



Dust Collection Cartridge and Bag Filters



Donaldson Filters have no Equal

Unparalleled Technology

► The world of air filtration revolves around Donaldson. As world leader in filtration for over 90 years, we continually strive to engineer filters that outperform others. Our innovative products set the standard in bag and cartridge filter technology.

Donaldson offers a full range of filters for almost any dust, fume and oil mist collection application.

Donaldson Dust Filters Performance

► Donaldson bag and cartridge filters keep dust collectors operating at peak performance, while providing significant energy cost savings. Especially our Dura-Life® bag filters and our proprietary Ultra-Web® cartridge filters with nanofiber filter media outperform and outlast all others. When it comes to Donaldson Dura-Life® and Ultra-Web® filter media, there is no equal in performance and value.

Donaldson's high performance filter media last longer and are extremely efficient – that means buying and replacing less filters, with less costs over time.



Dryflo® Mist Collector



Downflo® Oval Dust Collector



Modular Round Tubular Bag Filter

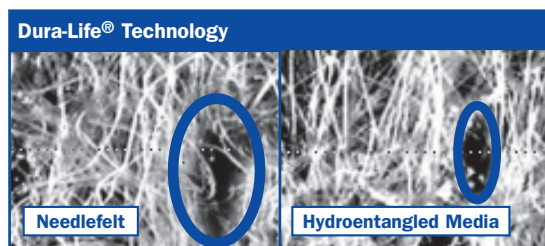
Donaldson dust collection filters offer you

- Increased surface loading
- Capture of sub-micron contaminants
- Enhanced dust cake release
- Lower energy costs
- Better cleaning efficiency
- Lower cost per cubic metre per hour of air (m³/h)

Breakthroughs in Filter Technology

Dura-Life® – A Breakthrough in Bag Filter Technology

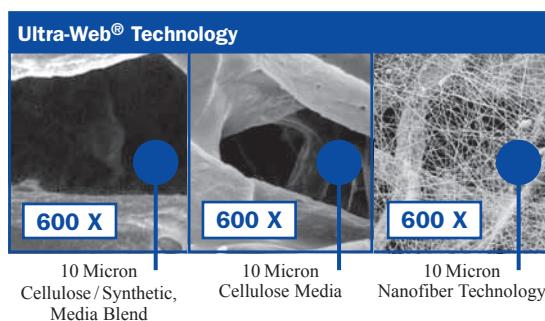
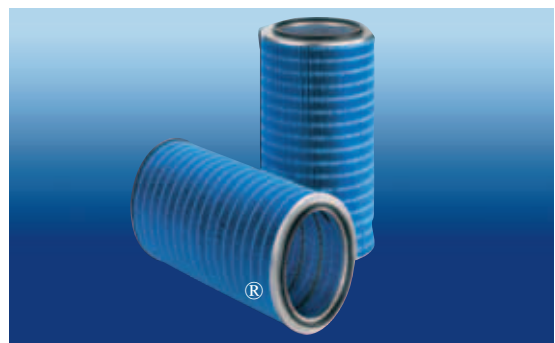
- ▶ Advanced hydroentanglement technology extends bag life
- ▶ Maintenance costs are reduced with longer bag life
- ▶ Energy savings result from lower pressure drop
- ▶ Smaller particles are captured with greater efficiency
- ▶ 99,9 % efficiency helps provide a cleaner, safer environment
- ▶ Lasts up to 2-3 times longer than standard polyester bags



Ordinary Polyester bags are woven with a needling process that creates larger pores where dust can be embedded into the fabric inhibiting cleaning and reducing bag life. Dura-Life® filter bags are engineered with a unique hydroentanglement process that uses water to blend the fibres, thus creating smaller pores enhancing cleaning and filter life.

Ultra-Web® – A Breakthrough in Cartridge Filter Technology





- ▶ Advanced media that captures submicron and larger dust particles
- ▶ A media that traps dust on the surface and promotes self-cleaning
- ▶ Better pulse cleaning and lower stabilised pressure drop
- ▶ Lasts up to 2 times longer than commodity filters
- ▶ Cleaner air, longer filter life, and greater cost savings



The distinguishing factor in our Ultra-Web® cartridges is nanofiber filtration technology. It uses a layer of fibers 0.2 to 0.3 microns in diameter to capture contaminants less than one micron in size. With nanofiber media, dust particles rapidly accumulate on the filter surface to build a thin, permeable dust-stopping cake. As a result, Ultra-Web® cartridges offer the highest filtration efficiency by eliminating premature media plugging and allowing the dust cake's release during the collector's cleaning cycle.

1 micron = 0,001 mm

Cartridge Filter Options

| | Ultra-Web®  | Fibra-Web®  | Ultra-Web® Spunbond  | Torit-Tex™  |
|--|---|--|--|---|
| Base media | Cellulose | Synthetic | Calendered, spunbond polyester | Calendered, spunbond polyester |
| Superior particle release | Nanofiber ^(a) | Nanofiber ^(a) | Nanofiber ^(a) | Tetratex® ePTFE Membrane ^(b) |
| BIA Classification⁽¹⁾ | M | M | M | M |
| Operating efficiency | 99.999 % on 0.5 micron | 99.999 % on 0.5 micron | 99.999 % on 0.5 micron | 99.999 % on 0.5 micron |
| Washable | 1 time | Up to 3 times | 1 time | Several times |
| Maximum operating temperature | 65° C / 150° F | 65° C / 150° F | 93° C / 200° F | 93° C / 200° F |
| Abrasion resistance | Good | Excellent | Excellent | Excellent |
| Chemical tolerance | Fair | Good | Excellent | Excellent |
| Optional flame retardant media (FR) | Yes | - | - | - |
| Optional conductive media⁽²⁾ / earthed element⁽³⁾ | (3) | (3) | (2)/(3) | (2)/(3) |
| Special characteristics | Highest efficiency similar to membrane products at a much lower price | Wide pleat spacing provides thorough pulse cleaning of fibrous and agglomerative particles | Wide pleat spacing provides thorough pulse cleaning of fibrous agglomerative dusts. High efficiency similar to membrane products at a much lower price | Wide pleat spacing and smooth, hydrophobic, state-of-the-art ePTFE membrane provides excellent particle release |
| Markets | Metalizing, pharmaceutical, thermal spray, welding | Composite grinding, food processing, grain handling, metal buffing, pharmaceutical, textiles, wood | Shot-blasting, grinding and polishing, powder coating | Chemical processing, food processing, general industry |
| Applications | Premium performance on ambient, extremely fine and non-fibrous dust and some abrasive dust. High filtration efficiency on very fine particulate of < 1 micron | Excellent performance on combination fibrous and non-fibrous dust, and/or agglomerative dust | Premium performance in ambient, extremely fine, fibrous and agglomerative dust. High filtration efficiency on very fine particulate of < 1 micron | Highly recommended for chemical, food, and industrial processing when product contamination must be minimized. Excellent performance on moist, hygroscopic, or agglomerative dust |
| Dust types | Fumed silica, metallic fume, metallurgical powders, weld fume | Ceramics, cotton, fiberglass, tobacco | Carbon black, colour pigments, dyes, chemical additives, plastics | Dextrose, flour, starch, sugar, whey |








Note:

Optional stainless steel construction available on all cartridges.

a) Nanofiber technology provides an initial filtration efficiency of up to 10 times greater than conventional media by utilising a unique layer of submicron fibers on the media's surface.

b) Tetratex® ePTFE membrane is comprised of millions of small, randomly connected fibers that create extremely small pore sizes to repel water while allowing air and moisture vapour to pass.

* Kevlar/Nomex are registered trademarks of E.I. DuPont de Nemours & Co., Inc.

|  Torit-Tex HCD™ |  Kevlar*/Nomex* |  Thermo-Tek™ |  Dryflo® |  WSO |  Vibra Shake™ |  Cellulex™ |
|--|--|---|---|--|--|---|
| Carbon impregnated, calendered, spunbond polyester | Synthetic | Synthetic | Synthetic | Polyester, Glass | Cellulose | Cellulose |
| Tetratex® ePTFE Membrane ^(b) | - | - | - | - | - | - |
| M | - | L | - | - | L | L |
| 99.999 % on 0.5 micron | 99.99 % on 1-10 micron | 99.99 % on 1 micron | 98 % on 1.8 micron | - | 99.99 % on 0.5 micron | 99.99 % on 0.5 micron |
| Several times | None | Up to 3 times | None | None | None | None |
| 135° C / 275° F | 177° C / 350° F | 135° C / 275° F | 65° C / 150° F | 43° C / 110° F | 65° C / 150° F | 65° C / 150° F |
| Excellent | Excellent | Excellent | N/A | N/A | Good | Good |
| Excellent | Good | Excellent | Fair | Good | Fair | Fair |
| - | - | - | - | - | - | Yes |
| - | - | (3) | - | - | - | (3) |
| Anti-static media with certified resistivity level of less than 10 ⁸ ohm | Special gaskets and adhesives assure structural integrity and airtight sealing characteristics | Excellent chemical tolerance – stainless steel option only | Prefilter coalesces smaller droplets into larger droplets | Proprietary bonding system stabilises pore structure for optimum performance. Designed for oily smoke/thermally generated mist | Prefilter sieves larger particulate | Enhanced performance due to a unique combination of fiber sizes and a more uniform fiber distribution |
| Chemical processing, general industry, pharmaceutical, pulp and paper | Chemical processing, general industry | Cement processing, chemical processing, metallurgical, pharmaceutical | Metalworking | Metalworking | Grinding and polishing, bag dumping | Retrofit, superior to felts, fabrics, cotton, cloths and similar media |
| Applications where electrostatic charges can be dangerous and with higher temperatures up to 135° C / 275° F | Metallurgical, chemical, and industrial processes. Higher temperature applications up to 177° C / 350° F | Metallurgical, chemical, and industrial applications. Higher temperature applications | Wet machining | Metal cutting, grinding, forming | Higher efficiency and easier maintenance for applications where envelop filters are typically used. Intermittent duty applications and machining | Applications with dry, coarse particulate. Economical choice for operations with forced or cyclical filter replacement (independent of pressure drop) |
| Coal, plastics, powdered materials, prepared food | Cement, coal/coke, ink, paint pigment | Carbon, cement, foundry shakeout, metal powders, shot blast, silica gel drying | Water soluble straight oils, semi-synthetic and synthetic coolants | Oily smoke | Metal grinding, carbon dust, graphite dust | Various |

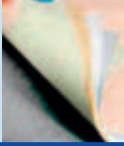
 Nanofiber filters
  Specialty Filters
  Standard Filters

1) BIA M guarantees a maximum degree of penetration of 0,1 % on particles between 0,2 and 2 µm. BIA L guarantees a maximum degree of penetration of 1,0 % on particles between 0,2 and 2 µm.

2) Conductive Elements are required when handling explosive dust. Elements have antistatic media (max. 10⁸ ohm) and are metallically earthed (max. 10⁶ ohm). These elements can be used for dust with MIE < 3 mJ.

3) Elements are metallically earthed. These elements can be used for dust with MIE > 3 mJ.

Bag Filter Options

| |  Dura-Life® | Dura-Life® Nomex | Tetratex® | Standard Polyester |
|--|---|---|---|---|
| Composition | Polyester | Aramid | Different base media such as Polyester, Polypropylene Homopolymer acryle, Polyamid, PPS, Fibreglass | Polyester |
| Construction | Hydroentangled felt | Hydroentangled felt | Tetratex® ePTFE Membrane | Scrim supported needlefelt |
| BIA Classification (1) | - | - | M | M |
| Max. cont. operating temperature | 135° C / 275° F | 180° C / 356° F | up to 150° C / 302° F | 135° C / 275° F |
| Maximum operating temperature (dry) | 150° C / 302° F | 200° C / 392° F | 180° C / 356° F | 150° C / 302° F |
| Abrasion resistance | Excellent | Excellent | Up to very good | Excellent |
| Resistance to acids | Very Good | Good | Up to very good | Very Good |
| Resistance to alkalies | Very Good | Good | - | Very Good |
| Available options: | | | | |
| Singed Finish | - | - | - | Yes |
| Epitropic Anti-Static (2) | Yes | - | Yes | Yes |
| Oleophobic treatment | Yes | - | - | Yes |
| Markets | Extensive market range incl. ambient filtration in food, pharmaceutical, metal working, foundries, minerals and plastic etc. | Mineral processing including drying, asphalt plants, cement manufacturing and combusting processes | Pharmaceutical, food industry, pigments and dyes, metals, incineration, cement | Agrofoods, cereals, wood industries |
| Applications | Premium performance media for the vast majority of bag house and venting applications offering improved efficiency, lower operating delta p and improved bag life | High temperature filtration offering improved efficiency, lower operating delta p and improved bag life | High and low temperatures applications where improved efficiency and long life is required | Ambient, nuisance dust applications |
| Dust types | Flour, sugar, starch, cement, pharmaceuticals, minerals, metals, shotblasting, wood-waste tobacco, oxides carbon black, polymers, etc. | Minerals, cement, clinker, limestone and fly ash | Pigments, chemicals, fly ash, metal oxides, pharmaceuticals | Agrofoods, grain, wood and coarse minerals etc. |

1) BIA M guarantees a maximum degree of penetration of 0,1 % on particles between 0,2 and 2 µm.

BIA L guarantees a maximum degree of penetration of 1,0 % on particles between 0,2 and 2 µm.

2) Conductive bags are required when handling explosive dust. Bags have antistatic media (max. 10⁸ ohm). These bags can be used for dust with MIE < 3 mJ.

| Polypropylene | Homopolymer Acrylic (Dralon) | Polyimide (P84) | PPS (Ryton) |
|--|--|--|--|
| Polypropylene | Homopolymer Acrylic | Polyimide | Polyphenylene sulphide |
| Scrim supported needlefelt | Scrim supported needlefelt | Scrim supported needlefelt | Scrim supported needlefelt |
| L | - | - | - |
| 100° C / 212° F | 140° C / 284° F | 260° C / 500° F | 190° C / 374° F |
| 110° C / 230° F | 150° C / 302° F | 300° C / 572° F | 230° C / 446° F |
| Excellent | Good | Very Good | Good |
| Excellent | Good | Very Good | Excellent |
| Excellent | Very Good | Very Good | Very Good |
| Yes | Yes | Yes | Yes |
| Yes | Yes | - | - |
| - | Yes | - | - |
| Chemical and agrochemicals | Food, minerals and chemicals | Industrial and municipal waste incineration, coal or wood fired boilers, metal smelting etc. | Industrial and municipal waste incineration, coal or wood fired boilers, metal smelting etc. |
| Low temperature filtration in presence of acids and strong alkali's. Galvanising | Drying and low temperature flue gas applications where moisture and or acids also be present | High temperature flue gas applications, particularly where moisture and acid forming compounds may also be present | High temperature flue gas applications, particularly where moisture and acid forming compounds may also be present |
| Fertilizers, soda ash etc. | Lime gypsum, coal, fly ash and asphalt | Fly ash and metal oxides | Fly ash and metal oxides |

Tetratex® ePTFE Membranes

▶ Tetratex ePTFE Membrane's unique microstructure comprises of millions of small randomly connected fibres that render an effective pore size many times smaller than can be seen by the naked eye. The result: Tetratex repels water and collects very fine particles whilst allowing air and static charge to freely permeate the membrane.

Tetratex is a surface filtration ePTFE membrane, laminated to woven material and needlefelts. It acts as a primary dustcake requiring no precoat before or during operation. By limiting fine particle penetration Tetratex preserves the filter substrate's integrity, whilst maintaining optimum airflow at a reduced pressure drop.

Epitropic Anti-Static

▶ Epitropic fibres are polyester fibers impregnated with a conductive carbon outer surface coating. When blended with standard polyester fibres provides a level of electrical resistance of below 1×10^8 ohm. This satisfies the ATEX requirements of an anti-static material. Epitropic polyester has the same heat and chemical resistance as standard polyester.

Oleophobic treatment

▶ Oleophobic treatment has a particular use where the dust is of an oily nature or when moisture may be present in the dust. The use of these treatments can in many instances significantly improve the dustcake release and prevent premature blinding, thus increasing media life as well as maintaining lower pressure drops across the filter.

These treatments can be applied to Polyester and Dralon needlefelts and also where the media contains anti-static fibres. They can also be used in conjunction with a mechanical surface finish.

Excursions through dewpoints and washing in warm water does not degrade the treatments characteristics and permeability remains unaffected.

Total Filtration Service

Here To Serve You

- ▶ Providing technically advanced filter media with the longest filtration life is just one of Donaldson's distinctions. When it comes to customer support, no other filter manufacturer can match Donaldson's technical expertise and commitment. Rely on Donaldson to help you choose the best filter media for your applications.
- ▶ **Filter Selection** With hundreds of varieties to choose from, Donaldson offers the broadest selection of filter media, each designed for specific applications.
- ▶ **Knowledgeable Support** Local Donaldson aftermarket sales representatives and service specialists help customers select the filter media for their application needs and assure a quick delivery.

- ▶ **Product Support** Donaldson filters are stocked and distributed quickly. Our distribution centers ensure that they arrive promptly at their destinations.

- ▶ **Easy Access** Call Donaldson customer service for assistance or visit us at www.donaldson.com.

Other Services

- ▶ Maintenance
- ▶ Commissioning
- ▶ Emission detection
- ▶ Emission measurement



Technical alterations reserved (4/2008)

U.S. Patents 6,955,775; 6,924,028;
6,716,274; 6,743,273; 5,954,849

Donaldson. And everything just got better.

Total Filtration Management

- ▶ Donaldson offers a wide variety of solutions to reduce your energy costs, improve your productivity, guarantee production quality and help protect the environment.

Filtration, Sterile Filtration, Process Filtration, Refrigerant Drying, Adsorption Drying, Condensate Drains, Condensate Purification Systems, Water Chillers, Air/Oil Separation, Dust and Fume Removal, Process Air and Gas Processing, Oil Mist Separation, Industrial Hydraulics

Total Filtration Service

- ▶ A comprehensive range of services especially designed to keep your production at peak performance and at the lowest total cost of ownership.

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