

OPERATION MANUAL SS SERIES FRP STRAINER



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SIMPLEX STRAINERS

MATERIALS OF CONSTRUCTION

1. BODIES

FPT utilizes quality contact molded or hand laid components for strainer bodies to provide structural strength. Chemical resistance is maintained by resin rich liners on all internal frp surfaces,. Standard Strainers are rated for 150 PSI at 73 deg F. Higher or lower operating ratings are allowable based upon the material selection. Potential Lower pressure ratings are possible as special lid features (easy open) are sometimes requested.

2. BASKETS

Baskets are manufactured in heavy gauge PVDF or a variety of metals. Standard perforations are:

- a) 1/8" holes on 3/16" staggered centers
- b) 1/4" holes on 3/8" staggered centers
- c) Woven screening from 10 Mesh to 200 Mesh

DESIGN

1. ENDS

ALL INLETS AND OUTLETS ARE FRP- normally contact molded with premium expoy vinyl ester resin. ANSI b16.5- 150 # Drill to PS15-69 Standards.

2. TOPS

FPT STRAINERS ARE SUPPLIED WITH QUICK-LOCK or BLIND FLANGE TOPS with EPDM GASKETS.

3. PORT CONFIGURATIONS

AS STANDARD FPT OFFERS AN "IN-LINE" DESIGN. FOR SPECIAL APPLICATIONS "OFF-SET", " ANGLED OFF-SET" AND "BOOT" MAY HAVE BEEN FABRICATED FOR YOUR SYSTEM. ALL UNITS ARE EQUIPPED WITH A SIDE BOTTOM DRAIN AS STANDARD.

PRESSURE DROP

FPT STRAINERS ARE ENGINEERED TO OFFER THE LOWEST PRACTICAL DP. UTILIZING FULL FLOW PORTS, THE BASKET OPEN AREA AREA AVERAGES 4 TIMES THE CROSS SECTIONAL AREA OF THE PIPE. THIS, ON AVERAGE, PROVIDES ADEQUATE PERFORMANCE FOR STRAINERS INSTALLED IN LINES THAT OPERATE UP TO 6 FPS FLOW VELOCITY. PRESSURE DROP THROUGH STRAINERS IS DETERMINED BY THE LINE SIZE FLOW RATE, SPECIFIC GRAVITY, AND % OF OPEN AREA IN THE BASKET. individual DP VS FOULING CHARTS ARE AVAILABLE. CONSULT FACTORY.

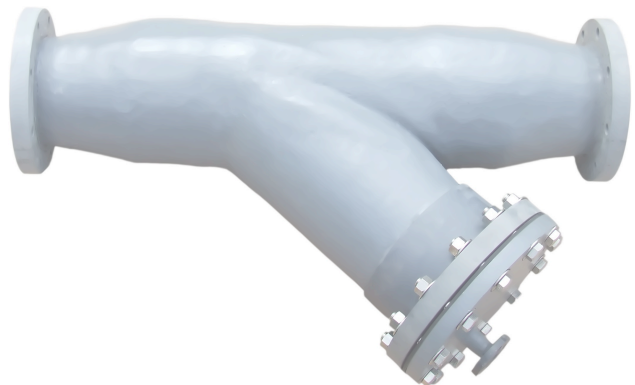
ACCESSORIES

- 1.) PRESSURE TAPS ARE AVAILABLE WITH ANY OF THE FOLLOWING:
 - A.) GAUGES FOR VISUAL READING
 - B.)PRESSURE SWITCH WITH AUDIBLE AND VISUAL ALARM
 - C.)PRESSURE SWITCH WITH CONTACT CLOSURE (TO OPERATE VALVES,PUMPS, ETC.)
2. AUTOMATIC SELF CLEANING STRAINERS (SEE DATA SHEETS ON CLA SERIES)

OPERATION

The function of a basket (or WYE) strainer is to filter particulate from a process line. The degree of filtering is dependent on the maximum size opening of the basket filter membrane. Fluidtrol (FPT) baskets come with standard perforations of 1/8" holes on 3/16" staggered centers and 1/4" holes on 3/8" staggered centers. Contact the factory or your local representative for perforation sizes on your particular units. Finer filtration may be utilized with the addition of a bag or mesh liner to the basket. Bags are rated according to their mesh and micron size. The mesh size number states the number of openings per square inch. The actual size of the opening is dependent upon the weave of the bag and the size of the bag material. The micron rating gives the maximum size of particle (in microns) which can pass through the bag.

A pressure drop is induced across the strainer. As the strainer fouls, the pressure drop increases. Clean strainers cause the least amount of pressure drop. FPT strainers are designed to minimize the loss of pressure by maintaining an open basket area of at least 4 times the cross sectional area of the process pipe. Graphs 1 - 6 provide pressure drop vs fouling for 3" through 12" strainers over several flow rates. For graphs of flows not shown here contact the factory.



INSTALLATION

Prior to connecting to your piping system, check the following:

1. Directional flow of the basket strainer
2. Compatibility of connecting piping to the inlet and outlet connections provided on the strainer.
3. Piping supports. Be sure that the strainer is **NOT SUPPORTING ANY PIPING OR TANKS** as this can cause excessive stress in the strainer body.

We recommend avoiding suspended strainer applications. Please support strainer bodies at the bottom of the vertical housing.

Several inlet and outlet end connectors are available with the Fluidtrol strainers. The proper installation technique for each is outlined below.*

FLANGED CONNECTIONS

FRP Flanges require close attention during installation due to the tendency for breaking during over-torque conditions. These tension cracks along the bolt holes impact the strength and sealing of the connection and must be avoided for long-term and dependable service of the strainer. Proper gaskets must be used and we recommend you consider only flat-faced flanges for strainer connections. If raised-faced flanges are necessary- please use low torque gaskets. Below are some hints for installation:

A. 1/8" thick soft full face gaskets are preferred for use with plastic flanges.

B. Make sure that all the bolt holes of the mating flanges match up with the strainer flange bolt holes. The flanges on the strainers are lined up such that the bolt holes straddle the vertical centerline.

C. Insert all bolts

D. Make sure that the faces of the mating flanges are not separated by more than 1/16". If there is a larger gap, it may be necessary to insert a spacer ring or more gasket between the two flanges.

E. The bolts on the FRP flanges should be tightened by pulling down the nuts diametrically opposite each other using a torque wrench. Complete tightening should be accomplished in stages and the final torque values in the TABLE 1 should be followed for the various sizes of flanges. Uniform stress across the flange will eliminate leaky gaskets.

F. Required bolt sizes are given in TABLE 2. Bolt lengths are always dependent on flange rating (assumed 150 psi in table) and gasket thickness.

G. The drain and lid vent should be plumbed for use. Drain fittings are typically hard-piped to a suitable drain. The lid vent is typically plumbed with flexible hose to allow for lid removal. Quick disconnects are also a good practice for the lid vent line. Valves should be affixed to both positions.

Table 1

Flange Size	Torque Value
3" and 4"	25 ft lbs
6"	40 ft lbs
8"	60 ft lbs
10"	70 ft lbs
12"	80 ft lbs

Table 2

Flange Size	Bolt Size
3"	5/8" x 3-1/4"
4"	5/8" x 3-1/2"
6"	3/4" x 3-7/8"
8"	3/4" x 4-1/4"
10"	1" x 4-3/4"
12"	1" x 5-3/8"

BOTH TABLES ABOVE ASSUME 150 PSI

MAINTENANCE

When cleaning becomes necessary the guidelines listed below should be followed. NEVER ATTEMPT TO OPEN A STRAINER WHILE UNDER PRESSURE. Attempting to do so can result in a catastrophic failure causing personal injury and voiding warranty. Strainer basket cleaning is completely system dependent and should be performed as any preventative maintenance task once the frequency has been determined. Fluidtrol recommends cleaning the basket prior to the observance of a 4 psid pressure drop across the vessel. This is calculated by the difference between the gauge pressure just upstream and the gauge pressure just downstream of the strainer. After the initial cleaning of the system, begin to monitor the pressure drop every hour to determine the cleaning frequency. Using the pressure drop charts on the pages above can provide some assistance, but generating data on your particular system will be necessary to determine proper cleaning frequency.

1. Stop flow through strainer. For simplex units this requires stopping the process flow. For duplex units, the process flow must be redirected into the secondary housing by means of the valves/ valve mechanism. Wye strainers, if to be cleaned via the drain valve and providing the installation is not on the suction side of a pump, do not require to have the flow stopped. (In-house operating procedures should be followed).

2. Remove pressure from housing. The drain plug at the base of the strainer or on the lid can be used for this purpose if other pressure relief methods are unavailable. NEVER remove the lid prior to depressurizing.

3. Remove lid. GS Series Strainers utilize T-Handles/ Swing Latch lid assemblies or Bolted Blind Flange Lids. Loosen the bolts of the lid by alternating between diametrically opposite bolts. Once all bolts are loose, swing the T-Handles to the side. If a blind flange lid is used- full removal of the nut is required before lifting cover.

4. Remove and clean basket. Various methods of cleaning are utilized, depending on the material in the basket and it's tenacity to the perforated surface. It is common to have 2 baskets to allow for the fouled basket to be quickly replaced with a clean basket. This allows for the minimum flow interruption and for the dirty basket to be cleaned as convenient at some point prior to the next basket change.

5. Refill vessel with process fluid. Reducing the air pocket at the top of the housing is critical for minimizing the potential to air lock the system pump. If possible, fill the vessel with process water to approximately 1" from the lid gasket.

6. Replace lid and secure. Tighten as tight as necessary to avoid water drips through the gasket and to avoid air in leakage due to vacuum. See Table 1 on previous page if your strainer uses a blind flange lid. Follow an alternating pattern when tightening- just as tightening lug nuts on a tire or flange bolts.

7. Return to service and vent. SLOWLY OPEN NECESSARY VALVES TO PUT THE STRAINER ON LINE. After the strainer is returned to service- it may be necessary to bleed off any remaining air trapped at the top of the housing. This is done with the ½" vent on the lid that the strainer is supplied with. The strainer housings are common air traps for the system, so routine bleeding at this location may help efforts to minimize air in system.



FPT STRAINERS

SPARE PARTS AND TECHNICAL SUPPORT

Your strainers are shipped with a 4-6 digit serial number on the permanent equipment tag. This number should be preserved in the event technical support or parts are required. Many of the parts will be commercially available from a local plumbing distributor, but items like the basket and special gaskets will require you to contact your Fluidtrol dealer.

You can contact Fluidtrol Process Technologies, Inc. at 888-551-0511 for support at any time during installation, commission or operation of your strainer.

IMPORTANT STRAINER/SYSTEM DATA

In the event troubleshooting is required- it is optimum to have as much system/ equipment data collected as possible. The below lists represent most of the variables that would be of relevance.

FLUID CHARACTERISTICS

Composition
Operating Temperature F
Operating Pressure
Viscosity centipoise
Minimum Size To Filter mesh micron inch mm
Allowable Pressure Drop PSI (clean basket)
Flow Rate GPM

STRAINER CHARACTERISTICS

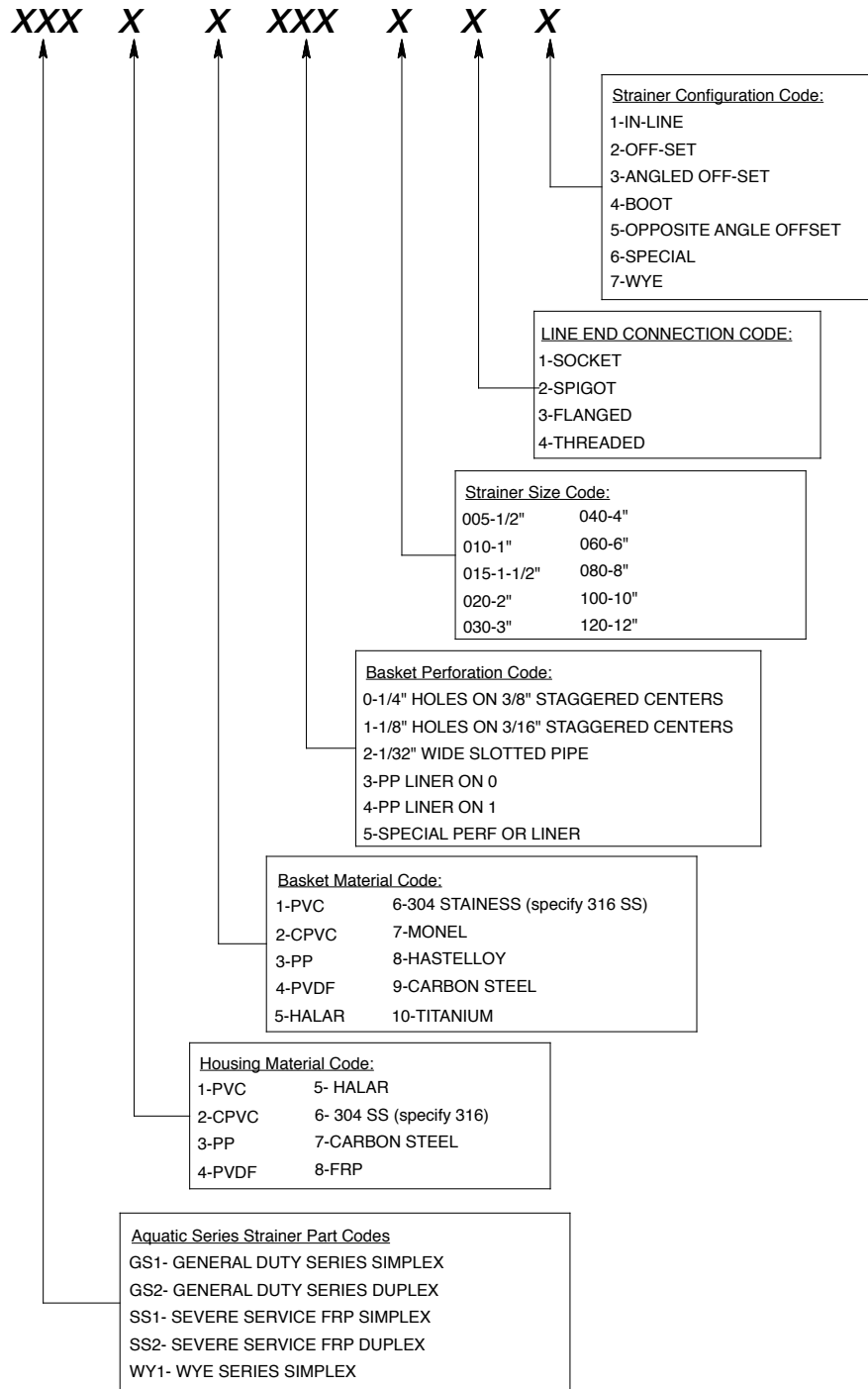
Type of Strainer
Size
Design Flow Rate GPM
Design Pressure PSI
Max Temperature
Max Pressure
Housing Material
Gasket Material
Basket Perforation
Basket Material
Liner Rating
Liner Material
Drain Size/Type
End Connections
Vent Size/Type
Pressure Taps
Model Number
Date of Manufacture
Serial Number



STRAINER BASKET CLEANING FREQUENCY

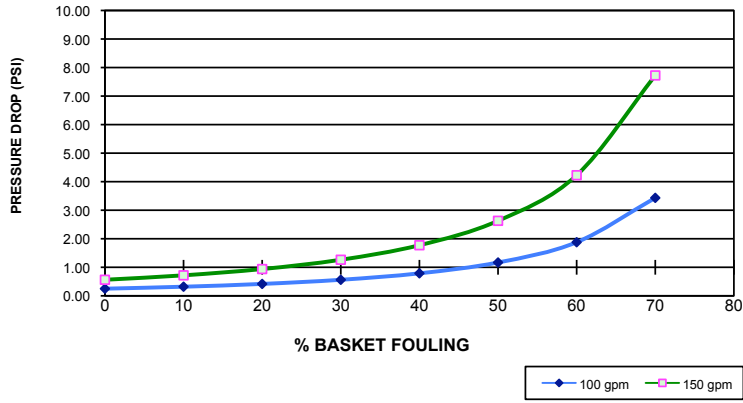
The initial operation of a basket strainer is an important period to establish the frequency of which the basket requires cleaning. This will be entirely system dependent and Fluidtrol recommends to clean the strainer basket prior to reaching a 4 psid across the strainer. The following pages provide some generic flow data for average velocity, viscosity and basket perforation open area. Different basket perforation patterns and mesh liners are only some of the variables that impact the pressure drop profile of a strainer. Failure of consistent basket cleaning can lead to strainer damage and flow restriction in the system.

INDUSTRIAL SERIES STRAINER PART NUMBER CODE

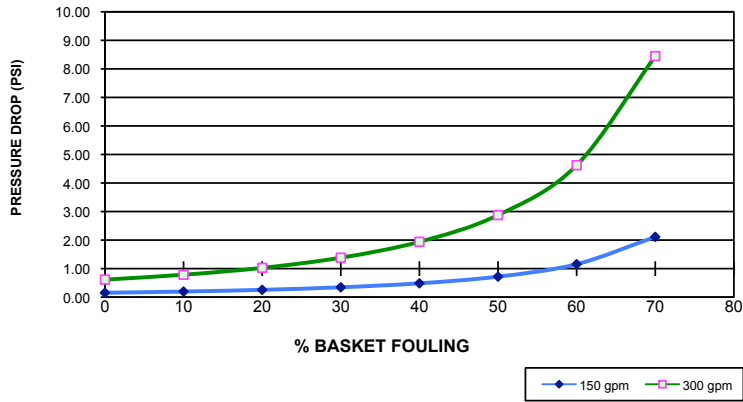


TO IDENTIFY YOUR PARTICULAR STRAINER, USE THE ABOVE KEY TO DETERMINE CORRECT STRAINER MODEL. STRAINER MODEL IS ALSO PROVIDED ON THE EQUIPMENT IDENTIFICATION TAG AFFIXED TO THE STRAINER HOUSING.

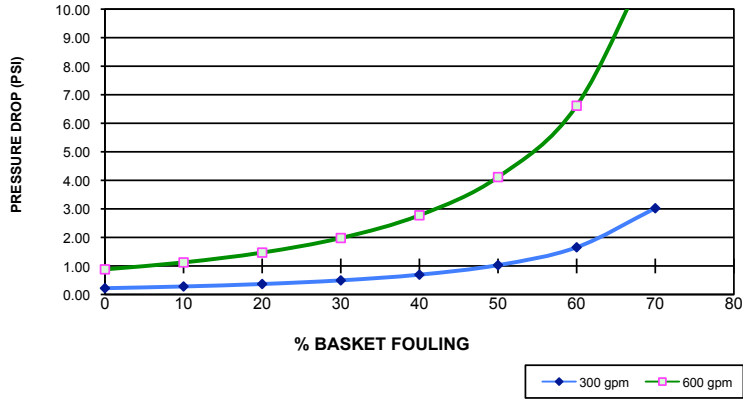
3 " Strainer



4 " Strainer

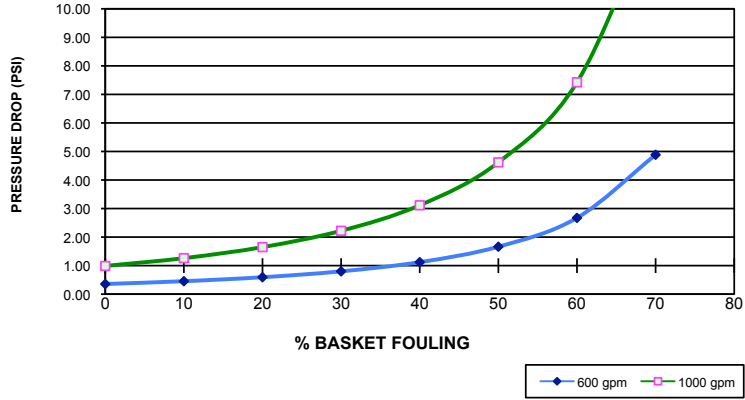


6 " Strainer

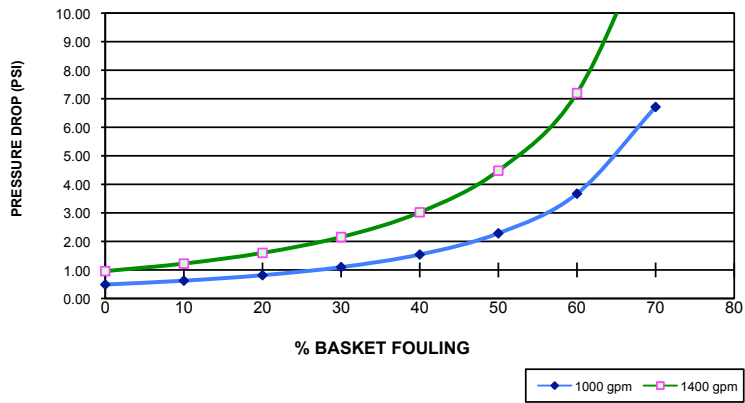


40 % OPEN AREA PERFORATION PATTERN- STANDARD 1/8" OR 1/4"

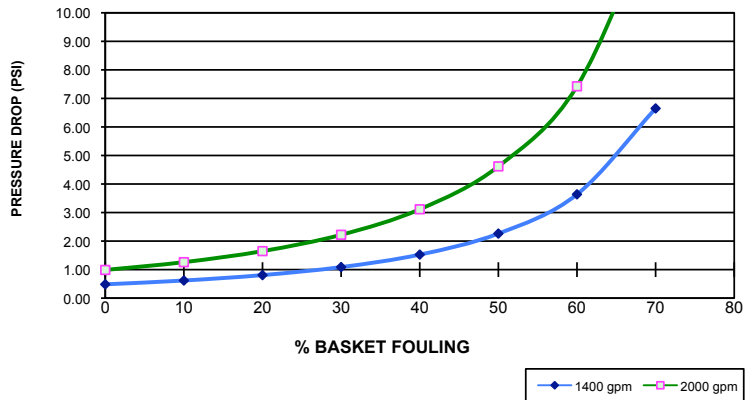
8 " Strainer



10 " Strainer



12 " Strainer



40 % OPEN AREA PERFORATION PATTERN- STANDARD 1/8" OR 1/4"