Rosedale Beta Bag® Filters

Filter bags for fine filtration requirements

After years of supplying filter bag products to the process industries, Rosedale has developed a new filter bag that meets even more exacting requirements, extending their use to finer process filtration and to hydraulic and lubricating fluid filtration. Rosedale Beta Bag® filter bags are made of a unique multilayer polyester felt, encased in spun-bonded nylon to prevent possible migration of bag material into the fluid stream. They're rated by the multi-pass method of filter performance evaluation, so that direct comparison can be made between Beta Bag® filters and cartridges of rigid construction using cellulose or synthetic elements, pleated or non-pleated. They compare very well:

- Because disposable Rosedale Beta Bags® are fitted into and supported by perforated-metal baskets, you need not be concerned with filter collapse, flow fatigue, or filter end-load problems.
- Beta Bags® can be installed and removed from their housings in a fraction of the time required to service rigid cellulose or synthetic element cartridge filters.
- Beta Bags® cost less than cylindrical filter cartridges, and they fold flat for more compact storage.
- Polyester/nylon bag materials are more resistant to the chemical additives in today's hydraulic and lubricant fluids (especially the high water base fluids), as well as the chemicals in Table IV.
- Prevention of possible media migration is assured by the spun nylon cover.

EXCELLENT FOR USE IN THE PROCESS, OIL AND GAS, HYDRAULIC AND LUBRICATION INDUSTRIES

The Multi-Pass Test Method For Evaluating Filter Element Performance

(OSU-F2, ISO 4572, ANSI B93.31-1973, NFPA T3.10.8.8-1973)

In this test procedure ACFTD (AC Fine Test Dust) is put into a reservoir ahead of a test filter. The test dust is comprised of many particle sizes (see Table II).

During the test, the flow rate through the filter is held constant, and test dust is added continuously. Contaminant not stopped by the filter is recirculated (hence the term "multi-pass").

At predetermined pressure drops across the filter, fluid samples are taken upstream and downstream of the filter. Using automatic particle counters (per ANSI B93.28-1973), the samples are analyzed for the number of particles per milliliter greater than a selected size. These counts are used to calculate "Beta ratios". **A Beta ratio is an accurate indication of how the filter performs throughout the life of the filter. The Beta ratio is an average filtration rating.**

A typical Beta ratio is expressed as B (Beta) 10 (particle size) = 16 (ratio), or B_{10} = 16 to 1 reduction of dirt at selected micron rating. Table I gives the Beta ratios for the three Beta Bag® micron-rated bag materials.

Table I

Rosedale Beta Bag® Beta Ratios

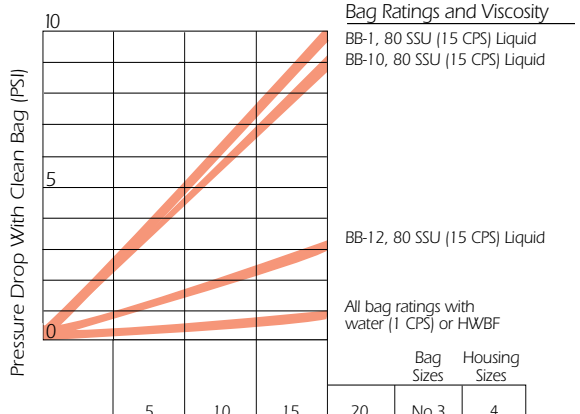
Multi-pass tests are at 20 gpm flow, with terminal pressure drop of 15 psi. Standard sewn bags were tested, in standard housings.

Beta Bag® Micron Rating (nominal)	Mean ACFTD retention size Equals 50% filter efficiency (nominal rating)	Effective ACFTD retention size Equals 95% filter efficiency	Maximum ACFTD retention size Equals 98.7% filter efficiency (absolute rating)
BB-1	B_1 = 2 (1um nominal)	B_4 = 20 (4 um)	B_8 = 75 (8 um absolute)
BB-10	B_{10} = 2 (10 um nominal)	B_{16} = 20 (16 um)	B_{20} = 75 (20 um absolute)
BB-12	B_{12} = 2 (12 um nominal)	B_{37} = 20 (37 um)	B_{47} = 75 (47 um absolute)

Table II

ACFTD Composition

Range of Particle sizes (micrometers)	Distribution by weight (percent)
0-5	39
5-10	18
10-20	16
20-40	18
40-80	9



Flow Rates (gpm)				Bag Sizes	Housing Sizes
5	10	15	20	No.3	4
10	20	30	40	No.4	4
13	26	39	52	No. 7	6
20	40	60	80	No. 8	6
20	40	60	80	No.1	8
44	88	132	176	No. 2	8

Selecting A Rosedale Beta Bag®

1. Determine the micron rating needed. For hydraulic fluids, the BB-1-rated bags should be considered for high-pressure circuits, the BB-10 for common service, and the BB-12 for low-pressure service. For process liquids, the BB-1 rated bags are recommended for use as pre-filters for membrane filters. Automotive clear coatings are being successfully filtered with BB-10 and BB-12 rated bags.
2. The Pressure Drop Versus Flow Chart shows specific flow rates achieved through various sizes of Beta Bags® using 32 (water) and 80 SSU viscosity liquids. Pressure drops can be read directly for these viscosity levels.
3. If your liquid viscosity level is higher than 80 SSU, you can use a correction factor to determine what your pressure drop will actually be.
4. Using Table III find your actual SSU level and multiply the pressure drop of interest to you by the correction factor shown. You can interpolate easily since the relationship is linear. For example, a viscosity of 280 SSU would have a correction factor of 3.5.
5. Example: A clean BB-1 rated No. 8 size Beta Bag® at 20 gpm will impose a pressure drop of 2.7 psi (with 80 SSU liquid). For use with 320 SSU oil, the pressure drop will be 2.7 times 4 (the correction factor), or 10.8 psi.

Table III

Viscosity SSU	Viscosity CPS	Correction Factor
80	15	1
160	35	2
240	55	3
320	70	4
400	90	5

Table IV

Compatibility With

Bag Materials (Fiber)	Organic Solvents	Animal Vegetable & Petro Oils	Micro-organisms	Alkalies	Organic Acids	Oxidizing Agents	Mineral Acids	Temperature Limitations (max. deg F)
Polyester	Excellent	Excellent	Excellent	Good	Good	Good	Good	325
Nylon	Excellent	Excellent	Excellent	Good	Fair	Poor	Poor	325

Design Details

All Beta Bags® have a metal retaining ring sewn in their openings. Standard ring material is carbon steel, with a 316 stainless steel optional. They hold the bag in place and prevent fluid bypassing the element.

Heavy-duty handles, sewn to the reinforced bag lip, are a standard feature. They make bag removal faster and easier.

How To Order

Build an ordering code as shown in this example

Example: BB - 10 - 2 - SS

BETA BAG®

MICRON RATING (nominal)
1 micron = **1**
10 micron = **10**
12 micron = **12**

BAG SIZE (dimensions in inches)

Dia.	X	Length	Symbol
7-1/16	x	16-1/2	= **1**
7-1/16	X	32	= **2**
4-1/8	X	8	= **3**
4-1/8	X	14	= **4**
5-5/8	X	15	= **7**
5-5/8	X	21	= **8**
5-5/8	X	32	= **9**
8-3/8	X	32	= **12**

OPTIONS
Carbon steel ring = **No Symbol**
Stainless steel ring = **SS**