about the hundreds of different types of Eaton Simplex Basket Strainers.



Item	Description
1	YOKE STUD
2	T-BOLT ASSEMBLY
3	YOKE
4	COVER CLAMP (sizes 4" to 6" only)
5	COVER
6	O-RING
7	BASKET
8	BODY
9	PIPE PLUG

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