

# Bag Element Operating Guidelines

## Recommended change-out:

It is recommended that a liquid filter bag be changed out when the differential pressure ( $\Delta P$ ) between the upstream and downstream sides reaches 20 - 25 psi. Although this is a rule of thumb, some applications may require change-out at a  $\Delta P$  well below 20 psi. Under no circumstances should  $\Delta P$  be allowed to exceed 25 psi.

## What is the product that needs to be filtered?

Obtain all the details of the liquid/solid composition. You need to confirm the chemical compatibility to ensure the proper material is used for the bag, retainer type and the housing for the filter bags.

## What is the viscosity of the product to be filtered?

Use a flow rate chart to find out the optimum operating parameters.

## What is the pH level in order to choose the proper material for the filtration system?

Is the product an acid with a pH of 1-7 or is it Alkaline 7-14?

## What type of solids does the product contain?

Are the solids crystalline or gelatinous? Crystalline solids can form a permeable layer on the filter media and gelatinous solids can form an impermeable layer that will cause blinding off of the filter media.

## What is the density of the solids?

What is the PPM (parts per million) of the solids?

## What is the range of particle size? What size does the customer want to remove and at what efficiency?

The range of particulate size is important in determining which micron rating your filter media should be? Filter bags can be made with nominally rated material or with high efficiency material.

## What is the flow rate of the product?

The flow rate is critical information required when determining the size and number of bags required.

## Is it a continuous or batch process?

This is important in order to determine the filter bag consumption.

## What is the operating pressure of the system?

At what minimum and maximum potential pressure is the system designed to run? What is the acceptable pressure required? Filter bag differential pressure capacity is 20-25 psi.

## What is the temperature of the product being filtered?

Temperature has an impact on the viscosity, the filter media and the O-rings. The temperature can even affect the corrosion rate of the housing.

### Sizes Available

|      |         |                |              | Bag/Collar/Style |    |    |   | Manufacturers |     |     |            |          |            |
|------|---------|----------------|--------------|------------------|----|----|---|---------------|-----|-----|------------|----------|------------|
| Size | Sq. Ft. | Diameter (in.) | Length (in.) | S                | SS | DS | P | FSI           | AFF | GAF | Strainrite | Rosedale | Commercial |
| 1    | 2.5     | 7.06           | 16.5         | •                | •  | •  | • | •             | •   | •   | •          | •        |            |
| 2    | 5.0     | 7.06           | 32.0         | •                | •  | •  | • | •             | •   | •   | •          | •        |            |
| 3    | 0.8     | 4.12           | 8.0          | •                | •  | •  | • | •             |     |     |            | •        |            |
| 4    | 1.3     | 4.12           | 14.0         | •                | •  | •  | • | •             |     |     |            | •        |            |
| 7    | 1.3     | 5.5            | 15.0         | •                | •  | •  |   |               |     |     |            | •        |            |
| 8    | 2.0     | 5.5            | 21.0         | •                | •  | •  |   |               |     |     |            | •        |            |
| 9    | 3.3     | 5.5            | 31.0         | •                | •  | •  |   |               |     |     |            | •        |            |
| C1   | 2.5     | 7.31           | 16.5         |                  |    | •  |   |               |     |     |            |          | •          |
| C2   | 5.0     | 7.31           | 32.5         |                  |    | •  |   |               |     |     |            |          | •          |

BH1  
100 psi

BH1  
150 psi

BH2-  
BH10

DBH2-  
DBH10

Micron- Rated/  
OAB

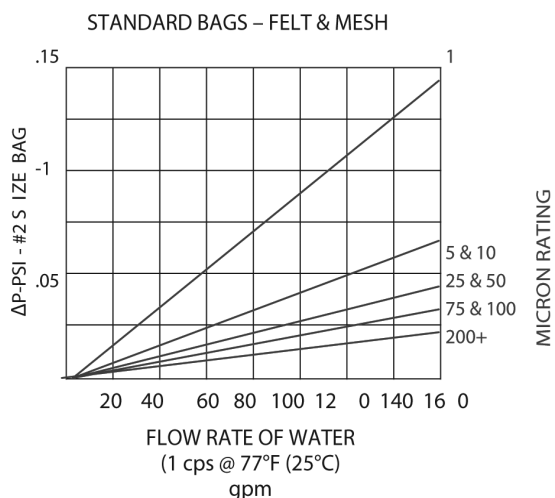
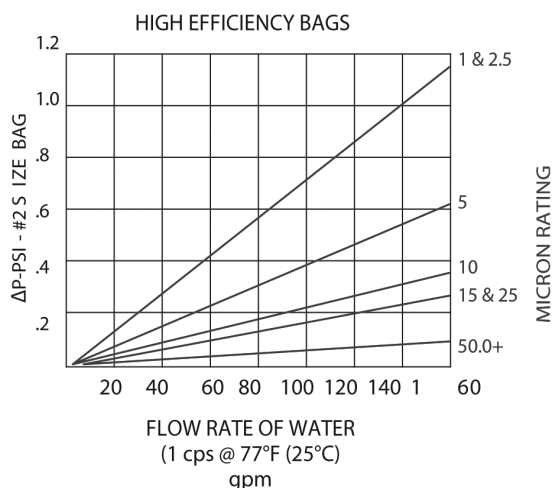
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## Technical Information for Liquid Bags Elements

# Bag Elements

## Filter Bag Pressure Drop PB



Step 1 The graphs show the  $\Delta PB$  produced by a #2 size bag for water, 1 cps @ 77°F (25°C). The pressure drop is determined from the type of bag, the micron rating and flow rate.

Step 2 Correct for bag size from the table below if the size is different than #2 size.

| Bag Size | Dia X Length | Multiply By |
|----------|--------------|-------------|
| 2        | 7.06 x 32    | 1.00        |
| 9        | 5.5 x 32     | 1.50        |
| 1        | 7.06 x 16    | 2.25        |
| 8        | 5.5 x 21     | 2.25        |
| 7        | 5.5 x 15     | 3.00        |
| 4        | 4.15 x 14    | 4.50        |
| 3        | 4.15 x 8     | 9.00        |

Step 3 If the viscosity of the liquid is greater than 1 cps (water @ 77°F (25°C)). Multiply the result from step 2 by the proper correction factor from the chart below.

| Viscosity (cps) | Correction Factor |
|-----------------|-------------------|
| 50              | 4.5               |
| 100             | 8.3               |
| 200             | 16.6              |
| 400             | 27.7              |
| 800             | 50.0              |
| 1000            | 56.2              |
| 1500            | 77.2              |
| 2000            | 113.6             |
| 4000            | 161.0             |
| 6000            | 250.0             |
| 8000            | 325.0             |
| 10000           | 430.0             |

The value obtained in step 3,  $\Delta PB$  is the clean pressure drop caused by the filter bag.

### SUMMARY

$$\text{System Pressure Drop} = \Delta PS = \Delta PH + \Delta PB$$

For new applications, the  $\Delta PS$  should be 2.0 psi (0.14 bar) or less. For high contaminant loading applications, this value should be as low as possible. The lower this value is, the more contaminant a bag will hold. For applications with nominal contaminants, this value can go to 3.0 psi (0.21 bar) or more. Consult factory for specific recommendations when the clean  $\Delta P$  exceeds 2.0 psi (0.14 bar).

