Model 53BTX Ball Type Duplex Basket Strainer

Sizes 3/4" to 4" • Iron, Bronze, Carbon Steel or Stainless Steel • Threaded or Flanged

Unique diverter cartridge assures bubble-tight isolation of basket chamber during cleaning. No more rushing to finish the job before the out-of-service chamber overflows. And with no overflow, there's no cleanup.

FEATURES

- Dynamic ball sealing system for long life
- Easy-to-operate lever handle—no gear box required
- Unique seat and seal design requires no adjustments
- Reinforced polymer seats for longer service life
- Foot pads for rock solid installation
- Double-stem O-rings for positive sealing
- Easy-to-access body vent valve
- Side drain plugs on each basket well
- Piston seal strainer basket cover
- Easy access for diverter cartridge removal
- Optional steam jacket construction

A duplex basket strainer can operate continuously and never has to be shut down for cleaning. When one basket is full, the flow is shifted to the other one. The first basket is then removed, cleaned and replaced.

Duplex or double basket strainers, are valuable in locations where it is impossible to shut off flow to stop the operation. Examples of these processes include cleaning fuel oil in large industrial oil burners, all types of marine applications, screening water in cooling towers and straining fluids in continuously running chemical operations.

A Better Duplex Strainer Design

A unique flow diverter valve cartridge isolates the two strainer basket chambers. An easy-to-turn handle diverts the flow from one chamber to the other—the flow in the pipeline is never shut off.

No special tools are needed. The chamber is drained and then the cover is lifted and swung clear of the chamber opening. Dynamic diverter cartridge seals prevent fluid bypass into the out-of-service chamber.

A Better Flow Diverter Cartridge

The unique flow diverter cartridge features highly dynamic sealing system that ensures exceptionally long seat life and positive sealing. There is no need for manual internal or external ball support adjustments—and the low operating torque means the strainer can be operated with an easy-turn handle. A gear box is not needed.

A double sealing system on both the upper and lower stems guards against any possible leakage. Special reinforced polymer seats are used for extended service life. Should cartridge service become necessary, just remove four bolts and the cartridge comes right out through the top of the strainer. There's no need to take the strainer completely apart or to remove it from the line.

Better for All Applications

The compact, low profile Model 53BTX fits into spaces ordinary strainers might not, yet it still uses full-size strainer baskets with a low pressure drop performance.

And, there's a strainer basket for every application. The standard basket is made of Type 316 stainless steel. Monel or Hastelloy C materials are available. Baskets with openings from 3/4" down to 45 microns are offered.

For easy basket servicing there are two drain plugs, one on each side. Additionally, there is an easy-to-access vent valve on top of each basket well cover.

Finally, standard foot mounting pads insure a rock solid installation no matter where the strainer is installed.

Available options for the Model 53BTX include differential pressure gauges, with or without switches, and magnetic separators installed in the strainer basket for removing fine ferrous particulate matter from the process media.

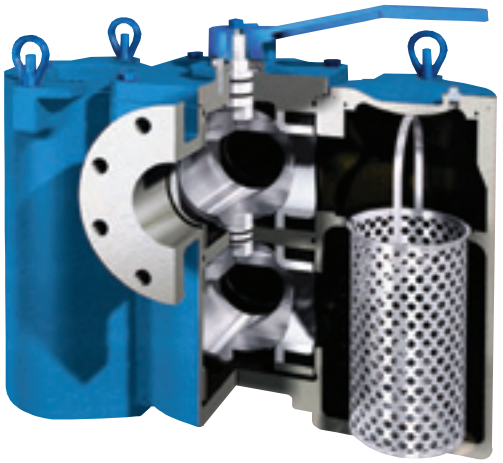
1" stainless steel
Model 53BTX with flanged connection

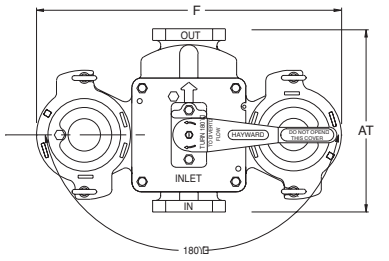
Selection Table

Size	Body & Cartridge Material	End Connection	Seat/Seal	Diverter Balls	Pressure Rating PSIG @ 150°F
3/4", 1", 1-1/4", 1-1/2", 2", 2-1/2"	Iron	Threaded	TFE/ Buna N*	Stainless Steel	200
1", 1-1/2", 2", 2-1/2", 3", 4"	Iron	Flanged 125#	TFE/ Buna N*	Stainless Steel	200
3/4", 1", 1-1/4", 1-1/2", 2", 2-1/2"	Bronze	Threaded	TFE/ Buna N*	Stainless Steel	200
3/4", 1", 1-1/4", 1-1/2", 2"	Carbon Steel	Threaded	TFE/ Buna N*	Stainless Steel	200
3/4", 1", 1-1/4", 1-1/2", 2"	Stainless Steel	Threaded	TFE/ Buna N*	Stainless Steel	200
1", 1-1/2", 2", 2-1/2", 3", 4"	Bronze	Flanged 150#	TFE/ Buna N*	Stainless Steel	200
1", 1-1/2", 2", 2-1/2", 3", 4"	Carbon Steel	Flanged 150#	TFE/ Buna N*	Stainless Steel	200
1", 1-1/2", 2", 2-1/2", 3", 4"	Stainless Steel	Flanged 150#	TFE/ Buna N*	Stainless Steel	200

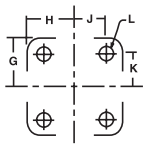
*Viton® standard for SSTL, optional for iron, bronze and carbon steel.

Should the diverter valve require service, it slides right out the top of the strainer body. A minimum of parts, easily replaced, makes service a snap. Exploded view shows simplicity of design.

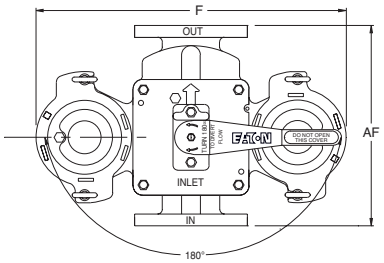




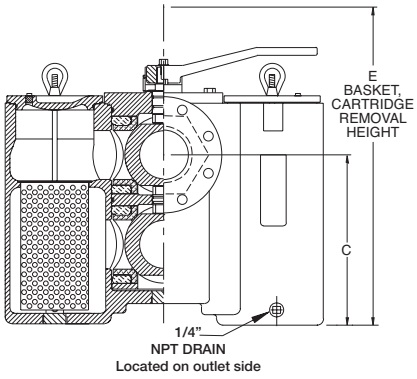
Top View Threaded Model



Foot Pad Layout



Top View Flanged Model



Front View Flanged and Threaded Models

Dimensions and weights are for reference only. Contact us for certified drawings.
Pressure equalizing valve and piping standard on 4" Model 53 Duplex Strainers.

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	—

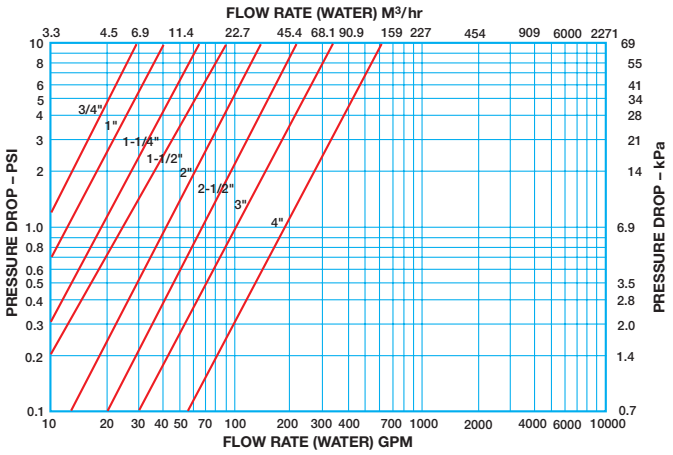
Model 53BTX & 50 Pressure Drop Curves

Pressure Drop vs Flow Rate

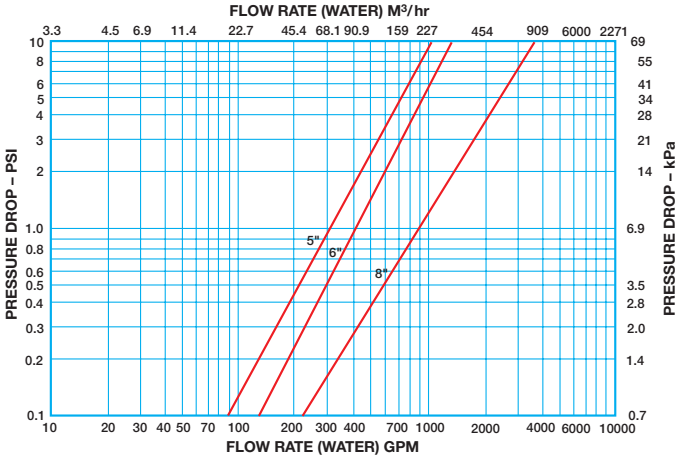
These curves are for clean baskets, without mesh liners—and with water flowing through the strainer.

For mesh-lined baskets and/or for other fluids, you must first compute a correction factor. See Page 29 for full details.

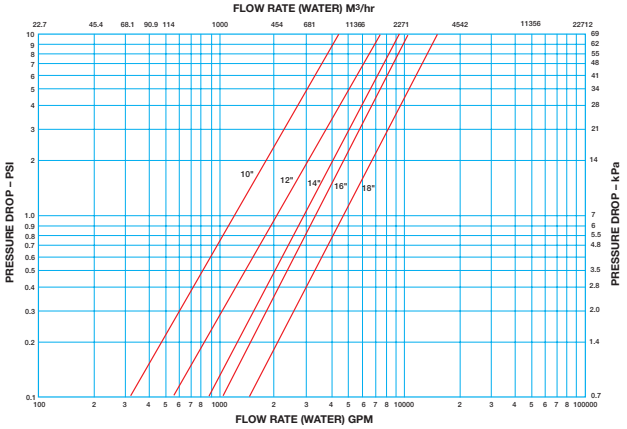
Model 53BTX Duplex – 3/4" Through 4"



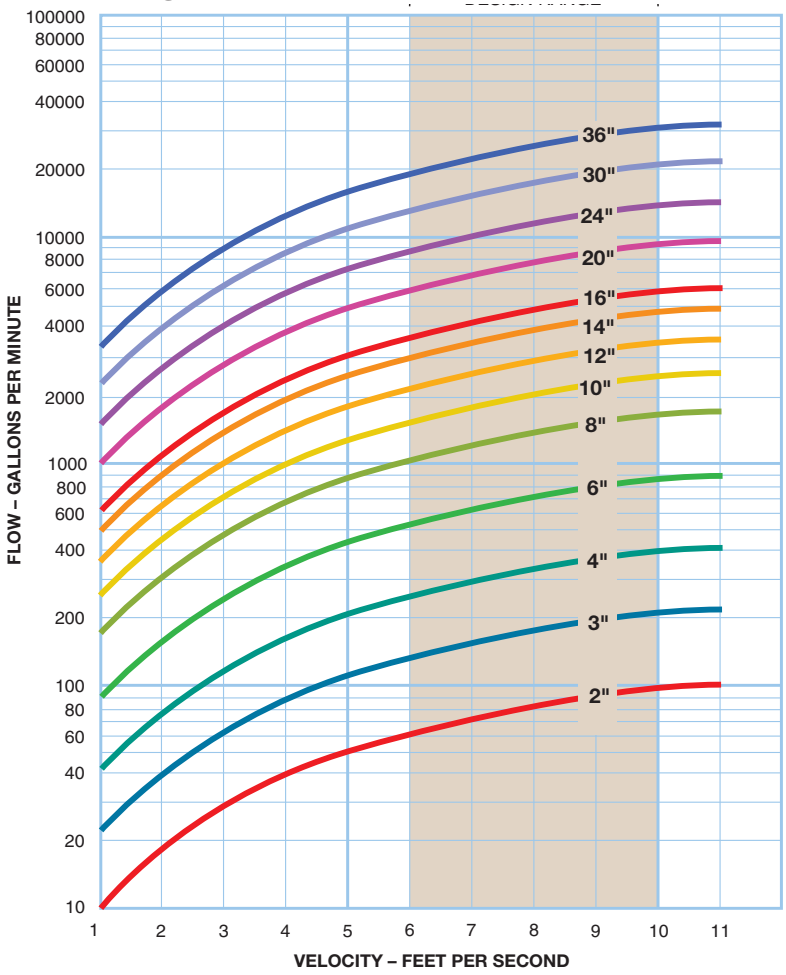
Model 50 Duplex – 5" Through 8"



Model 50 Multi-Basket Duplex – 10" Through 18"



Strainer Sizing Chart



Strainer Basket Opening Equivalents

Mesh	Inches	Millimeters	Microns
400	0.0015	0.0381	38
300	0.0018	0.0457	45
250	0.0024	0.0609	60
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

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	12700

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 6 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.

Bronze - ASTM B-62
Tensile Strength: . . . . . 30,000 lb/sq in
Yield: . . . . . 14,000 lbs/sq in
Elongation: 20%
Chemical Composition:
Cu (Copper) 85.0%
Sn (Tin) 5.0%
Pb (Lead) 5.0%
Zn (Zinc) 5.0%
Ni (Nickel) . . . . . 1.0% max.
Fe (Iron) . . . . . 0.3% max.
P (Phosphorus) . . . . . 0.05% max.