

# BS Series Basket Strainer

## Operating, Installation, & Maintenance Manual

*Corrosion Resistant Fluid and  
Air Handling Systems.*

**SIMTECH**

---

---

## BS Series Basket Strainer

### Operating and Maintenance Instructions

#### PRESSURE DROP

SIMTECH strainers are engineered to offer the lowest practical PD. Utilizing full flow ports, the basket open 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 PD 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. SIMTECH 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. SIMTECH 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 ( See Page 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. Please support strainer bodies at the bottom of the vertical housing. Several inlet and outlet end Connectors are available with the SIMTECH strainers. The proper installation technique for each is outlined below.\*

# BS Series Basket Strainer

## Operating and Maintenance Instructions

### FLANGED CONNECTIONS

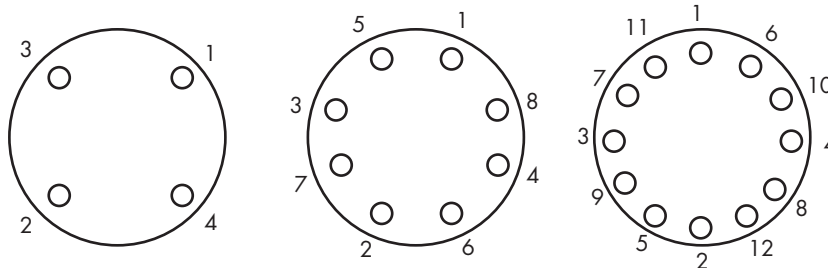
- A. 1/8" thick soft full face gaskets are preferred for use with plastic flanges
- B. Make sure that all the bolt holes of the mating flanges match up with the strainer flange bolt holes. The flanges on the strainers are lined up such that the bolt holes straddle the vertical centerline.
- C. Insert 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 off 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 1.
- 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.

### RECOMMENDED FLANGE BOLT TORQUE

VALVE SIZE	# BOLTS	BOLT DIA.	TORQUE FT. LBS.
3"	4	5/8"	20-25
4"	8	5/8"	20-25
6"	8	3/4"	30-40
8"	8	7/8"	30-40
10"	12	7/8"	50-60
12"	12	7/8"	50-60
14"	12	1"	100
16"	12	1"	100

Table 1

### RECOMMENDED FLANGE BOLT TORQUE SEQUENCE



---

---

## BS Series Basket Strainer Operating and Maintenance Instructions

### 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. SIMTECH 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. BS 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 1/2" 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.

---

## **BS Series Basket Strainer Operating and Maintenance Instructions**

### STRAINER BASKET CLEANING FREQUENCY

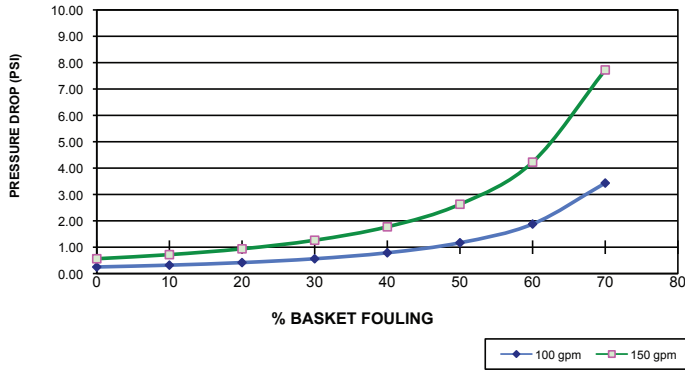
The initial operation of a basket strainer is an important period to establish the frequency of which the basket requires cleaning. This will be entirely system dependent and Fluidtrol recommends to clean the strainer basket prior to reaching a 4 psid across the strainer. The following pages provide 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.

# BS Series Basket Strainer

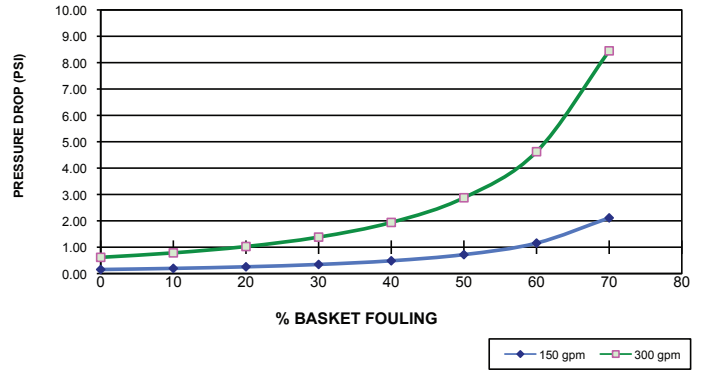
## Operating and Maintenance Instructions

### PRESSURE DROP PROFILES

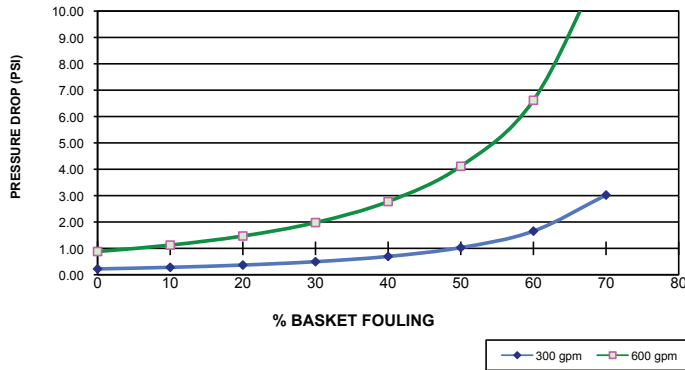
#### 3 " Strainer



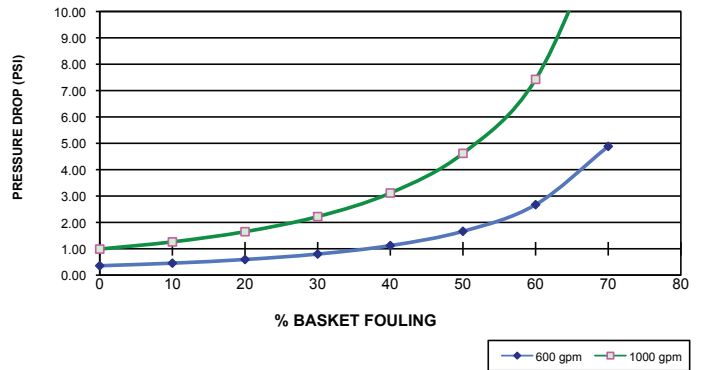
#### 4 " Strainer



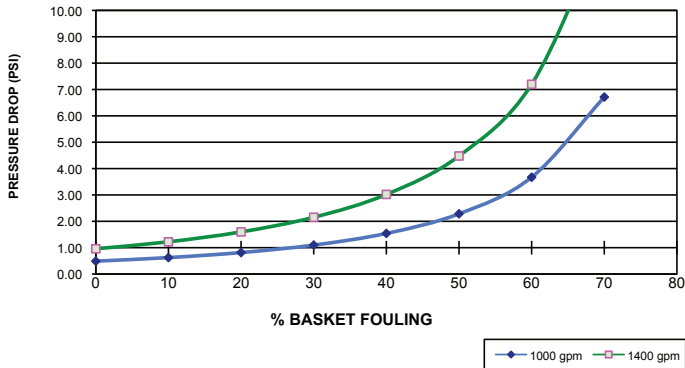
#### 6 " Strainer



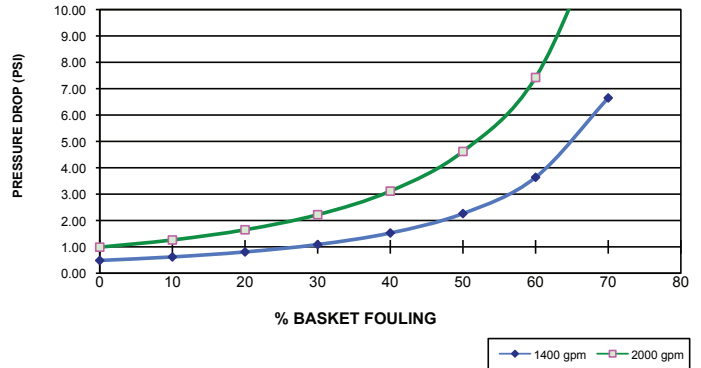
#### 8 " Strainer



#### 10 " Strainer



#### 12 " Strainer



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

---

---

## **BS Series Basket Strainer Operating and Maintenance Instructions**

### ***Simtech Industrial Products, Inc.***

47-A Runway Road, Levittown, PA 19057

Phone: 215-547-0444 Fax: 215-547-9129

E-mail: [info@SimtechUSA.com](mailto:info@SimtechUSA.com)

Web site: [www.SimtechUSA.com](http://www.SimtechUSA.com)

## **WARRANTY**

Simtech Industrial Products, Inc. products are warranted to be free from defects in materials and workmanship for one (1) year from date of shipment. No claim shall be permitted under this warranty unless Buyer gives Simtech Industrial Products, Inc. written notice of all respects in which Buyer claims the product to be defective. Notice must be received within ten (10) days from the date which the Buyer discovers, or should have discovered the defect. Buyer shall give Simtech Industrial Products, Inc. a reasonable opportunity to inspect the product after notice has been given. This warranty shall not apply to any products or components, which have been subjected to abnormal use, negligence or accident.

Seller's sole obligation under this warranty shall be limited solely on the repair or replacement, as elected by Simtech Industrial Products, Inc., of defective or nonconforming material. To the maximum extent permitted by law, Buyer irrevocably waives all claims for money damages relating to the condition, use and performance of the goods purchased. In no event shall Simtech Industrial Products, Inc. liability exceed the purchase price of the product sold by Simtech Industrial Products, Inc.

In no event, whether because of a breach of warranty or representation or any other cause, whether based upon contract, tort, warranty or otherwise, arising out of the performance or nonperformance by seller of its obligations under this agreement or with respect to the products sold pursuant here to; shall seller be liable for lost earnings, income or profits or indirect, incidental, liquidated or consequential damages.

The implied warranties of merchantability and fitness for a particular purpose except as set forth in this warranty, express or implied, are hereby disclaimed and excluded. Nothing shall be construed as an additional warranty unless specifically designated as such in writing and signed by Simtech Industrial Products, Inc.

Simtech Industrial Products, Inc. reserves the right, in its discretion, at any time and from time to time, to make changes to any specification, data or information contained herein.