

## **Downflo® Oval 1™ Dust Collectors**



# Downflo® Oval 1™

## A Family Of Over-Achievers

The high performance Downflo® Oval 1™ (DFO) family of over-achieving dust collectors is the best value available. Providing up to 25 percent more filtration capacity than same-sized cartridge collectors, DFO adds up to long-term savings and better performance.

The DFO advantage is found in the collector's patented design and components. Proprietary, ultra efficient filter media and cleaning technology allow more airflow through the collector without increasing the size of the footprint or damaging the filters.

A smaller collector helps lower the initial purchase price, reduces filter replacement costs and opens up valuable manufacturing floor space.

**25%**  
MORE  
CAPACITY

### DFO Offers:

- **Lower initial cost per cubic foot of air per minute (cfm)**
- **Fewer filter changeouts**
- **Reduced filter disposal cost**
- **Easy system set-up**
- **Less maintenance**
- **10-year warranty**



DFO 3-18

# Downflo® Oval 1™

1

## A Family Of Over-Achievers

The full line of DFO collectors offer a variety of benefits that distinguish them from all other collectors available in the market today.

- **Easy to use** Quick-release handles provide easy cover removal and faster filter access.
- **Compact** Smaller footprints for applications that require maximum cleaning efficiency in even smaller spaces.
- **Powerful** DFO collectors provide 25% more capacity than same-sized dust collectors.
- **Cost effective** The patented ExtraLife™ Filter Cleaning System averages up to 30% increase in pulse cleaning energy for unmatched cleaning ability.
- **Innovative** Unique oval-shaped Ultra-Web® cartridge filters provide the longest filter life and highest filtration efficiency—which lowers cost.



DFO 2-4

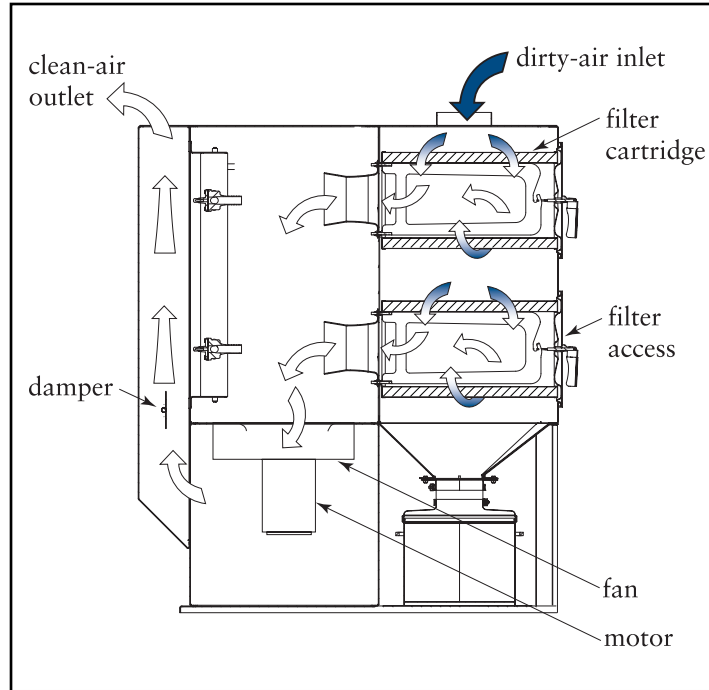


DFO 3-3

# Downflo® Oval 1™

## Sizes & Operations

### Normal Operations For Models 1-1, 2-2 and 3-3

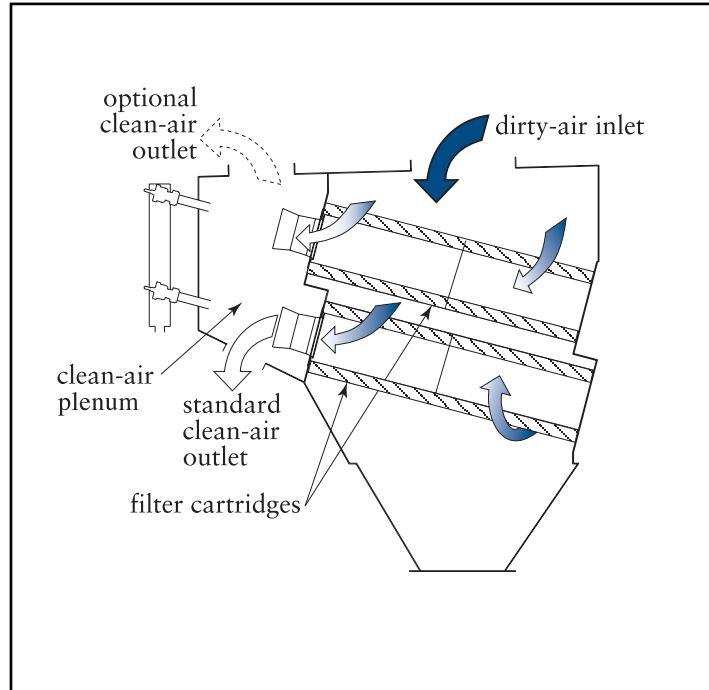


### DFO Models 1-1, 2-2 and 3-3

- Incorporates several exclusive unique features
- Completely self-contained, "plug-and-play" type units
- Packaged with power pack, controls, silencer, damper, dust container and more
- Remarkably quiet operation
- Exceptionally compact design
- Easily movable through standard aisles and doorways

## Sizes & Operations

### Normal Operations For Models 2-4 Through 4-128



### DFO Models 2-4 to 4-128

- 23 standard model sizes
- Customized sizes available
- Many options and accessories
- Exceptionally compact design

*Simply  
the Best  
Dust Collectors  
Available*



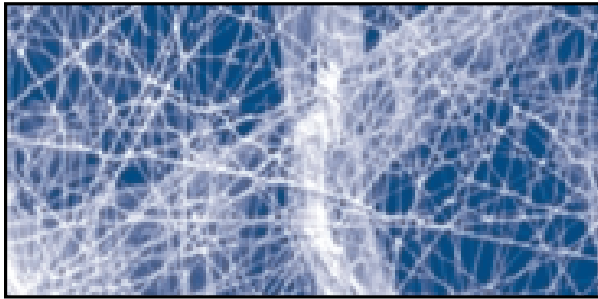
# Downflo® Oval 1™

## DFO Technology Unfolds

*The Remarkable Story of DFO  
Began with the Oval Cartridge Filter Itself*

**Ultra-Web® Nanofiber Media** A dramatic departure from traditional circular-shaped cartridge filters, DFO's oval-shaped filters, in conjunction with our patented nanofiber filter media, trap more dust on the surface of the filter than conventional commodity types of filter media such as depth-loading cellulose, polyester or cellulose/polyester blend.

ULTRA-WEB FILTER MEDIA (600X)



COMMODITY FILTER MEDIA (600X)



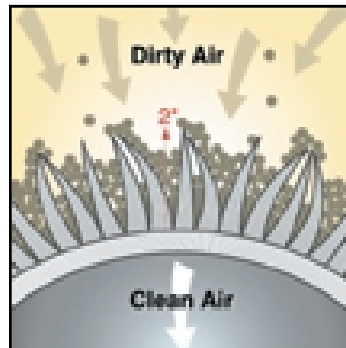
*The Innovation Continued with  
DFO's Shorter, Stiffer Filter Pleats*

**DFO Filter Media Pleats** Shorter and stiffer filter pleats help minimize dust entrapment and simplify filter cleaning. By reducing the height of the filter pleats from the standard 2 inches to 1.5 inches, the pleat wall is less likely to collapse or bend, which can encapsulate dust and prevent its expulsion.

DOWNFLO OVAL 1 FILTER



STANDARD FILTER



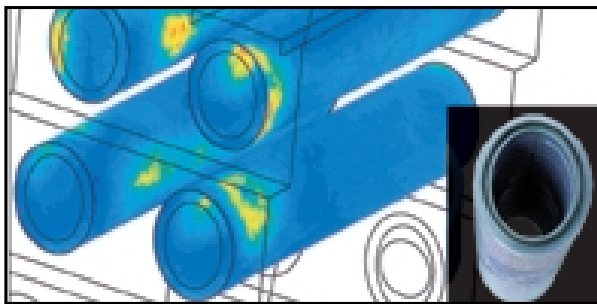


## More Airflow, Less Filter Media

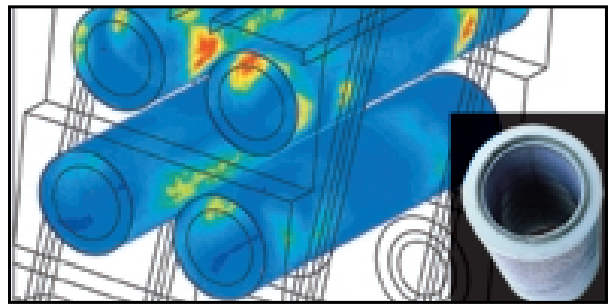
*New Oval Shape  
Contributed to Higher Airflow Capacity*

**High Performance Filters** The Downflo Oval filter design is a reflection of Donaldson Torit's commitment to technical research and development. Oval-shaped filters handle up to 25 percent more airflow without increasing velocities, which can cause filter abrasion. Sophisticated Fluent® airflow modeling software revealed that oval-shaped cartridge filters have fewer areas of high velocity, resulting in a lower potential for media abrasion and increased filter life.

**DOWNFLO OVAL 1 COLLECTOR: 9145 cfm**



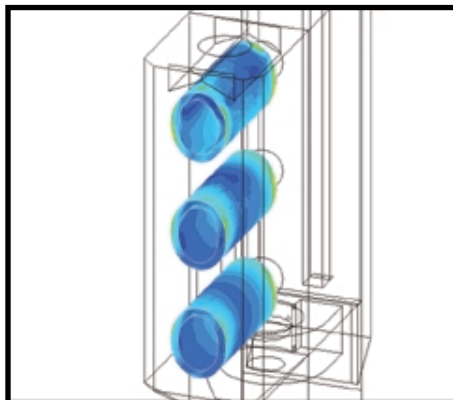
**STANDARD COLLECTOR: 7315 cfm**



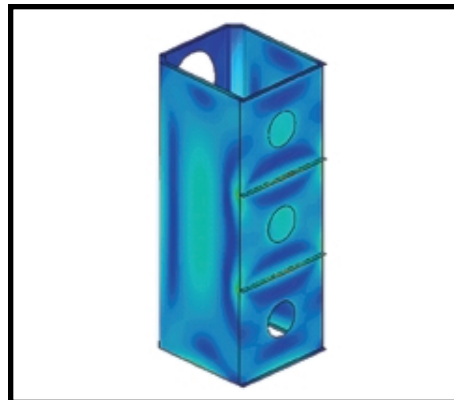
*Airflow Breakthroughs Lead To  
A New Chapter In Filtration Performance*

**Sophisticated Modeling** Computer modeling for fluid dynamics, structural mechanics and acoustics puts DFO models 1-1, 2-2, and 3-3 in a technical class all their own. The illustration below (left) shows how Fluent Flow Modeling Software enhanced the uniform air velocity distribution through model DFO 3-3. ANSYS® Structure Analysis Software shown below (right) demonstrates lowest stress levels and deflections for model DFO 3-3 under typical operating pressures.

**DFO 3-3 AIR VELOCITY DISTRIBUTION**



**DFO 3-3 STRESS & DEFLECTIONS MODEL**

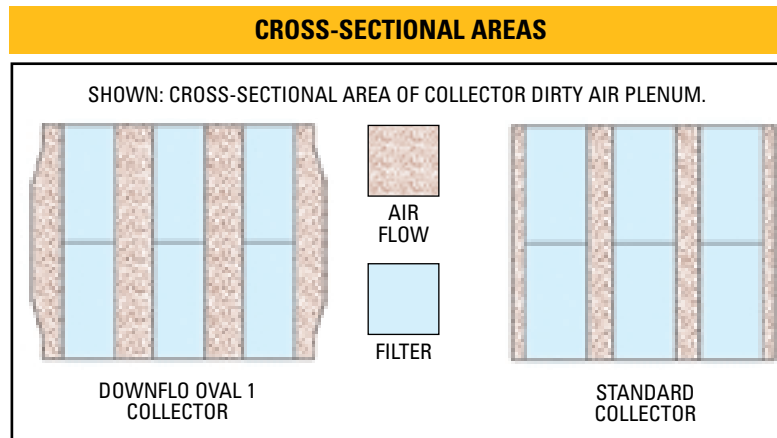


# Downflo® Oval 1™

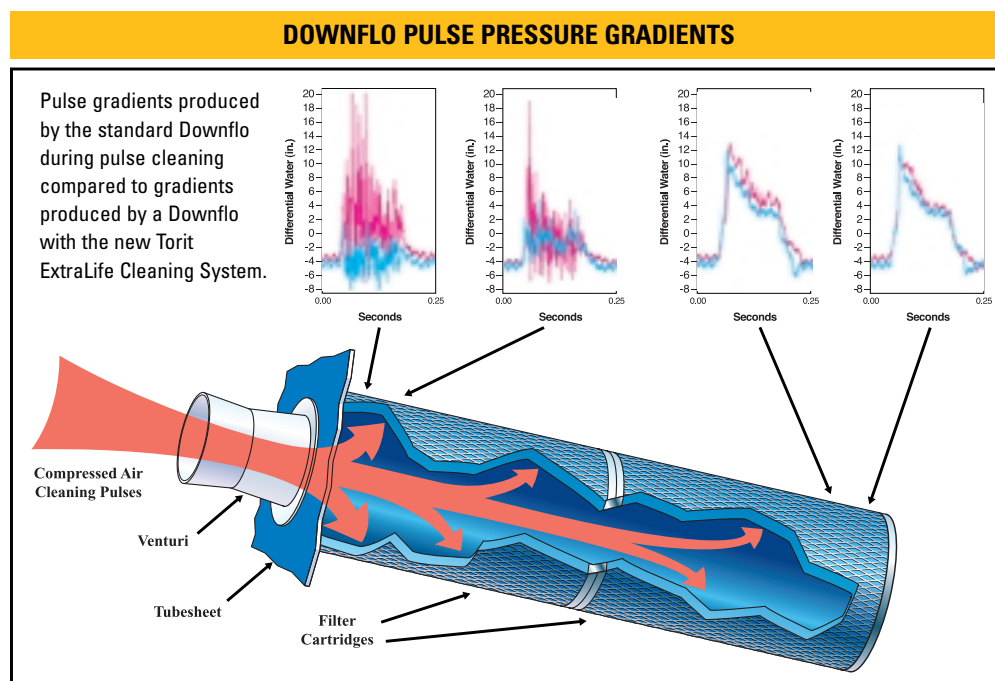
## Better Filtration, Prolonged Filter Life

### *Technical Discoveries Improved Filtration Performance And Prolonged Filter Life*

**Convex Side Walls** A new cabinet design with convex side walls streamlined the airflow path and increased the cabinet's cross-sectional area. The convex side walls provided more space between filters, lowered cabinet velocities and reduced the potential for media abrasion.



**Pulse Cleaning Technology** ExtraLife Filter Cleaning System uses proprietary, computer-modeled pulse cleaning technology to easily “pulse off” dust from the surface of the filter, 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.





## Operating Advantages & Conditions

**Easy Maintenance** With the new design of the DFO's quick-release access handles, filter removal and maintenance is extremely fast with one simple movement of the clamp.



## Operating Conditions

DFO Models	1-1	2-2	3-3	2-4 through 4-128
Horse Power	1.5	3	5	**
Sound Level dB(A)*	68	68	70	**
External Static Pressure ("wg)	***	***	***	**
Housing Construction (gauge)	12	12	12	10 (collector) 7 (tubesheet)
Housing Rating (inches H <sub>2</sub> O)	-20	-20	-20	-20
Wind Load Rating (mph)	—	—	—	100
Seismic Rating (zone)	4	4	4	4
Compressed Air Required (psig)	60	60	60	2-4, 3-6: 60 2-8 and up: 90-100
Electrical Power For Controls	120 VAC, 50/60 Hz	120 VAC, 50/60 Hz	120 VAC, 50/60 Hz	120 VAC, 50/60 Hz

\*Sound measurements were taken in a hemianechoic chamber and under free field conditions and do not reflect the influences of actual operating environments. Standard sound pressure levels were taken at an operator position of 1.5 m high and 1 m from source.

\*\*Provided through Donaldson Torit fan program.

\*\*\*See system performance curves on page 12.

## Downflo® Oval 1™

### DFO Cartridge Filters

DFO dust collectors' patented downward airflow design delivers highest filtration efficiency while using less energy. The DFO collector, patented ExtraLife filter cleaning and Donaldson Torit's unique oval-shaped filter cartridges are an unbeatable system. Choose from our superior line of filters to complete the most powerful dust collection solution available.

**Ultra-Web®** Featuring patented nanofiber technology, Ultra-Web cartridges provide unequalled filtration efficiency of 99.999% on 0.5 micron particles. This advanced surface filtration technology ensures longest filter life and lowest operating pressure drop in a full range of cartridges:

- Ultra-Web
- Ultra-Web FR (flame retardant)
- Ultra-Web NL (a "no-liner," banded construction for enhanced dust release on statically charged dust)



**Fibra-Web®** Featuring patented nanofiber technology, the Fibra-Web filter features an open washable design for easy cleaning in both fibrous and non-fibrous (agglomerative) applications. A proprietary blend of synthetic fibers in the base media and even wider pleat spacing provide filtration efficiency of 99.999% on 0.5 micron particles in two cartridge choices:

- Fibra-Web
- Fibra-Web FR (flame retardant)

# Donaldson®

## DFO Cartridge Filters



**Ultra-Tek®** With wide pleat spacing and a banded retention system, Ultra-Tek filters are specially designed to collect fibrous dust through a proprietary blend of synthetic fibers in the media. The result is longer filter life, higher efficiency and easier dust release during pulse cleaning.



**Torit-Tex™** With a high tolerance for moisture, Torit-Tex filter cartridges provide exceptional filtration efficiency of 99.999% on 0.5 micron particles in moist, hygroscopic and agglomerative applications. Its flexing media and quick-release Tetratex® PTFE membrane consists of extremely small pore sizes, allowing air and moisture vapor to pass efficiently, resulting in long filter life, even in difficult applications.

**Thermo-Tek®** Designed for high-temperature applications, Thermo-Tek filters have a proprietary media that offers exceptional filtration efficiency of 99.99% on 1 micron particles. Special heat-resistant construction and gaskets maintain seal strength and integrity at temperatures up to 275° F (135° C).

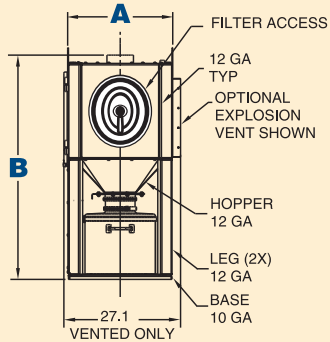


# Donaldson®

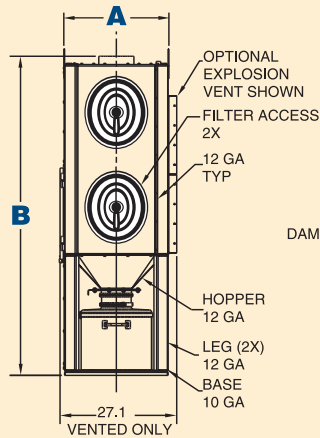
# Downflo® Oval 1™

## Dimensions & Specifications

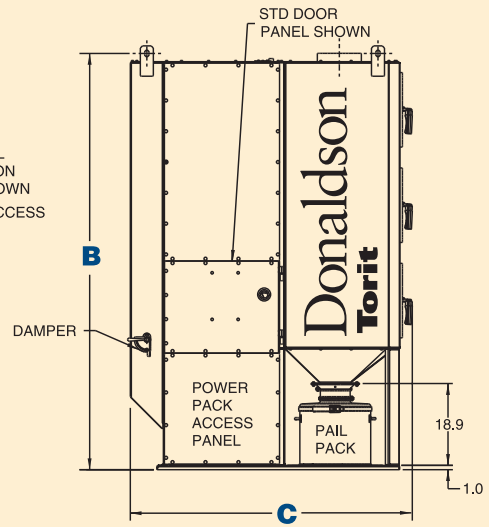
### BASE MODULES 1-1, 2-2 & 3-3



Front View  
DFO 1-1

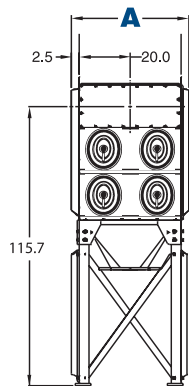


Front View  
DFO 2-2

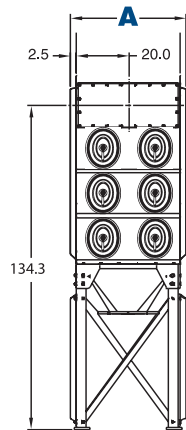


Left Side View  
DFO 3-3

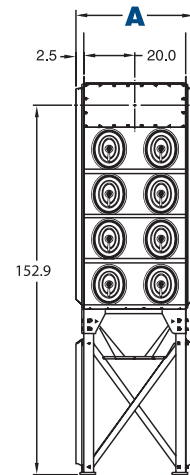
### BASE MODULES 2-4 THROUGH 4-128



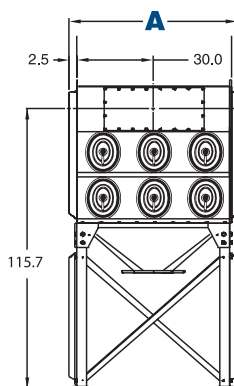
Front View  
DFO 2-Models



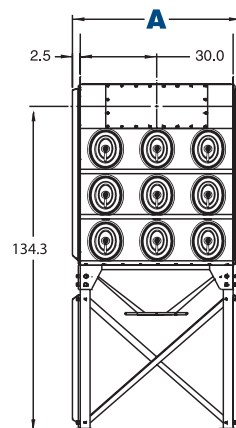
Front View  
DFO 3-Models



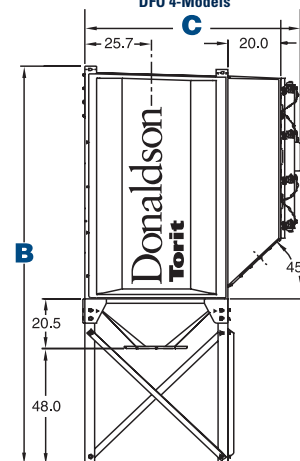
Front View  
DFO 4-Models



Front View  
DFO 2-12  
(3-Wide Models)



Front View  
DFO Model 3-18  
(3-Wide Models)



Right Side View  
All Models

## Dimensions & Specifications

Model*	No. of Filters	Ultra-Web Filter Area (ft <sup>2</sup> )	No. of Valves	Shipping Weight (lbs)	Dimensions (inches)		
					A	B	C
DFO 1 - 1	1	190	1	774	25.0	52.0	65.0
2 - 2	2	380	2	974	25.0	74.0	65.0
3 - 3	3	570	3	1,274	25.0	96.0	65.0
DFO 2 - 4	4	760	4	1,125	45.0	110.8	62.0
2 - 8	8	1,520	4	1,570	45.0	127.8	84.0
2 - 12	12	2,280	6	2,110	65.0	127.8	84.0
2 - 16	16	3,040	8	3,140	85.0	127.8	84.0
2 - 24	24	4,560	12	4,220	125.0	127.8	84.0
2 - 36	36	6,840	18	6,330	185.0	127.8	84.0
DFO 3 - 6	6	1,140	6	1,395	45.0	129.5	62.0
3 - 10	10	1,900	5	1,930	45.0	146.5	84.0
3 - 12	12	2,280	6	2,020	45.0	146.5	84.0
3 - 18	18	3,420	9	2,830	65.0	146.5	84.0
3 - 24	24	4,560	12	3,285	85.0	146.5	84.0
3 - 36	36	6,840	18	6,060	125.0	146.5	84.0
3 - 48	48	9,120	24	8,080	165.0	146.5	84.0
3 - 60	60	11,400	30	10,100	205.0	146.5	84.0
3 - 72	72	13,680	36	12,120	245.0	146.5	84.0
DFO 4 - 16	16	3,040	8	2,410	45.0	165.1	84.0
4 - 32	32	6,080	16	4,165	85.0	165.1	84.0
4 - 48	48	9,120	24	7,436	125.0	165.1	84.0
4 - 64	64	12,160	32	9,090	165.0	165.1	84.0
4 - 80	80	15,200	40	10,960	205.0	165.1	84.0
4 - 96	96	18,240	48	12,614	245.0	165.1	84.0
4 -112	112	21,280	56	14,455	285.0	165.1	84.0
4 -128	128	24,320	64	16,109	325.0	165.1	84.0

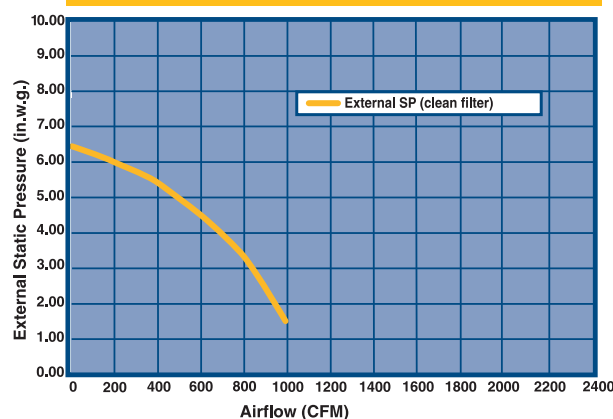
\* The first number indicates number of filter rows, and the second number indicates number of cartridges.

# Downflo® Oval 1™

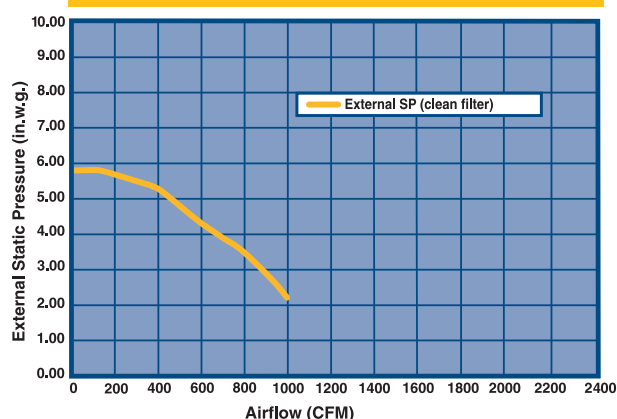
## System Curves For DFO Models 1-1, 2-2 and 3-3

**Powerful Performance** Unlike other technologies that require upgrades for more demanding applications, each DFO 1-1, 2-2 and 3-3 footprint comes standard with a unique high performance power pack. The system performance graphs below show the fan performance with clean filters. The curve indicates available external static pressure to the unit.

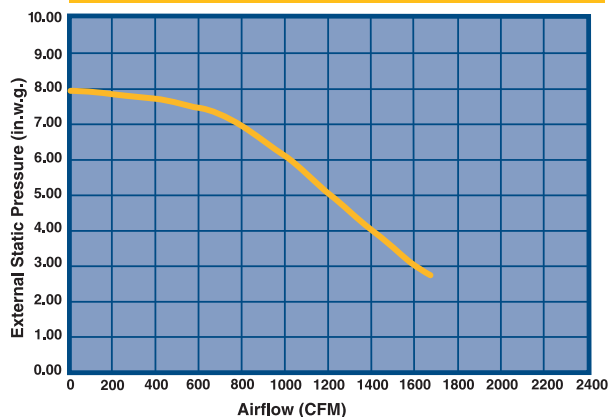
**DFO 1-1 1.5HP 60Hz with 6 in. inlet duct (clean filter)**



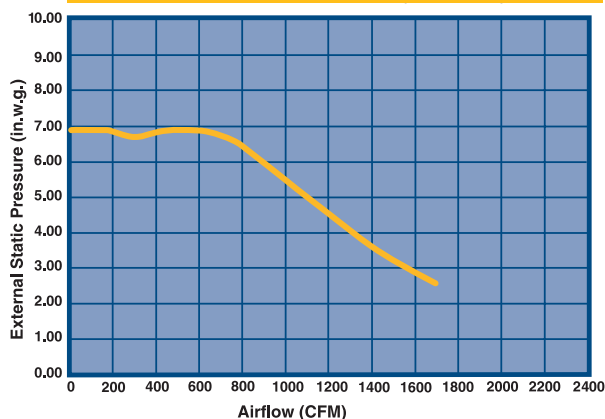
**DFO 1-1 3HP 50Hz with 6 in. inlet duct (clean filter)**



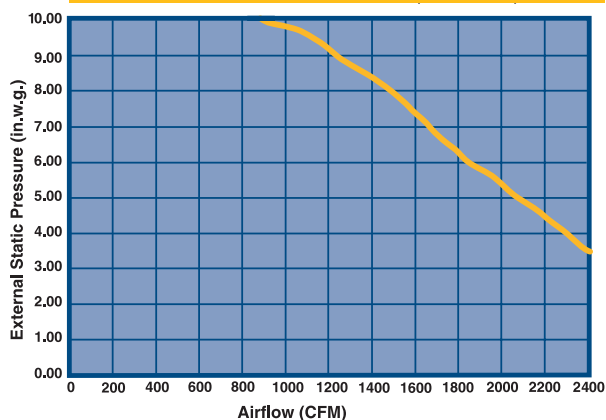
**DFO 2-2 3HP 60Hz with 8 in. inlet duct (clean filters)**



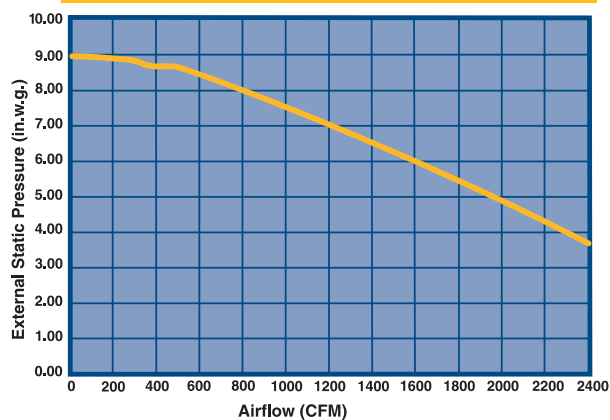
**DFO 2-2 3HP 50Hz with 8 in. inlet duct (clean filters)**



**DFO 3-3 5HP 60Hz with 9 in. inlet duct (clean filters)**



**DFO 3-3 5HP 50Hz with 9 in. inlet duct (clean filters)**





# Downflo® Oval 1™

## Standard Features & Options

### Standard Features For DFO 1-1, 2-2, 3-3

- Ultra-Web® Filters
- ExtraLife™ Filter Cleaning System
- Standard Inlet Sizes
  - DFO 1-1 6"
  - DFO 2-2 8"
  - DFO 3-3 9"
- Integral High Performance Power Packs
- Integral Exhaust Silencer
- Airflow Damper
- Manual or Automated Downtime Cleaning Controls (NEMA 12)
- Minihelic®\* Gauge
- Quick-Removal Access Covers
- Ledge-Free Hopper
- 10-Gallon Pail Pack
- 10-Year Warranty

### Equipment Options For DFO 1-1, 2-2, 3-3

- Explosion Protected Models (Solenoid Enclosure NEMA 9)
- Continuous On-Demand Torit Delta P Control
- Starter Controls
- HEPA Afterfilters
- 25-Gallon Dust Container
- Extraction Arms (7', 10', 14')
- Caster Pack
- Sealer Gear
- Bag-Out Kit

\* Minihelic, Magnehelic and Photohelic are registered trademarks of Dwyer Instruments, Inc.

Information contained in this document is subject to change without notice.

### Standard Features For DFO 2-4 Through 4-128

- Ultra-Web Filters
- ExtraLife Filter Cleaning System
- Checker™ Board Control Panel or Torit Delta P Control
- Quick-Removal Access Covers
- Ledge-Free Hopper
- 10-Year Warranty

### Equipment Options For DFO 2-4 Through 4-128

- Abrasion Resistant Inlets
- Air Management Module
- Extended Dirty Air Plenum
- Drum Sentry™ Drum-Full Indicator
- Basic Cold Climate Kit
- Heavy-Duty Cold Climate Kit
- Direct Drive Fans
- Damper Pack
- Chamber and Exhaust Silencers
- Steep-Sided Hoppers
- Explosion Vents
- Magnehelic®\* Gauge
- Photohelic®\* Gauge
- Rotary Valves and Transitions
- Slide Gates
- Drum Cover and Hose
- Service Platform (available on large units)
- Solenoid Enclosure (NEMA 7 & 9)
- Hostile Environment Paint
- Lined Clean Air Plenum (for pulsing noise)
- Afterfilters

**Donaldson® Torit®** Look to Donaldson Torit for all of your air filtration needs. Although you may not always see our products, you can breathe easier knowing we're there.

**Customer Support** For nearly 90 years, Donaldson Torit has been the leading innovator of air filtration solutions that make manufacturing plants a cleaner, safer environment for employees the world over. Driven by an unwavering commitment to customer support, Donaldson Torit is the name more manufacturers around the globe trust to deliver the most efficient and productive dust, mist and fume collectors and filter media.

**Unparalleled Innovation** Whether our customers need a single collector or a multi-faceted collection system, Donaldson Torit has the solution. The breadth of Donaldson Torit's innovative product line is unmatched, offering unparalleled filtration systems, ancillary parts and replacement filters. From central, source and ambient systems to baghouse, envelope and cartridge technologies, Donaldson Torit has the expertise to provide filtration solutions for virtually any application.

**Global Reach** Donaldson Torit manufactures and markets its filtration products throughout the world. As more manufacturers continue to expand and grow their operations globally, Donaldson Torit will be there to serve and support our customers' needs.

**Rely on the Industry Leader** When it comes to air filtration, you need a partner you can trust. Rely on the world leader in air filtration—Donaldson Torit.



**Donaldson®**  
*Filtration Solutions*

Donaldson Company, Inc.  
Industrial Air Filtration  
P.O. Box 1299  
Minneapolis, MN  
55440-1299 U.S.A.

Tel 800.365.1331  
dustmktg@mail.donaldson.com  
www.donaldsontorit.com



Printed in USA

© Donaldson Company, 2002 Downflo Oval 1 09-2002