Industrial filtration

NB series filter bags

Polypropylene felt and polyester felt bags

Thermo Fisher Scientific Inc. offers a line of size #1 and #2 polypropylene felt and polyester felt filter bags in grades ranging from 1 to 200 microns, in various collar/media configurations (see ordering guide) with the following important benefits:

- Inside-outside flow configuration, resulting in the capture of contaminants on the inside of the bag
- Ease of handling: bags are collapsible
- Ability to handle viscous fluids
- Low unit cost

Meeting demanding customer specifications, the performance characteristics of the Thermo Scientific™ NB Series Filter Bags provide:



Figure 1. Thermo Scientific™ NB Series Filter Bags

Media migration control

Media migration is controlled through thermal treatment of the exterior surface of the filter media and procedures which properly weld the media seams and affix the media to the collar.

Proper sealing

Proper sealing of the bag in the filter housing is necessary for prevention of fluid bypass and subsequent contamination of the downstream fluid.

NB series filter bags are offered in both plastic and metal ring sealing collar versions.

For plastic collar versions, the filter bag media is welded to a specially designed plastic collar for proper sealing of the NB series filter bags in standard bag housings. The plastic collar incorporates an ergonomically designed handle allowing for easy removal of the filter bag from the filter housing. For ease of identification and traceability, the handles include an engraving with micron grade and manufacturing lot information. Metal ring collar versions use a galvanized steel ring for sealing the NB series filter bag in the housing. These versions can be used in most filter bag housings that will not accept the plastic collar version.

Material and construction

Each felt filter bag grade is manufactured from high performance fibers selected based on extensive media performance testing. No adhesives, binders or silicone are used in the media manufacturing process. Only the grades with the polypropylene collars are compliant for food contact applications.

- Retrofits many standard bag filter housings
- Provides long service life
- Reduces chance for filter media rupture, contaminant by-pass and unloading
- Simplifies filter installation, removal, and disposal

Features and benefits

Controlled media specifications

- Allows desired undersized particles to pass through (metallic paints)
- Effective removal of oversized contaminants

Specially designed sealing collars

- Handle designs allow for insertion of bag accessories (displacement balloons, magnets, etc.)
- Grade and lot information included for identification and traceability

Welded side seams and thermal treated exterior surfaces

- Control of fiber migration and subsequent downstream fluid contamination

Table 1. Thermo Scientific™ NB Series Filter Bags applications

Markets served	
Industrial	Hydrocarbon and refining
Automotive	Produced water
Chemicals	Electronics
Coatings	Food and beverage[1]

[1] Polypropylene felt filter bag with polypropylene collar is the only option for food and beverage applications.

Table 2. Thermo Scientific™ NB Series Filter Bags specifications

Dimension	#1 size	#2 size
Filter diameter	7 in (178 mm)	7 in (178 mm)
Filter length	17 in (432 mm)	32 in (813 mm)

Table 3. Thermo Scientific™ NB Series Filter Bags chemical compatibility

Chemical	Felt filter media compatibility rating[2]	
	Polypropylene	Polyester
Strong acids	Excellent	Good
Weak acids	Excellent	Excellent
Strong alkalis	Excellent	Poor
Weak alkalis	Excellent	Fair
Solvents	Fair	Good

[2] Thermal and chemical resistance data presented in this brochure is for guidance only. Factors such as duration, degree of concentration of a substance in a fluid and temperature should also be considered. For each application, the chemical compatibility of the galvanized steel ring should be tested under application conditions such as time, temperature, and environment.

Table 4. Thermo Scientific™ NB Series Filter Bags operating parameters

Operating conditions	Polypropylene media	Polyester media
Maximum operating temperature	180°F (82°C)	300°F (149°C)
Maximum recommended flow rate[3]	#1 size: 90 gpm (340 lpm) #2 size: 180 gpm (681 lpm)	
Maximum forward differential pressure	35 psid @ 68°F (2.4 bar @ 20°C)	
Recommended change-out differential pressure	20 psid (1.4 bar)	
21 CFR compliant materials	Certain NB series filter bags products are compliant with US FDA 21 CFR, EU Food Contact Regulation (EC) 1935/2004, EU Regulation 10/2011, and other food contact regulations. Contact your Thermo Fisher Scientific Inc. representative for detailed declaration of compliance information for food contact applications.	

[3] For aqueous solutions (1 cps) based on maintaining clean pressure drop (media only) of <2 psid (0.14 bar).

Ordering guide

Table 5. Thermo Scientific™ NB Series Filter Bag ordering guide

Filter designation	Nominal removal rating	Material	Bag size	Collar type
Nominal bag	0001* — 1 µm 0005 — 5 µm 0010 — 10 µm 0025 — 25 µm 0050 — 50 µm 0100 — 100 µm 0200**** — 200 µm	PPS — Polypropylene felt EES — Polyester felt	1 — 17 in (432 mm) 2 — 32 in (813 mm)	C — Plastic collar** R — Galvanized steel ring***

* Only available in plastic collar version.
** Polypropylene collar used for PPS bags. Polyester collar used for EES bags.
*** Polypropylene felt and polyester felt NB series filter bag with "R" collar type (galvanized steel ring) are not for use in food contact applications.
**** Only available in polyester felt NB series filter bags.

Intended Use: NB series filter bags are intended for use in industrial, chemical, electronics and food and beverage filtration applications of aqueous and non-aqueous fluids in accordance with the product instructions, specifications and where materials of construction are compatible.

Certain NB series filter bags are compliant for use in Food and Beverage applications. For specific details regarding use or limitations for food contact applications please contact your Thermo Fisher Scientific Inc. representative for more information.

Since there are many factors that can affect a product's use, the customer and user remain responsible for determining whether the Thermo Scientific product is suitable and appropriate for the user's specific application, including user risk assessments and evaluation of the Thermo Scientific product in the user's application.

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