WYE STRAINERS

MATERIALS OF CONSTRUCTION

1. BODIES

FPT utilizes a composite laminate construction for strainer bodies to provide structural strength. Chemical resistance is maintained by providing wetted surfaces of PVC Type 1, CPVC, PP or PVDF. All Strainers are rated for 100 PSI at 73 deg F. Higher operating temperatures are allowable based upon the material selection. Potential Lower pressure ratings are possible as special lid features (easy open) are sometimes requested. See the temperature/pressure chart to determine the maximum allowable temperature for your pressure condition.

2. BASKETS

Baskets are manufactured in heavy guage stainless 316/304 or Plastic (normally the same material as the housing liner. 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 SCH 80 Flanges. loose rings may be utilized- ANSI b16.5- 150 # Drill.

2. TOPS

FPT WYE STRAINERS ARE SUPPLIED WITH BLIND FLANGE TOPS with EPDM GASKETS.

3. PORT CONFIGURATIONS

Inlet and outlet flanges will be configured inline with a tolerance of 0.5 degrees.

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 AVIALABLE 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 mesh2 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 stresses in the strainer body.

We recommend avoiding suspended strainer applications. For large wye strainer installations, added brackets fabricated for support will improve lifespan of the housing.

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

FLANGED CONNECTIONS

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 between the two flanges.
E.The bolts on the plastic 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 following table should be followed for the various sizes of flanges. Uniform stress across the flange will eliminate leaky gaskets. Refer to TABLE 1 for recommended torques.
F. Required bolt sizes are given in TABLE 2. All threaded connections hand-tight plus 1 turn.
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”	20-30 ft lbs
6” and 8”	33-55 ft lbs
10”	53-75 ft lbs
12”	80-110 ft lbs

Table 2

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

We do not recommend the practice of drilling/tapping into our dual laminate housings and reducers for pressure taps. Please contact factory if pressure tap is required.

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. Stayflow 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 7 and 8 can provide some assistance, but generating data on your particular system will be necessary to determine proper cleaning frequency.

When blowing down wye strainers, it is the tenacity of the particles on the screen that dictate the effectiveness of this method of cleaning. If the particles are easily removed from the strainer surface, a significant percentage will be removed via blowdown method to dramatically reduce the frequency of manual basket cleaning (see below for instructions).

1. Remove pressure from housing and drain. 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. Wye strainers installed on a horizontal line will require full draining of the vessel prior to lid removal.

2. Remove lid. WYE Series Strainers utilize Bolted Blind Flange Lids. Loosen the bolts of the lid by alternating between diametrically opposite bolts - full removal of the nut is required before dropping cover. Depending on orientation of the wye strainer will dictate personnel required for this lid and basket removal.

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. 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.

6. 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, vent from the service line while filling the wye strainer housing.

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 or 5 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 Stayflow.

You can contact Stayflow at 312-428-4750 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

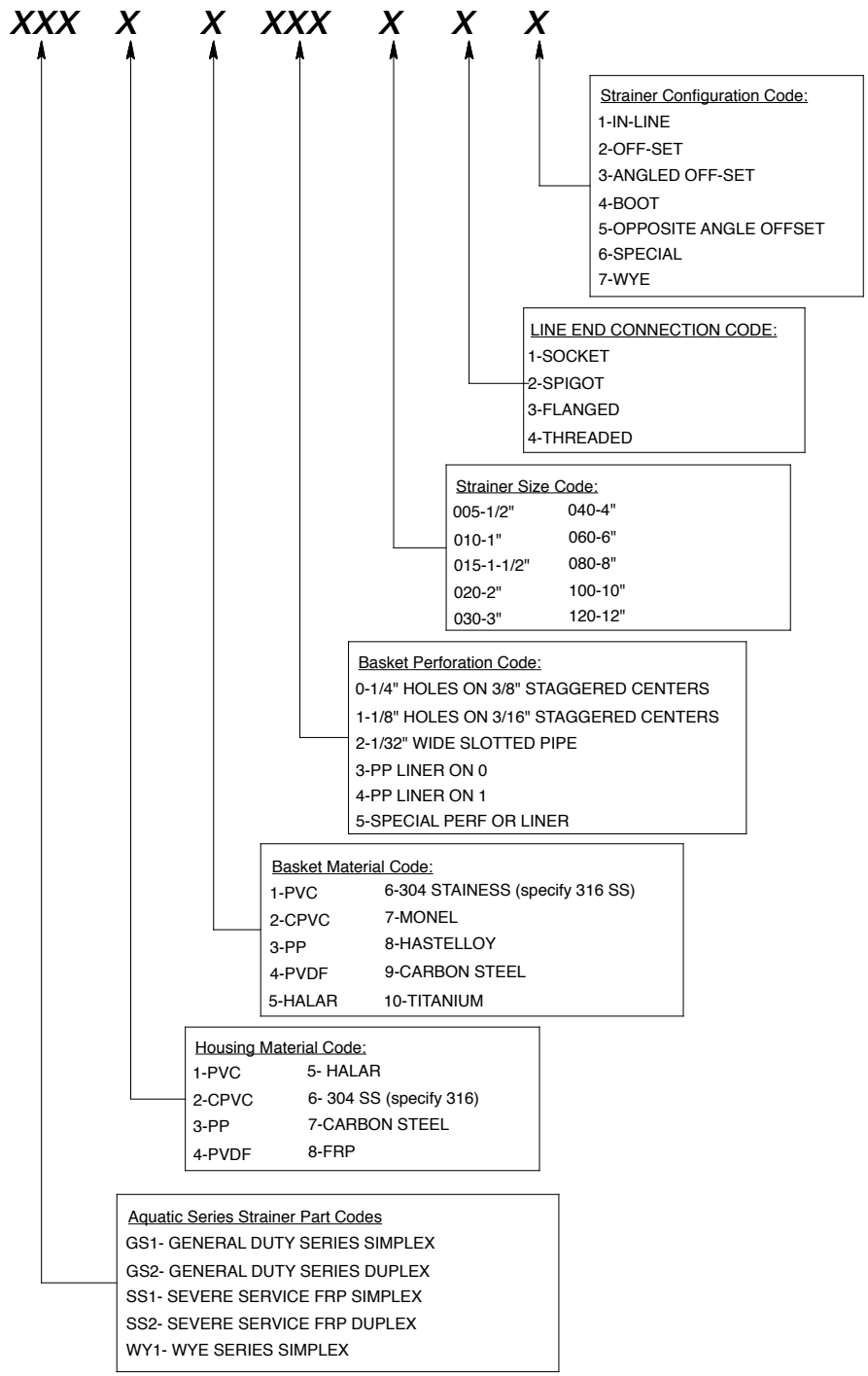
STRAINER CHARACTERISTICS

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 Stayflow 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.

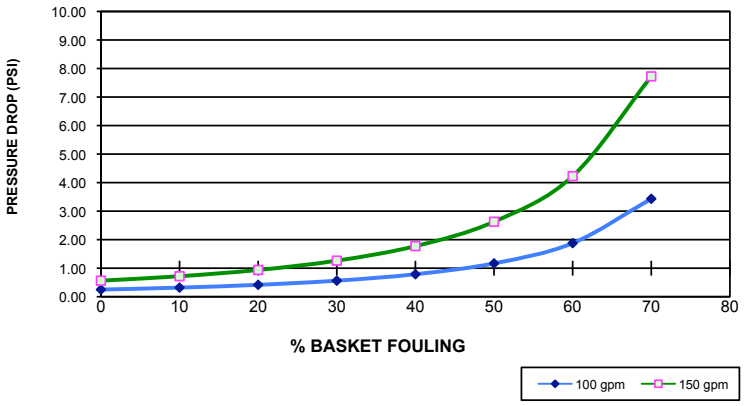
INDUSTRIAL SERIES STRAINER PART NUMBER CODE



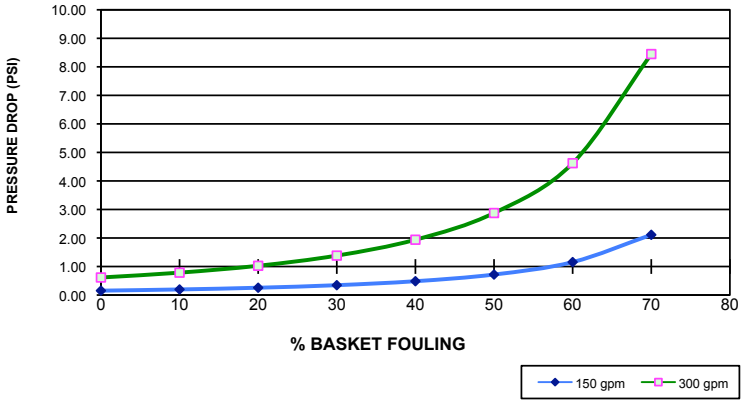
TO IDENTIFY YOUR PARTICULAR STRAINER, USE THE ABOVE KEY TO DETERMINE CORRECT STRAINER MODEL. STRAINER MODEL IS ALSO PROVIDED ON THE EQUIPMENT IDENTIFICATION TAG AFFIXED TO THE STRAINER HOUSING.

PRESSURE DROP PROFILES STRAINER SIZES 3" -6"

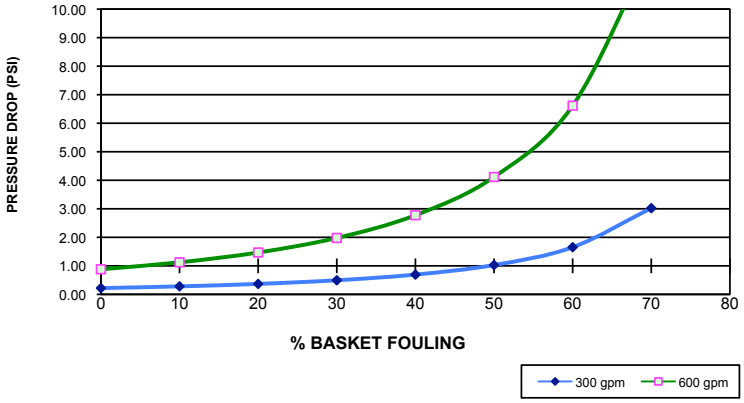
3 “ Strainer



4 “ Strainer



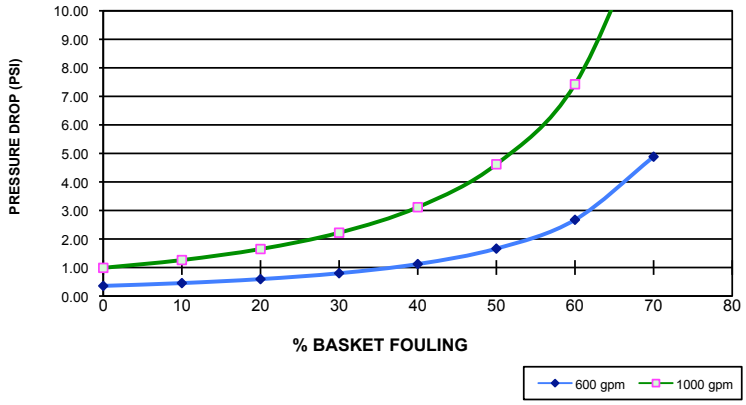
6 “ Strainer



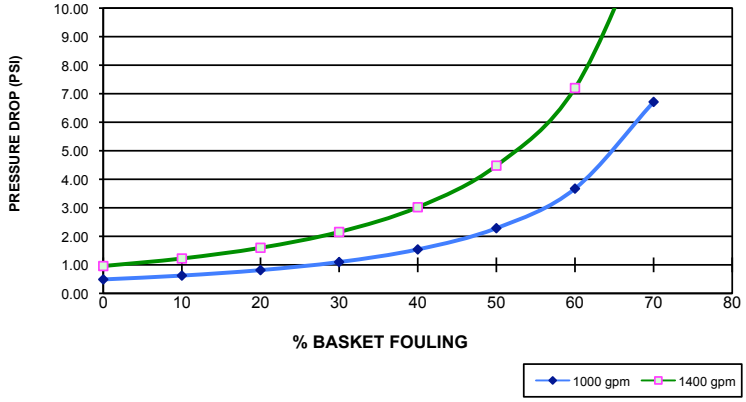
40 % OPEN AREA PERFORATION PATTERN- STANDARD 1/8” OR 1/4”

PRESSURE DROP PROFILES STRAINER SIZES 8" -12"

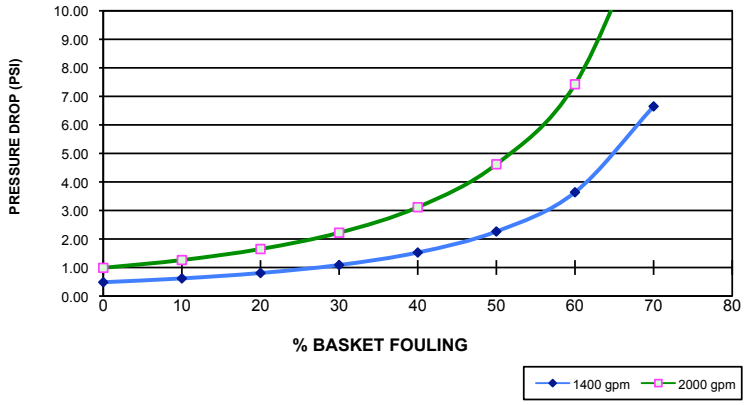
8 “ Strainer



10 “ Strainer



12 “ Strainer



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