Bag Element Operating Guidelines

Recommended change-out:

It is recommended that a liquid filter bag be changed out when the differential pressure (ΔP) 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 ΔP well below 20 psi. Under no circumstances should ΔP 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?

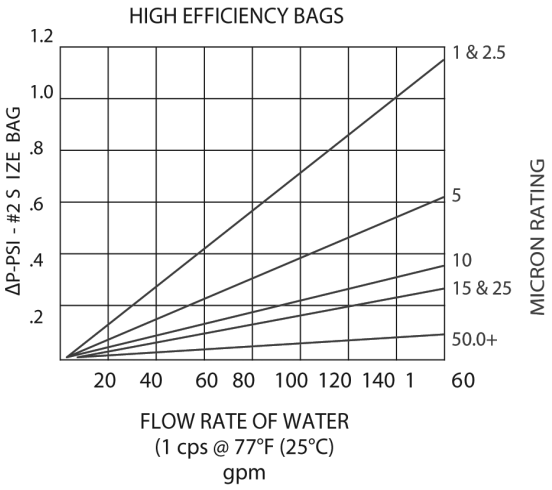
Temperature has an impact on the viscosity, the filter media and the O-rings. The temperature can even affect the corrosion rate of the housing.

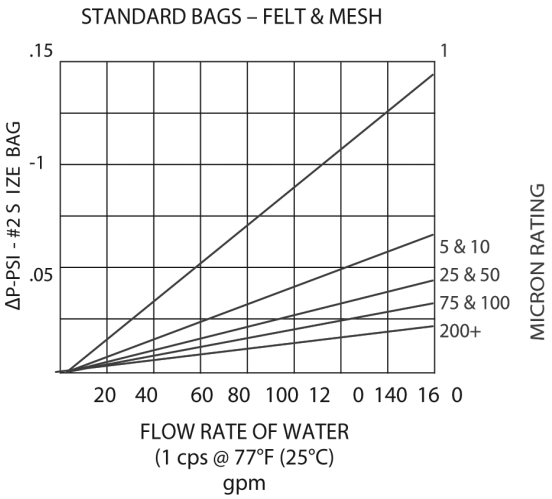
Sizes Available

				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			•							•

Bag Elements

Filter Bag Pressure Drop PB





Step 1 The graphs show the ΔPB 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, ΔPB is the clean pressure drop caused by the filter bag.

SUMMARY

System Pressure Drop = ΔPS = ΔPH + ΔPB

For new applications, the ΔPS 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 ΔP exceeds 2.0 psi (0.14 bar).

Micron-Rated Bag Elements

How to Build a Valid Model Number for a Micron-Rated Bag Element:

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6

Example: NOTE: One option per box

BOX 1	BOX 2	BOX 3	BOX 4	BOX 5	BOX 6	
TEF	25	S	X1	F	A	= TEF25SX1FA

BOX 1

Bag Material

PEF =	Polyester Felt
PPF =	Polypropylene Felt
NOF =	Nomex Felt
PPM =	Polypropylene Monofilament Mesh
NMO =	Nylon Monofilament Mesh
PEM =	Polyester Multifilament Mesh
NMU =	Nylon Multifilament Mesh
TEF =	Teflon Felt

BOX 2

Micron Rating

See chart below for available micron ratings

BOX 3

Cover Material

P =	Plain, No Cover
SBP =	Spun Bonded Polyester
PEM =	Polyester
G =	Glazed
S =	Singed

BOX 4

Bag Size

Size	Diameter	Length (in)
1 =	7.06	16.5
2 =	7.06	32
3 =	4.12	8
4 =	4.12	14
7 =	5.5	15
8 =	5.5	21
9 =	5.5	31
11 =	8	16
12 =	8	30
C1 =	7.31	16.5
C2 =	7.31	32.5
X1 =	4.35	8
X2 =	4.35	14
XO1 =	6	22

BOX 5

Collar Type

S =	Standard Galvanized Steel Ring
SS =	Stainless Steel Ring
DS =	Draw String
P =	Plastic Flange
T =	Titanium
OSS =	OSS Flange
NR =	No Ring
F =	Custom

BOX 6

Options

0 =	No Options
H =	Handles (standard on all flange & ring style bag elements)
WE =	Welded Seams Only Available of PEF & PPF Bags with Plastic Flanges
EB =	Edge Binding
A =	Auto Seams
TTA =	Turn, top stitch, auto seam
RC =	Reverse Collar
SB =	Spun Bond Cover
MC =	Mesh Cover

Technical Information for Liquid Bag Elements

Construction	Fibers		1	3	5	10	15	25	50	75	100	125	150	175	200	250	300	400	600	800	1k
Felt	Polyester	PEF	•	•	•	•	•	•	•	•	•		•		•						
	Polypropylene	PPF	•	•	•	•		•	•		•		•								
	Nomex	NOF	•		•	•		•	•		•				•						
Monofilament	Polypropylene	PPM									•		•		•	•	•	•	•	•	
Mesh	Nylon	NMO			•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•
Multifilament	Polyester	PEM									•		•		•	•	•	•	•	•	•
Mesh	Nylon	NMU									•		•		•	•	•	•	•	•	•

Medias	Mineral Acids	Organic Acids	Alkalies	Oxidizing Acids	Animal Vegetable Perro-Oils	Organic Solvents	Miro Organisms	Temp. Limits (°F)
Polyester	Good	Good	Good	Good	Excellent	Excellent	Excellent	257°
Polypropylene	Good	Excellent	Good	Fair	Excellent	Good	Excellent	200°
Nomex	Fair	Fair	Good	Poor	Excellent	Excellent	Excellent	425°
Nylon	Poor	Fair	Good	Poor	Excellent	Excellent	Excellent	300°

Compatibility & Temperature