

Downflo® Containment Systems



Downflo® Containment System

Setting New Standards

The demands made on filtration equipment are continually rising. Cleaner air and worker exposure are becoming major concerns. The Donaldson® Torit® Downflo® Containment System (DCS) is setting new standards by filtering and containing dusts of low, intermediate, and potent toxicity.

The DCS is an innovative two-stage filtration system with patented Ultra-Web® nanofiber technology followed by Torit-Built® HEPA filters. Based on award-winning Downflo Oval technology, the DCS is designed to reduce exposure to harmful contaminants. Triple-sealed Bag-In/Bag-Out (BIBO) components and an integrated HEPA BIBO chamber under negative pressure make this series extremely effective for high containment. A variety of clean-change dust discharge options rounds out the new technology.

Fully Surrogate Tested
to $OEL\ 3b \leq 0.5\mu g/m^3$

DCS Offers:

- **Clean-change dust discharge**
- **Triple-sealed Bag-In/Bag-Out**
- **HEPA BIBO (under negative)**
- **Longer filter life**
- **Reduced exposure**
- **Ledgeless, easy clean interior**
- **Minimum product retention**
- **10-year warranty**
- **Customization²**



DCS 2-2

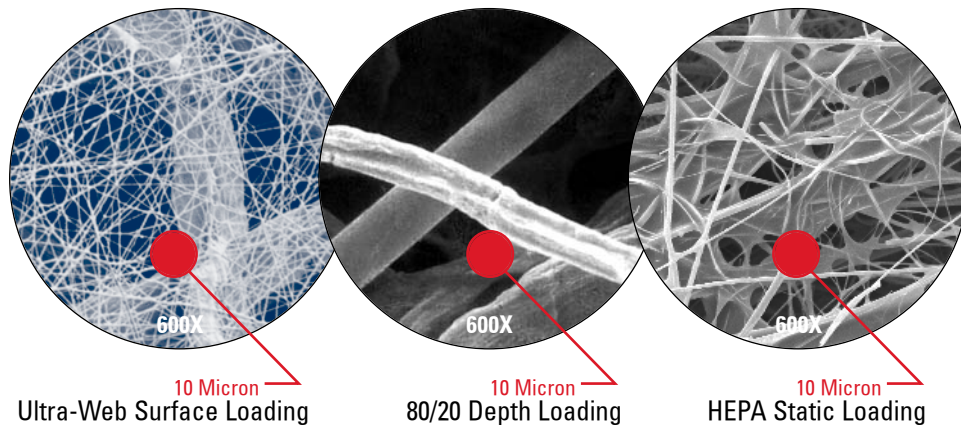
Downflo[®] Containment System

1

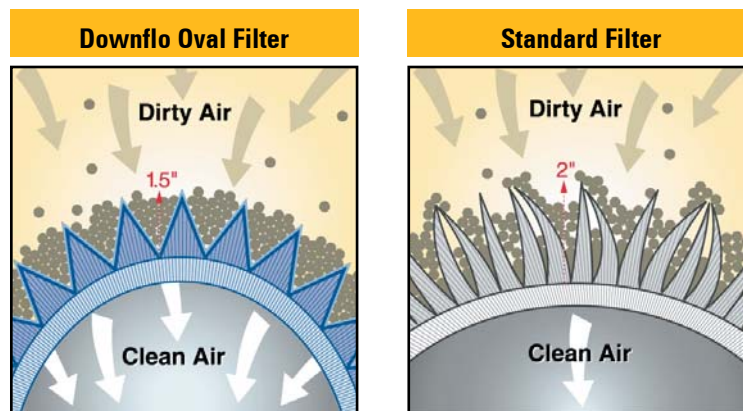
Longer Filter Life and Reduced Exposure

DCS oval-shaped, wide pleat cartridge filters in conjunction with patented Ultra-Web nanofiber filter media last longer, require fewer changeouts, and reduce exposure to harmful contaminants. Genuine Torit-Built oval filters are distinctly different in three ways:

Advantage # 1 - Oval filters are made with patented nanofiber media technology, which is scientifically proven to have advantages in efficiency, pressure drop and surface loading.



Advantage # 2 - Oval filters feature shorter, wider, stiffer pleats, which help minimize dust entrapment and simplify filter cleaning compared to conventional filter design.



Advantage # 3 - Ultra-Web oval filters are built to last! Rely on the proven and patented technology at the heart of the DCS.

- Advanced media captures even submicron particles, rates MERV 13
- Dust particles affix to the surface of the nanofiber web
- Surface loading promotes filter cleaning
- Better pulse cleaning lowers pressure drop
- Ultra-Web filters shown to last up to two times longer
- Reduces the need for filter changeouts
- Protects and ensures longer life for second-stage genuine Torit-Built[®] HEPA filters

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Increased Safety During Filter Change

New Bag-In/Bag-Out (BIBO) system for primary filters and HEPA filters is specifically designed for dust containment. Factory-installed triple-sealed BIBO features two O-rings and one band clamp to form a positive seal. BIBO bags are made of proprietary Armorflex[®]* 104 film and include a special sleeve pocket for the porthole cover. Bags are static dissipative, FDA and EU compliant, highly flexible and puncture resistant.

Bag-In/Bag-Out Features



- BIBO shelf attaches with no tools.



- The triple-sealed BIBO mechanism ensures continuous containment.



- Removed covers placed in a bag pocket and out of the way.



- Traditional twist, turn, and tie off procedure for bag.



- BIBO stored inside collar.



- Breather filter aids containment during BIBO process.

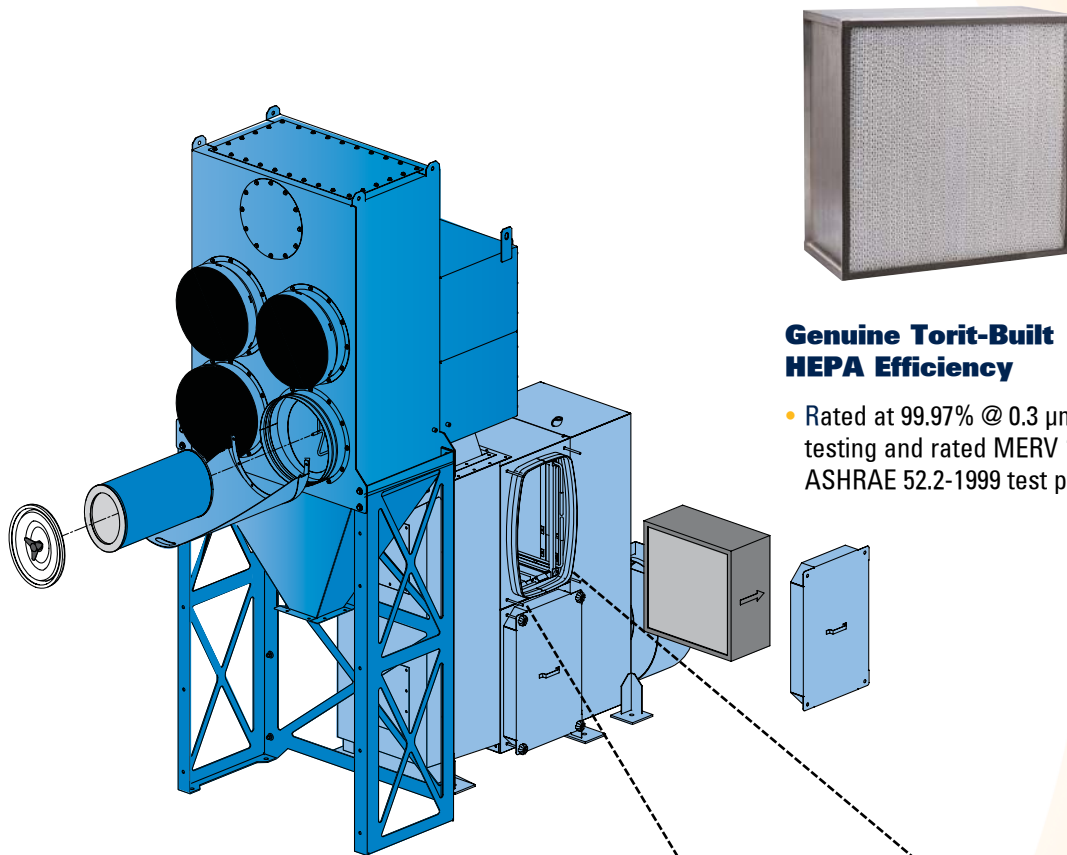
* Armorflex is a registered trademark of ILC Dover.

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3

HEPA Chamber for High Containment

The DCS comes complete with integrated HEPA BIBO chamber under negative pressure to ensure high containment at all times. The all-welded HEPA housing utilizes a locking mechanism specifically designed to maintain a leak-tight seal. The Bag-In/Bag-Out system for HEPA filters is the same triple-sealed system used on the primary filters.



Genuine Torit-Built HEPA Efficiency

- Rated at 99.97% @ 0.3 μ m per DOP testing and rated MERV 17, per ASHRAE 52.2-1999 test protocol



HEPA BIBO Changing Procedure

- BIBO process is the same as BIBO process for primary filters



Over Center Cam-Type Clamps

- Compress and secure neoprene gaskets of HEPA panels to knife-edge flanges

Downflo® Containment System

Clean & Reliable Dust Discharging

Available for Contaminant-Free Docking, Undocking and Compound Transfer

Contaminant Transfer Chamber (CTC)



- Reliable high containment
- DPTE®* Rapid Transfer Port System
- Round or oval glove ports
- Roller and clear action valves
- Maintenance without breaking containment
- Surrogate tested to OEL 3b
- Highly **CUSTOMIZABLE**

Buck Valve®* HC High Containment



- Contaminant-free docking, undocking and transfer
- Patented split valve technology
- Tested and validated to nanogram exposure levels

DoverPac®*



- Flexible containment system
- Demonstrated reliable performance
- 100% pressure tested and inspected
- Certified to OEL 3

* DPTE is a registered trademark of La Calhène.
Buck Valve is a registered trademark of Niro Pharma Systems.
DoverPac is a registered trademark of ILC Dover.

Addressing Safety Concerns

Many potent dusts can also be combustible and explosive. Donaldson Torit partners with fire and explosion protection experts to provide solutions for critical processes where hazardous particulate must be contained.

Explosion Venting

Explosion venting provides overpressure protection from potential industrial explosion hazards by providing a planned pathway for the expanding gases to escape. Fike CV Composite Explosion Vents are the standard choice for DCS.



- Composite membrane vent
- Layer of Teflon®* (to prevent leakage) between two layers of stainless steel
- Lightweight and specifically designed with scoring to burst in either direction at the same burst pressure

Explosion Suppression

Explosion Suppression systems are designed to detect and chemically suppress an explosion in its earliest (incipient) stages to prevent development of destructive pressures.



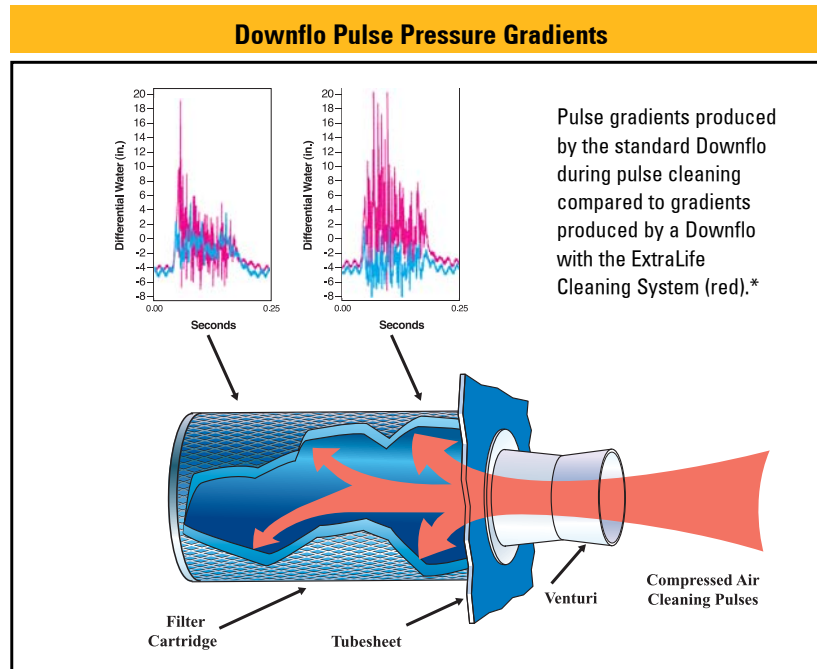
- Downflo Dust Collector with Fike Suppression System

* Teflon is a registered trademark of E.I. DuPont de Nemours & Co., Inc.

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Outperforms All Other Containment Systems

Effective filter cleaning is the key to long filter life. DCS includes the patented and quieter ExtraLife™ Filter Cleaning System, a proprietary, computer-modeled pulse cleaning technology designed to easily “pulse-off” dust from the surface of the filters, improving filtration efficiency and prolonging filter life.



* The red lines in the illustration show the increased pressure at the front of the Downflo filter generated by the ExtraLife system. The blue line shows the pulse signature of a standard cartridge collector.

Fully Tested and Certified

Manufactured under stringent quality assurance procedures, DCS is subjected to thorough inspections and leak tests before leaving the factory. Individual testing, rigid quality control and modern assembly methods are used to ensure conformance to specifications.

Factory Acceptance Testing

- Tested and certified to a Donaldson Company or customer specific FAT procedure
- FAT procedure performed on major components
- Leak testing and dimensional checks on connection points

Surrogate Testing

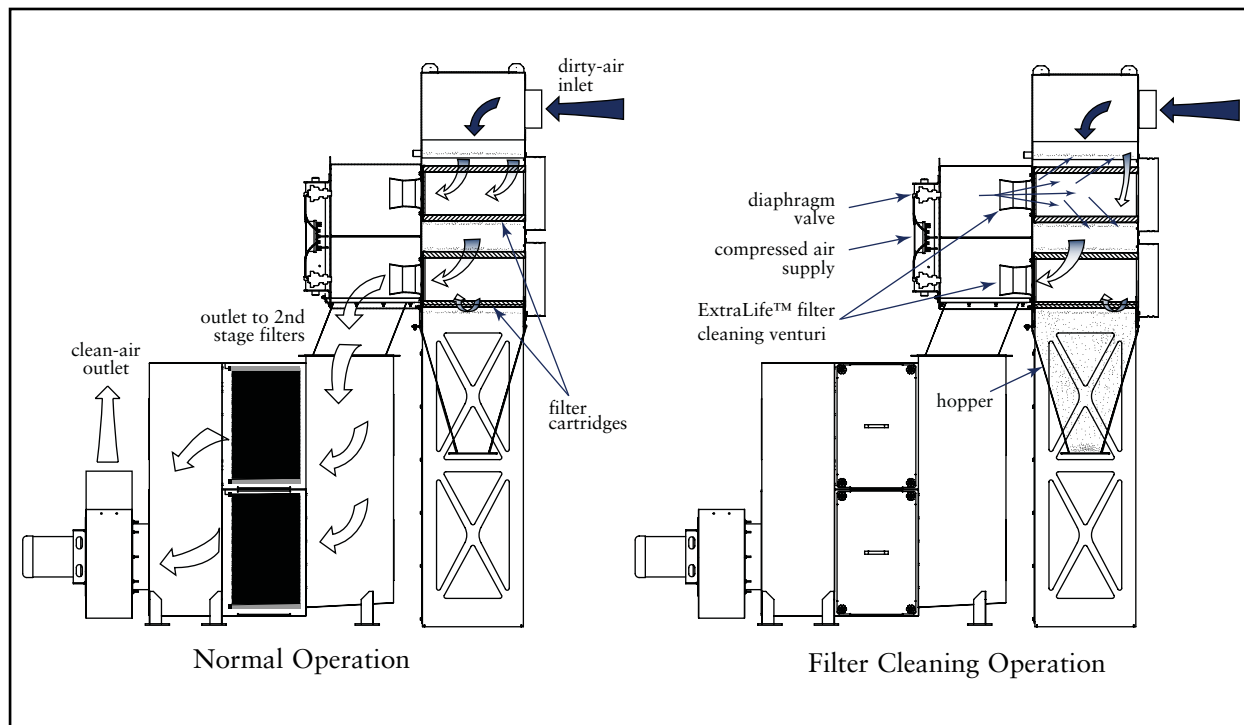
- Independent functional testing with process surrogate
- In accordance with Occupational Exposure Limits
- Certified to OEL 3b with area airborne concentrations of $0.5 \mu\text{g}/\text{m}^3$

Downflo® Containment System

7

Operations

Normal Operation and Filter Cleaning Operation

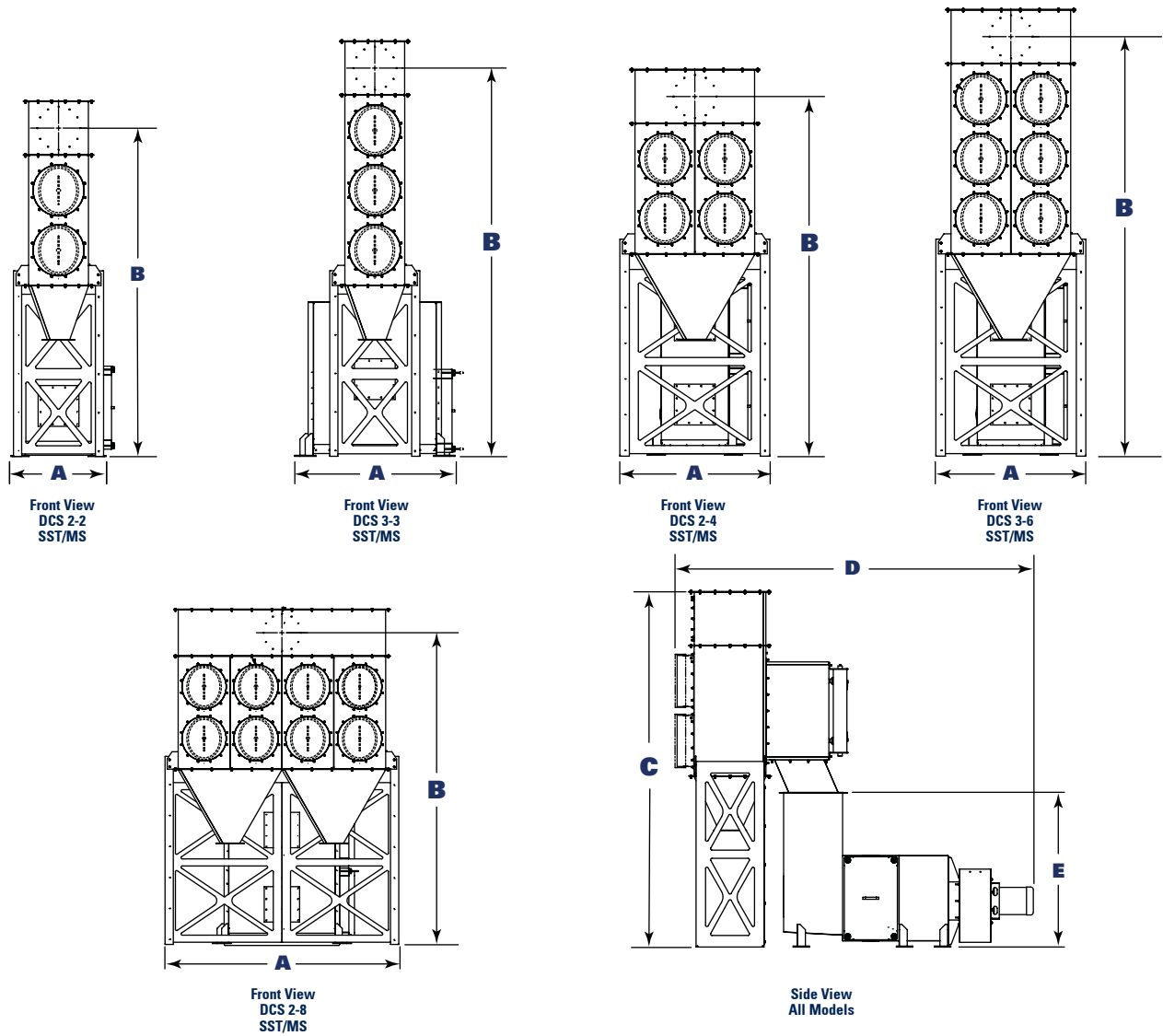


Operating Conditions

Models DCS 2-2, 3-3, 2-4, 3-6, 2-8			
Surrogate Test Results	OEL 3b $\leq 0.5 \mu\text{g}/\text{m}^3$	Standard Venting P-Red Rating	0.2 bar Class ST2 Kst <300
Ultra-Web Filter Efficiency	MERV 13	Seismic Spectral Acceleration	1.5
HEPA Filter Efficiency	99.97% @ $0.3 \mu\text{m}$ DOP MERV 17	Compressed Air Required	50 (ma. 60) psig
Housing Construction		Electrical Power	120 VAC
Mild Stainless (MS)	12 gauge	Valves/Controls	50/60 Hz
Stainless Steel (SST)	304L - 12 gauge	Max. Operating Temperature	150°F
Standard Operational Housing Rating ("H ₂ O)	-20 "wg	Horsepower Sound Level External Static Pressure	Provided through Donaldson Torit Fan Program

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Dimensions and Specifications



Model*	Nominal Airflow Range** (cfm)	No. of Filters	Ultra-Web Filter Area (ft ²)	No. of Valves	Shipping Weight (lbs)	Dimensions (inches)						
						A	B		C		D	E
							Buck Valve	DoverPac	Buck Valve	DoverPac		
DCS 2-2 SST	200-2200	2	380	2	1445	35.0	120.7	142.8	130.7	152.8	129.8	56.8
DCS 2-2 MS	200-2200	2	380	2	1365	35.0	116.1	149.5	127.3	149.5	130.4	56.8
DCS 2-4 SST	400-4500	4	760	4	2100	55.1	132.2	154.3	142.2	164.4	129.7	66.8
DCS 2-4 MS	400-4500	4	760	4	1925	52.3	131.4	153.6	142.7	164.9	130.4	66.8
DCS 2-8 SST	800-9000	8	1520	8	3020	99.1	132.2	154.3	142.2	164.4	132.5	66.8
DCS 2-8 MS	800-9000	8	1520	8	3060	96.3	131.4	153.6	142.7	164.9	133.2	66.8
DCS 3-3 SST	300-3400	3	570	3	1810	59.0	142.7	164.8	152.7	174.9	132.4	56.8
DCS 3-3 MS	300-3400	3	570	3	1710	59.0	138.1	160.2	149.3	171.5	133.0	56.8
DCS 3-6 SST	600-6800	6	1140	6	2345	55.1	154.2	176.3	164.2	186.4	129.7	66.8
DCS 3-6 MS	600-6800	6	1140	6	2275	52.3	153.4	175.6	164.7	186.9	130.4	66.8

* The first number indicates number of filter rows, and the second number indicates the number of cartridges

** Based on clean filters.

Downflo® Containment System

9

Standard Features & Equipment Options

DCS 2-2, 2-4, 2-8, 3-3, 3-6 (MS and SST)

	Standard	Optional
Collector Design		
Surrogate Tested Design	X	
Factory Acceptance Testing (FAT)	X	
Mild Steel or Stainless Steel Construction	X	
Reinforced Construction NFPA 68, 2002 Class ST2 Kst <300	X	
Custom Reinforced Construction		X
ExtraLife Pulse Cleaning System	X	
Completely Ledgeless Interior	X	
All Hardware Located Externally	X	
60° Ledgeless Hopper	X	
Leg Support Structure	X	
High Front Inlet	X	
Triple-Sealed Bag-In/Bag-Out	X	
Integrated HEPA BIBO Chamber Under Negative	X	
Sprinkler Coupling	X	
Quick-Release Sprinkler Head		X
Fan Package		X
Chamber and Exhaust Silencers		X
Dampers		X
Explosion Protection		
Composite Explosion Relief Panels		X
Suppression System		X
Cartridge & Panel Filters		
Ultra-Web® Nanofiber (MERV 13)*	X	
Ultra-Web Nanofiber NL - no liner (MERV 13)		X
Fibra-Web® Nanofiber (MERV 14)		X
Torit-Text™ Membrane (MERV 16)		X
BonDura™ Spunbond (MERV 11)		X
HEPA Filters 24" x 24" x 11.5" (MERV 17)	X	
ULPA Filters 24" x 24" x 11.5" (MERV 20)		X

	Standard	Optional
Material & Surface Finish		
Blue Acrylic Urethane Finish Over Alkyd Primer	MS	
Acrylic Urethane Finish Over Alkyd Primer With Color Specified		MS
Hostile Environment Acrylic Urethane Finish Over Epoxy Primer		MS
2B Mill Finish Both Sides	304L SS	
Custom Materials and Finishes		X
Weld Finishes		
Welds Controlled But Not Ground	MS	
Glass Bead Blasting #7	SST	
Remove Weld Discoloration / Grind Finish		SST
#4 Industrial Finish to RA32 (120-180)		SST
Custom Weld Finishes		X
Hopper Discharge		
ILC DoverPac 50 ft. Continuous Liner		X
GEA Niro Buck Valve HC with Jar		X
Contaminant Transfer Chamber (CTC)		X
Customer Specified Discharge		X
Electrical Controls, Gauges, and Enclosures		
Control Box NEMA Type 4 with Timer	X	
Delta P Control NEMA Type 4 with Timer		X
Solenoid Enclosure NEMA/UL Type 4	X	
Solenoid Enclosure NEMA/UL Type 7 & 9		X
Magnehelic® Gauge	X	
Photohelic® Gauge		X
Delta P Control (no timer)		X
Custom Control Panels		X
Warranty		
10-Year Warranty	X	

U.S. Patents 6,387,162; 6,488,746; 6,364,921; 6,368,388; 6,090,173; 5,562,746; other patents pending
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* The Minimum Efficiency Reporting Value (MERV) of this filter cartridge has been determined through independent laboratory testing using ASHRAE 52.2 (1999) test standards. The MERV rating was determined at a face velocity of 118 feet per minute and loading up to four inches water gauge. Actual efficiency of any filter cartridge will vary according to the specific application parameters. Dust concentration, airflow, particle characteristics, and pulse cleaning methods all affect filtration efficiency.

Visit us online at DustCollectionPros.com

Our Business is Improving Your Workplace Air Quality.



Since 1995, Environmental Solutions has been helping businesses, like yours, improve their workplace air quality. As an authorized service center for Donaldson Torit, we offer you a one-stop shop for equipment, service, engineering and installation of the industry's leading air pollution control systems.

Whether your company requires the removal of oil mist, welding fumes, machining or wood-working dust, graphite, or correction of any other type of air quality problem; we can expertly engineer and install a quality Donaldson Torit solution to meet your unique needs. No system is too big or too small.

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