Pre-Cleaners

No Matter What Dust Condition, Pre-cleaners Extend Air Filter Life

Pre-cleaners remove contaminant of varying sizes from entering the intake duct, and they don't require any engine power to operate. Some devices collect the contaminant (Full-View), others just eject or drop the contaminant (TopSpin,™ TopSpin™ HD, in-line separator), or are connected via a scavenge system and route debris out the exhaust system (Donaspin, Strata™ Cap).

Product Offering

- Six pre-cleaner styles offer the broadest product range in the industry
- Strata™ Cap is the new scavenge system option for operating in heavy dust environments
- TopSpin™ HD is the new all-metal option for heavy-duty applications where a rugged and durable pre-cleaner is needed
- Pre-cleaners extend life of vehicle air filters and serve as rain caps
- Units are made of durable materials — either metal or impact resistant plastic
- Most units install outside of engine compartment — leaving more space under hood for other components (exception-in-line separator)
- No wires or power requirements
- Please note: Strata Cap and Donaspin require additional components for scavenge system — hoses, check valves, clamps and exhaust ejector

To Scavenge or Not To Scavenge . . .

Air cleaners are designed to operate with or without aspiration. Aspiration (otherwise known as scavenging) is accomplished by introducing a secondary airflow in the intake ducting (generally through the use of an exhaust ejector or ejector muffler). This secondary airflow pulls the separated contaminant from the pre-cleaner and ejects it into the exhaust stream.

The advantages to scavenging are:

- Higher pre-cleaner efficiency (resulting in longer primary filter service life)
- Completely self-servicing (no regular maintenance needed on pre-cleaner)
- Drop tube can be located in a variety of orientations (not just straight down as is necessary on non-scavenged systems)

Aspirating an intake system through the use of a scavenging device adds more components (an ejector and some plumbing) to the overall system, but will enhance the separator efficiency of the pre-cleaner and consequently extend the primary filter service life.

An alternative . . .

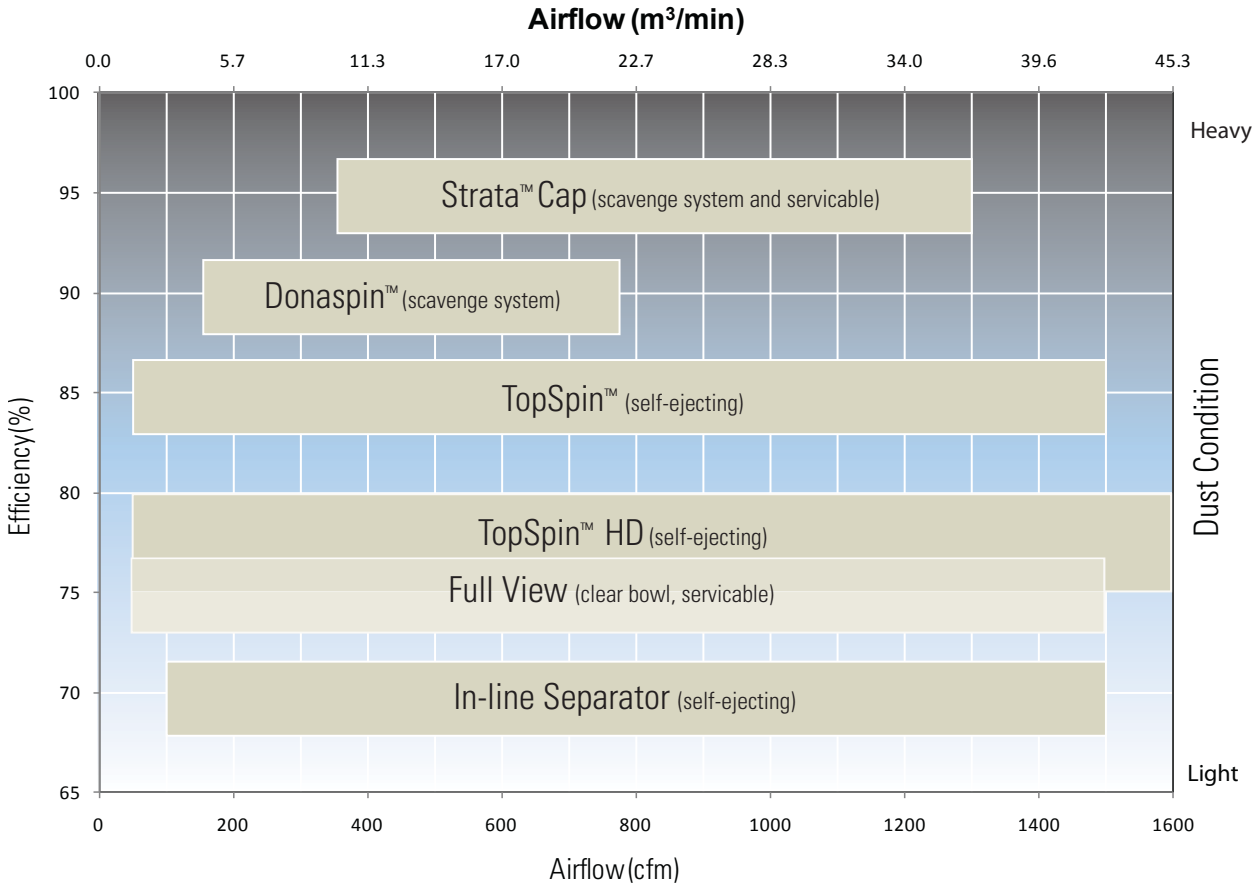
Air Cleaners with Built-in Pre-Cleaning

Before you decide on adding a pre-cleaner. Take a look at our PowerCore® air cleaner housings — the PowerCore PSD Series. PowerCore air cleaners have a pre-cleaning section built directly into the housing. If you have the room, choosing a PowerCore air cleaner will reduce the number of components in your intake system — fewer parts to track, maintain and manage. And, some PSD air cleaner models can also be used in scavenged systems.

See the PowerCore PSD Series section for more information.

Selection

Select the style that matches dust conditions, airflow and desired efficiency level.
Each pre-cleaner family is presented on the following pages.



Compare — Weight, Scavenge, Service and Materials

Additional characteristics about our pre-cleaner line to help you decide on the style that's best for you.

Dust Condition	Max. Septr Efficiency	Unit Weight Range lbs.	kg.	Pre-Cleaner Family	Scavenge Required	Service Required	Material
Heavy	96%	6.2 – 9.1	2.82 – 4.14	Strata™ Cap	Yes	Yes	Plastic
	90%	8.0 – 10.0	3.63 – 4.54	Donaspin™	Yes	No	Steel
Medium	85%	1.0 – 6.0	0.45 – 2.72	TopSpin™	No	No	Plastic
	80%	1.0 – 9.5	0.5 – 4.3	TopSpin™ HD	No	No	Aluminum/ Stainless Steel
	70%	11.5 – 14.8	5.23 – 6.70	In-Line Separator	No	No	Steel
	75%	0.8 – 9.2	0.37 – 4.17	Full-View	No	Yes	Steel/Plastic

Strata™ Cap Pre-Cleaner

Low Profile Pre-cleaner and Rain Cap in One!

The scavenged Strata™ Cap pre-cleaner removes up to 96% of incoming contaminant — the highest efficiency compared to all other Donaldson pre-cleaners. It is designed for the most demanding heavy dust environments in the construction and mining industry.

Features

Separates up to 96% of incoming contaminant per ISO 5011/SAE J726

- Significantly extends air filter life
- Reduces air filter servicing and replacement
- Lowers cost per operating hour
- Separates more than 99% of 20 micron and above particles

Low profile for maximum operator visibility

Robust design for heavy-duty environments

- No moving parts
- Both a rain cap and pre-cleaner
- No bowl to clean or empty
- UV resistant plastic construction

Simple installation

- Unit installs outside of engine compartment, leaving more space under hood for other components
- No wires or power requirements
- Requires additional standard components for scavenge

Lighter Weight

- Low profile
- Lighter weight compared to other Donaldson scavenge systems; e.g., STB System and Donaspin™ pre-cleaner

The scavenged Strata™ Cap pre-cleaner removes up to 96% of incoming contaminant — the highest pre-cleaning efficiency ever invented by Donaldson.

Application

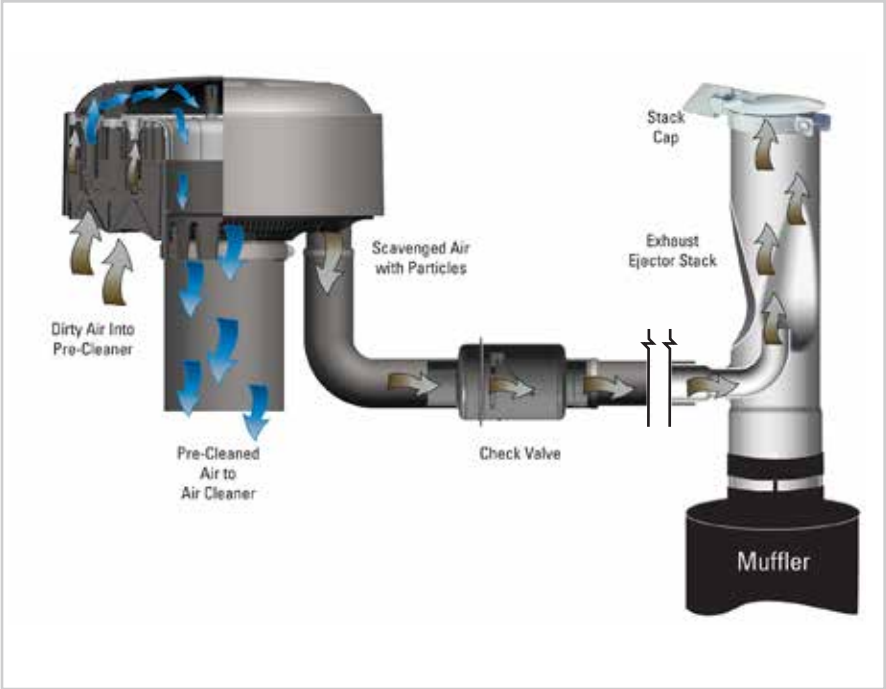
- Accommodates a range of airflows from 350 to 1,300 cfm (9.9-36.8 m3/min).
- Primarily used in heavy dust environments
- Great for off-road vehicles and equipment from crawler tractors to farm tractors to skid steer loaders
- Recommended mounting: outside of engine compartment on top of the air cleaner inlet stack

Advantages of Scavenging

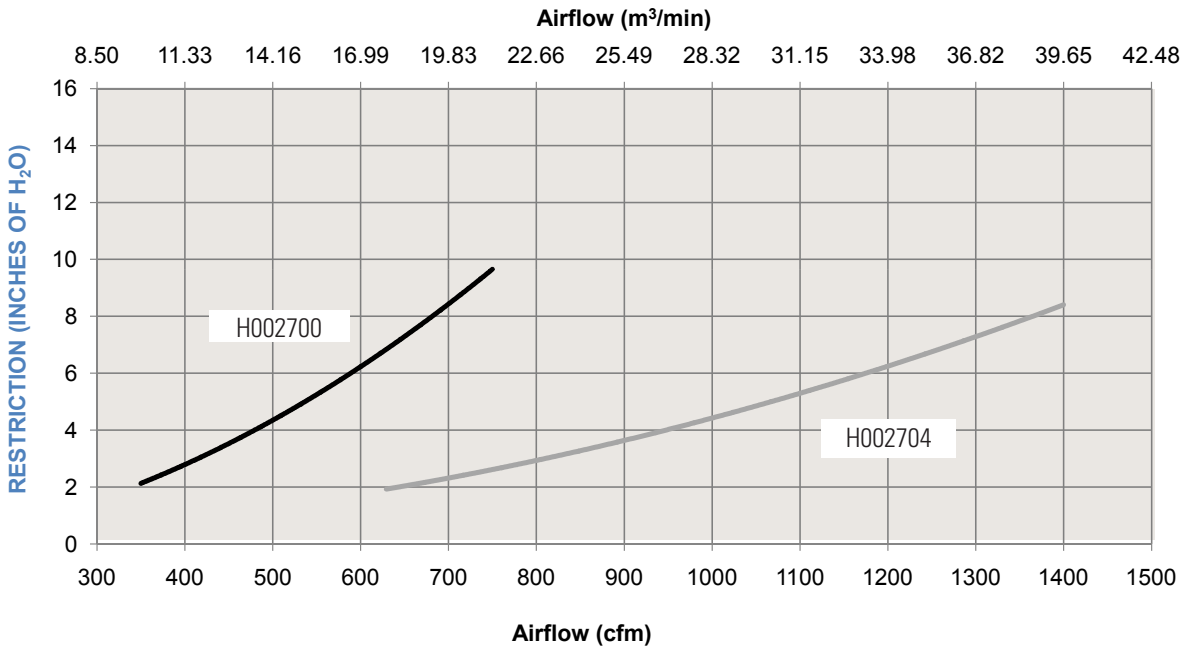
Scavenging is accomplished by introducing a secondary airflow to the drop tube on the air cleaner (generally through the use of an ejector or ejector muffler). This flow pulls the separated contaminant from the pre-cleaner and inserts it into the exhaust stream.

- Higher pre-cleaner efficiency (resulting in longer filter service life)
- Completely self-servicing (no regular maintenance needed on pre-cleaner)

Aspirating an intake system through the use of a scavenging device adds more components (an ejector and some plumbing) to the overall system, but will enhance the separator efficiency of the pre- cleaner and consequently extend the filter service life.

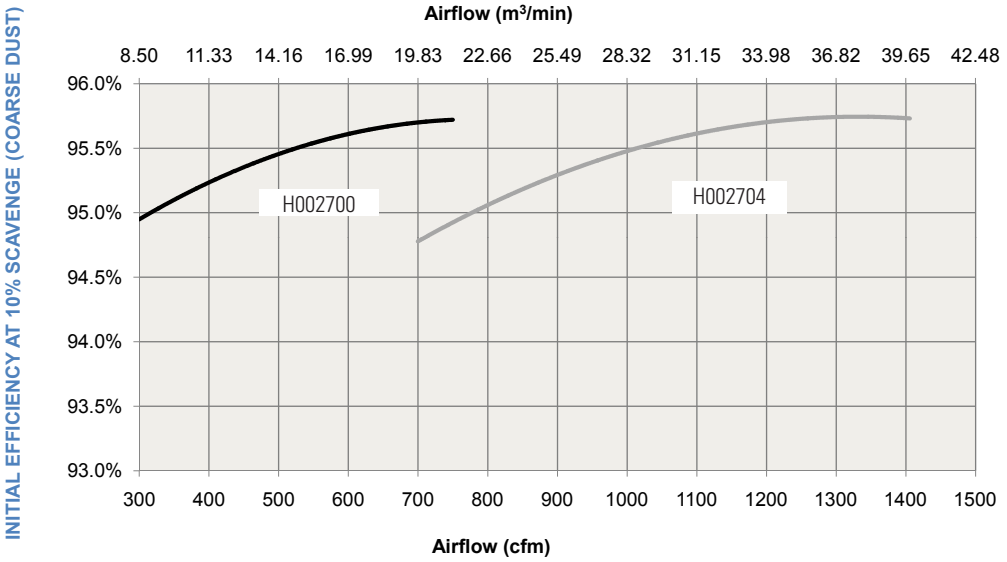


Performance — Restriction at 10% Scavenge



Strata™ Cap Pre-Cleaner

Performance — Initial Efficiency at 10% Scavenge



Dimensional Specifications

Overall Height (A) in	mm	Body Dia. (B) in	mm	Outlet I.D. (C) in	mm	Scavenge Hose I.D. (D) in	mm	Part Number	Weight lbs.	kg.	Rated Air Flow @ 6" H_2O
8.00	218	14.00	356	5.00	127	2.00	51	H002700	13.6	6.2	600 cfm / 17.0 m³/m
8.60	218	17.20	437	8.00	203	2.00	51	H002704	19.4	8.8	1140 cfm / 32.3 m³/m

Installation

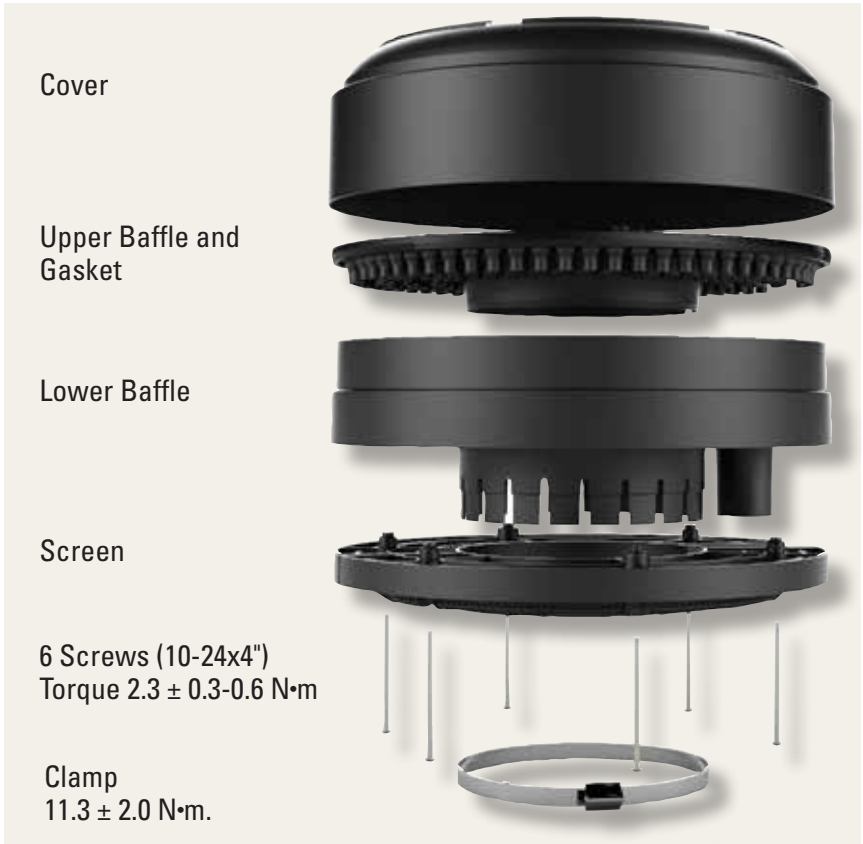
For proper function, the pre-cleaner/rain cap installs over a 5.0" or 8.0" OD metal intake tube and connects to a 2.0" I.D. scavenge hose. The scavenge hose should be secured from movement within 12.0" / 305mm of the pre-cleaner/rain cap.

Additional components are required for proper installation:

- Scavenge hose (2.0" / 51mm I.D.) need enough for two cut lengths connecting to the Strata™ Cap to check valve and the check valve to exhaust ejector
- Hose clamps (x 4) (Part No. P115200)
- Check Valve (Part No. H000722)
- Metal Intake Tube (O.D.) to mount Strata™ Cap to Air Cleaner (5.0" / 127 mm or 8.0" / 203 mm Dia. — depends on your Strata™ Cap size)
- Standard and expanded I.D. exhaust ejectors available

Service Procedure

The pre-cleaner/rain cap may need to be cleaned over time. The procedure below recommends removal and disassembly of the unit to clean. The unit can be cleaned with either water, mild-soapy water or compressed air. Tapping or hitting the components to dislodge contaminant should be avoided. It may cause damage and prevent reassembly.



1. Turn off engine.
2. Loosen both connecting clamps (metal pipe and scavenge hose) and remove the Strata™ Cap pre-cleaner.

   Note: Cover or plug intake pipe to protect air intake system from contamination during service.

3. Turn unit upside down. Remove the screws (save for reassembly) and disassemble the unit (screen is two pieces).
4. Clean all the parts to remove dust and debris from each component.
5. After cleaning, inspect the gasket on the perimeter of the upper baffle. If damaged in any way replace with new gasket. Check gasket position, make sure it is installed evenly around upper baffle permitter.

   Note: Using the unit without gasket properly installed will affect Strata Cap pre-cleaning performance.

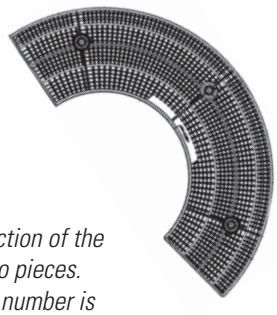
6. With cover upside down, reassemble components. Unit has alignment guides to aide reassembly.
7. With all components together, reinstall and torque the 6 screws to 2.3 ± 0.3-0.6 N•m

   Note: Removable screw adhesive is to be used on the screws if original blue patch has been worn off.

8. Replace Strata Cap on intake stack, reconnect scavenge hose. Tighten clamps to torque specifications. If scavenge support was disconnected, reconnect.

Service Parts

Strata Cap Model No.	Gasket	1/2 Screen
H002700	P617476	P617922
H002704	P167475	P617923



Entire screen section of the Strata Cap is two pieces. The service part number is one screen only.

TopSpin™ Pre-Cleaner

TopSpin™ Can Extend Filter Life in Heavy Dust Conditions

Donaldson TopSpin™ will extend primary air filter life, boost system efficiency, and extend engine life.

Features

Separates up to 85% of incoming contaminant per ISO 5011/SAE J726

- Greatly extends air filter life
- Reduces air filter usage
- Lowers cost per operating hour
- Automatically ejects mixed debris
- Separates more than 99% of 20 micron and above particles

Self-cleaning/self-scavenging

- No maintenance to clean bowl
- No exhaust ejector required

Easy installation

- Quick installation
- One clamp to tighten
- No wires or power requirements

Dual mounted bearings

- More robust design
- Extends bearing life

Lighter Weight

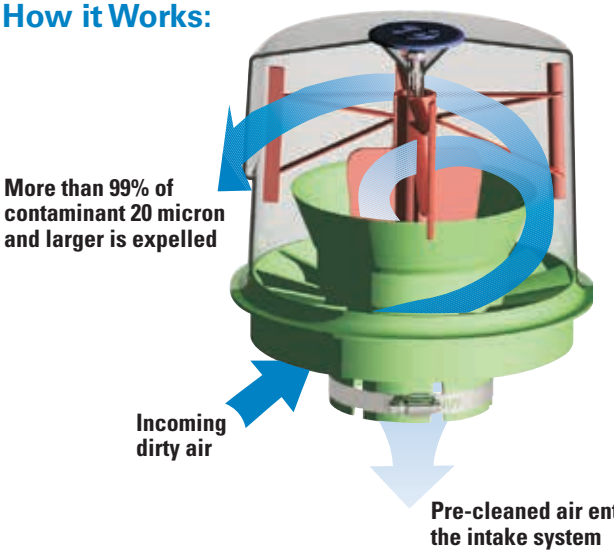
- Lighter than competitive pre-cleaners
- Lighter than Donaldson full-view pre-cleaner

Application

- Engine airflows of 80 to 1500 cfm (2.3-42.5 m3/min).
- Primarily used in medium to heavy dust environments
- Great for off-road vehicles and equipment from crawler tractors to farm tractors to skid steer loaders
- Recommended mounting: on top of the air cleaner inlet stack

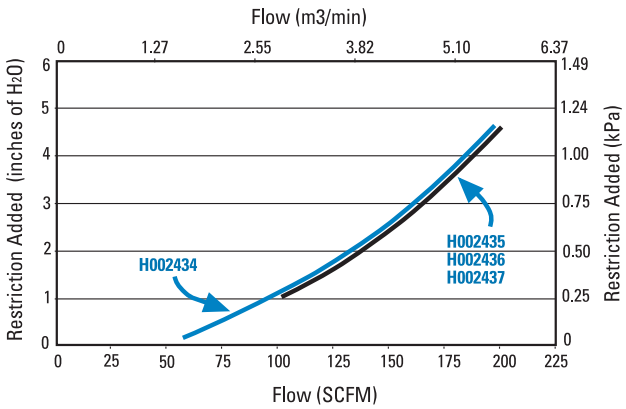
Donaldson TopSpin™ in Action
Upper left, *TopSpin on exacvator;* ***upper right,*** *millitary ground vehicle in middle east;* ***left,*** *TopSpin on pumper truck in Australia.*

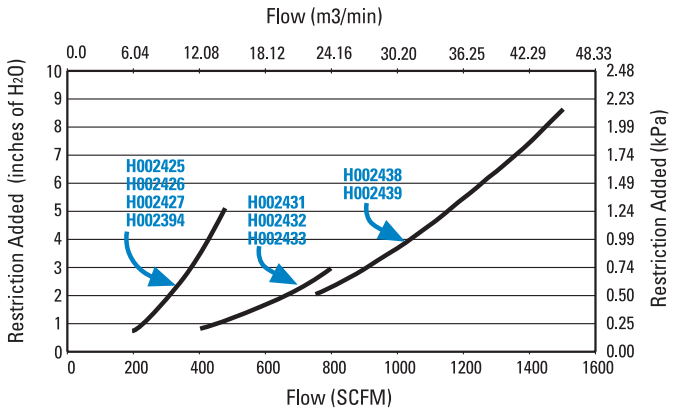
How it Works:



Performance Curves

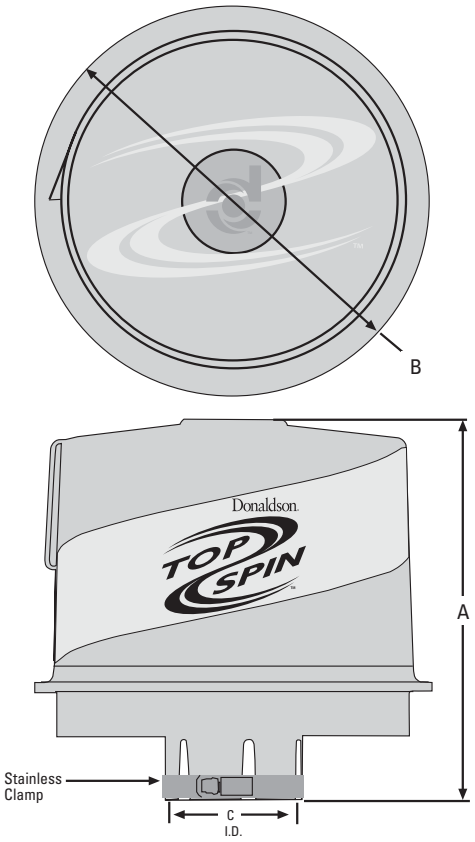
Multiple tests conducted per ISO 5011/SAE J726 and average results are shown in charts below.





Dimensional Specifications

Donaldson TopSpin™ can be mounted horizontally or vertically. Installation instructions, stainless clamp and warranty are included. Operating temperature range: -40 °F to 180 °F (-40 °C to 82 °C)



Outlet I.D. (C) in	mm	Overall Height (A) in	mm	Body Dia. (B) in	mm	Part Number	Weight lbs.	kg.
2.03	52	5.75	146	6.38	162	H002434	1.0	0.4
2.27	58	5.75	146	6.38	162	H002435	1.0	0.4
2.53	64	5.75	146	6.38	162	H002436	1.0	0.4
3.03	77	5.75	146	6.38	162	H002437	1.0	0.4
3.07	78	9.39	238	9.51	242	H002425	2.2	1.0
3.83	97	9.39	238	9.51	242	H002426	2.2	1.0
4.06	103	9.39	238	9.51	242	H002394	2.2	1.0
		11.30	287	11.32	288	H002431	2.7	1.2
4.56	116	9.39	238	9.51	242	H002427	2.2	1.0
		11.30	287	11.32	288	H002432	2.7	1.2
5.03	128	11.30	287	11.32	288	H002433	2.7	1.2
6.03	153	13.57	345	15.62	397	H002438	6.0	2.7
7.03	179	13.57	345	15.62	397	H002439	6.0	2.7

Cross reference from a full-view pre-cleaner to a TopSpin pre-cleaner can be found on the Full-view Pre-cleaner page.

TopSpin™ HD Pre-Cleaner

All-Metal Pre-cleaner is Durable Solution for Punishing Conditions

Donaldson TopSpin™ HD will extend primary air filter life, boost system efficiency and extend engine life in medium to heavy dust environments.

Features

Separates up to 80% of incoming contaminant per ISO 5011

- All-metal construction
- Greatly extends air filter life
- Reduces air filter usage
- Lowers cost per operating hour
- Automatically ejects mixed debris

Self-cleaning/self-scavenging

- No maintenance to clean bowl
- No exhaust ejector required

Easy installation

- Quick installation
- One clamp to tighten
- No wires or power requirements

Application

- Engine airflows of 50 to 1600 cfm (1.4-45.3 m3/min).
- Primarily used in medium to heavy dust environments
- Great for off-road vehicles and equipment, including crawler tractors, farm tractors, skid steer loaders, mining, and fracking machines
- Recommended mounting: on top of the ***metal*** air cleaner inlet stack. Do not mount on non-metal inlet stack

Built as tough as your equipment

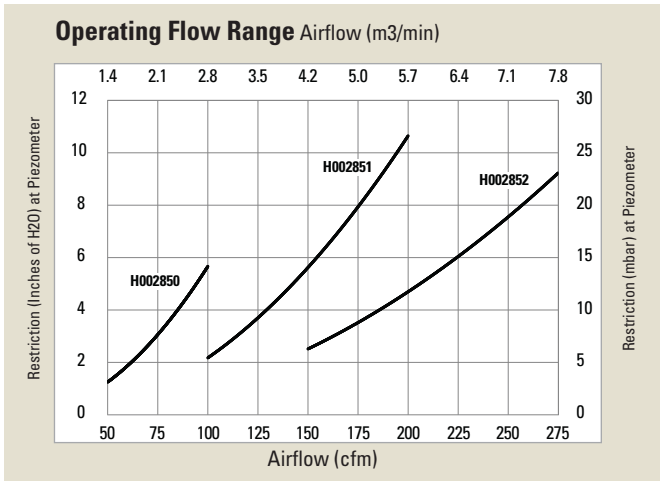
Rugged one-piece **aluminum hood** with recessed discharge louver sheds flying debris.

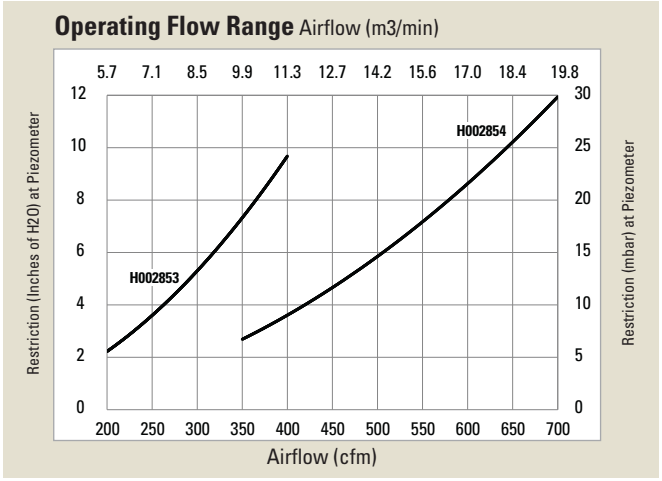
One-piece **stainless steel impeller** is the only moving part. Dual bearings ensure reliable performance.

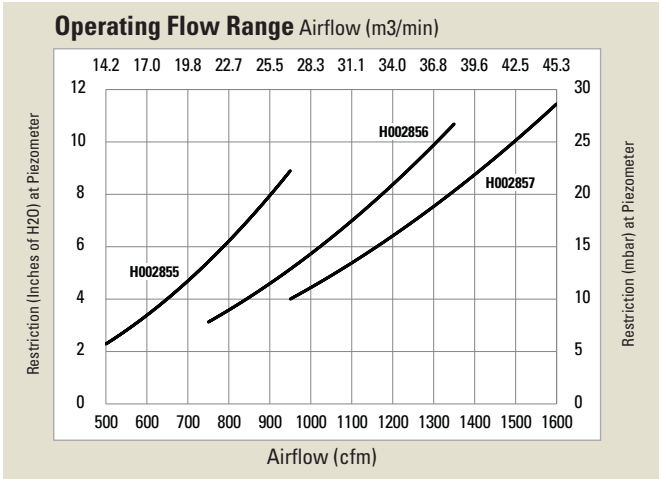
Stainless steel clamp with locking nut makes installation quick and secure. Clamp is included with each TopSpin HD.

All the interior components are solid stainless steel to resist dirt, water, heat, and debris encountered in demanding environments.

TopSpin HD Performance Curves

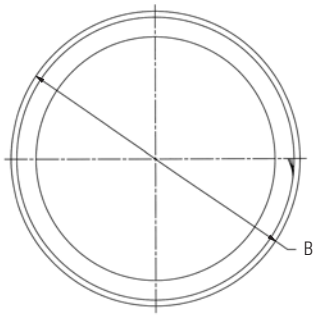


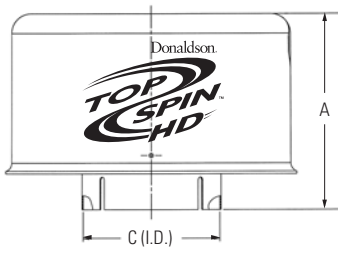




Dimensional Specifications

Donaldson TopSpin™ HD can be mounted in an upright position or horizontally with louver opening at the bottom. Installation instructions, stainless steel clamp and limited lifetime warranty are included. Operating temperature range: -40 °F to 180 °F (-40 °C to 82 °C).





Outlet I.D. (C) in	Outlet I.D. (C) mm	Overall Height (A) in	Overall Height (A) mm	Body Dia. (B) in	Body Dia. (B) mm	Operating Flow Range SCFM*	Operating Flow Range m3/min.	Part Number	Weight lbs.	Weight kg.
2.06	52.3	3.41	86.5	5.4	137.2	50-100	1.4-2.8	H002850	1.0	0.5
2.58	65.5	4.25	108	6.3	160	100-200	2.8-5.6	H002851	1.75	0.8
3.07	78	4.96	125.9	7.2	182.9	150-275	4.2-7.8	H002852	2.75	1.2
4.10	104.1	5.81	147.6	8.72	221.6	200-400	5.6-11.3	H002853	3.75	1.7
5.08	129	7.56	192.1	11.19	284.2	350-700	10-20	H002854	6.5	3.0
6.10	154.9	7.72	196	12.78	324.6	500-950	14-27	H002855	7.25	3.3
7.10	180.3	8.38	212.7	14.75	374.6	750-1350	21-38	H002856	9.5	4.3
8.08	205.2	8.38	212.7	14.75	374.6	950-1600	26.6-44.8	H002857	9.5	4.3

Cross reference from a Full-View pre-cleaner to a TopSpin™ HD pre-cleaner can be found on the Full-view Pre-cleaner page.

*SCFM = Standard Cubic Feet per Minute. The ISO 5011/SAE J726 test procedure was used to extract the results in the charts above. The ISO 5011/SAE J726 is a widely accepted industry test used by OEMs to evaluate the efficiency of the intake system components. Test results are an average from testing several units.

Full-View Pre-Cleaner

Full-View Pre-Cleaner Helps Extend Filter Life on Agricultural & Construction Equipment

Features

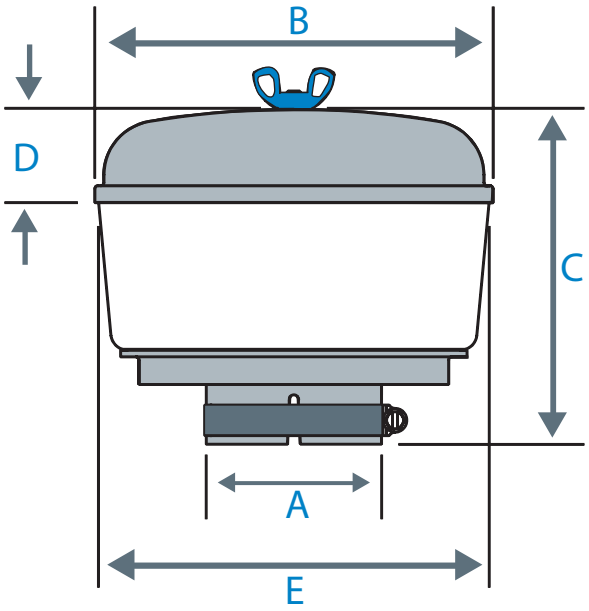
- Recommended mounting: on top of the engine intake stack
- Centrifugal force in bowl separates up to 75% of incoming dust ***before*** it enters the engine air intake system
- Low maintenance
- Durable, lightweight, noncorrosive construction
- Full-view plastic bowl lets operator easily see when service is needed
- One-bolt cover retention for easy service. When dirt reaches the level of the arrow, remove top nut and plastic body, then empty — no tools required
- Mounting clamp included

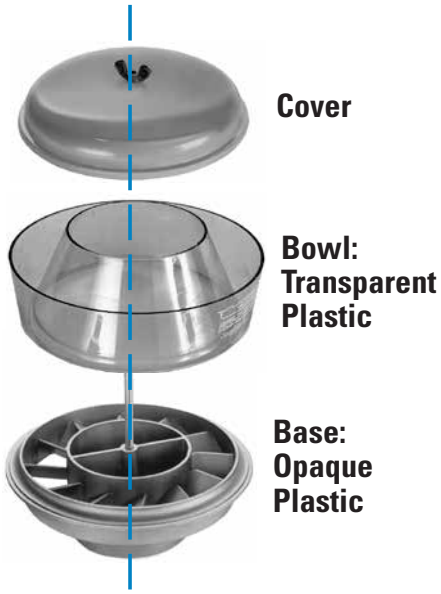
Tired of Emptying the Cup?

Before you consider replacing your full-view pre-cleaner with another one, check out the TopSpin™ and TopSpin™ HD models on the previous pages.

Pre-cleaner Upgrade Path

Full-View	TopSpin	TopSpin™ HD
H000820	H002425	
H000821	H002426	
H000858	H002394	H002853
H000823	H002427	
H001250	H002435	
H001251	H002436	H002851
H001249	H002437	H002852
H001823	H002434	H002850
H002043	H002433	H002854
H002044	H002432	
H002045	H002431	
H002223	H002438	H002855
H002224	H002439	H002856
N/A	N/A	H002857





Full-View Pre-Cleaners Specifications

Inlet (ID/OD) ---- A ----		----- B -----		----- C -----		----- D -----		----- E -----		Weight		Entire F.V. Pre-	--- Replacement ---		Max. Airflow
in	mm	in	mm	in	mm	in	mm	in	mm	lbs	kg	Cleaner	Cover	Bowl	CFM
1.75	44	5.59	142	4.75	121	1.72	44	5.50	140	0.8	0.37	H002042	P020116	P020115	80
2.00	51	5.59	142	4.75	121	1.72	44	5.50	140	0.9	0.41	H002040	P020116	P020115	90
		7.34	186	6.19	157	1.72	44	7.25	184	1.4	0.64	H001823[1]	P020648	P020227	110
2.25	57	7.34	186	6.19	157	1.72	44	7.25	184	1.5	0.68	H001250	P020648	P020227	130
2.50	64	7.34	186	6.19	157	1.72	44	7.25	184	1.5	0.68	H001251	P020648	P020227	150
3.00	76	7.34	186	6.19	157	1.72	44	7.25	184	1.6	0.73	H001249	P020648	P020227	170
		10.63	270	7.66	195	1.84	47	10.50	267	3.4	1.54	H000820[1]	P016548	P016330	320
3.75	95	10.63	270	7.66	195	1.84	47	10.50	267	3.4	1.54	H000821	P016548	P016330	330
4.00	102	10.63	270	7.66	195	1.84	47	10.50	267	3.4	1.54	H000858	P016548	P016330	340
		12.06	306	8.19	208	2.00	51	11.94	303	4.5	2.04	H002045[1]	P020345	P020344	660
4.50	114	10.63	270	7.66	195	1.84	47	10.50	267	3.4	1.54	H000823	P016548	P016330	340
		12.06	306	8.19	208	2.00	51	11.94	303	4.5	2.04	H002044[1]	P020345	P020344	700
5.00	127	12.06	306	7.69	195	2.00	51	11.94	303	4.5	2.04	H002043	P020345	P020344	740
6.00	152	16.25	413	10.00	254	2.81	71	15.94	405	9.2	4.17	H002223	P104691	P158324	1300
7.00	178	16.25	413	10.00	254	2.81	71	15.94	405	9.2	4.17	H002224	P104691	P158324	1500

1 - Heavy Duty Option

Donaspin™ Pre-Cleaner

Extends Filter Life in Extremely Heavy Dust Conditions

The Donaspin™ Pre-Cleaner extends the life your air filter by removing up to 90% of the dirt and contaminant before it reaches the filter and ejecting it automatically via the exhaust system.

Donaspin is designed especially for equipment operating in very heavy dust/debris environments.

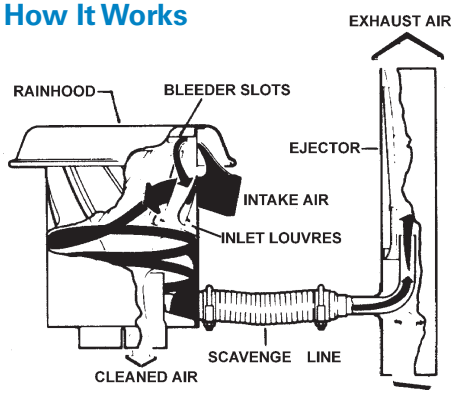
Application

- Vehicles: agricultural equipment, construction and waste haul vehicles
- For engine airflows of 305 to 800 cfm
- Recommended mounting: on top of the air inlet stack

Features

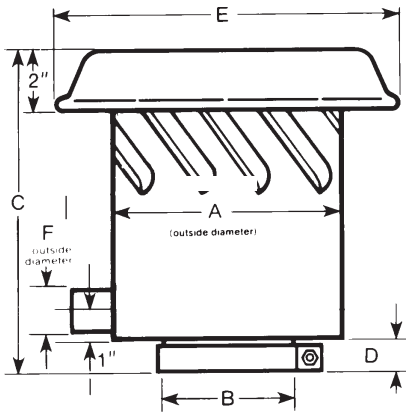
- Built-in louvers spin air to separate up to 90% of incoming dirt and debris from the air intake system
- Works as part of a scavenged flow system to continuously expel pre-cleaned contaminants through the exhaust flow
- Durable, corrosion-resistant steel construction
- High efficiency with low restriction
- No maintenance. Self-cleaning. No moving parts.
- Mounting clamp is included

How It Works



To create a scavenged flow system, combine the Donaspin with a Donaldson exhaust ejector and ejector check valve.

The Donaspin installed on this combine removes most of the incoming dirt, then directs the contaminant out of the system with the exhaust gases.



Donaspin™ Pre-Cleaner

----- A -----		-- B (I.D.) --		----- C -----		----- D -----		----- E -----		----- F -----		Rated Airflow @ 5" H_2O Added	Approx. Weight		Part Number
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm		lbs	kgs	
8.00	203	3.00	76	11.98	304	2.15	55	12.00	305	1.25	32	305	8	3.6	H001212
8.00	203	4.50	114	10.93	278	1.10	28	12.00	305	1.25	32	465	8	3.6	H001215
8.00	203	5.00	127	11.14	283	1.31	33	12.00	305	1.25	32	530	8	3.6	H001308
9.00	229	6.00	152	14.68	373	1.10	28	13.00	330	1.25	32	770	10	4.5	H001375

Two-stage Cleaning for Unexpected Dust/Moisture Conditions

When your truck is being used in heavier-than-anticipated dust or moisture conditions, you may not have to replace the entire air cleaner. The problem may be solved by adding a Donaldson in-line separator.

Installing this unit on your single-stage system **creates a two-stage air filtration system**. This enables an over-highway vehicle, which usually sees only light dust, to be easily and economically adapted to off-road medium to heavy dust conditions.

Horizontal model, for airflow of 100 to 1400 cfm. Mounts underhood.

Vertical model, for airflow of 500 to 1500 cfm. Mounts on stack top.

Vacuator™ Valve P103198

Applications

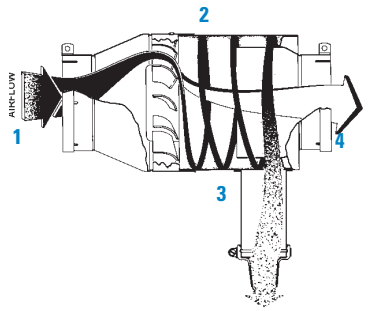
- **Vertical model:** On/off road, mounted on inlet tubing or cowl mounted directly to air cleaner
  - – Compatible with engine airflows of 500 to 1500 cfm
- **Horizontal model:** On/off road, typically mounted underhood
  - – Compatible with engine airflows of 100 to 1400 cfm

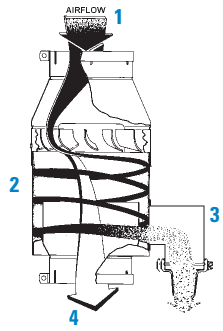
Features

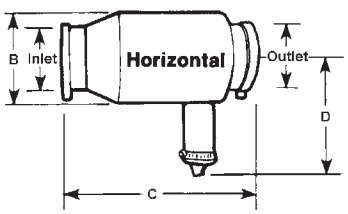
- 80% water removal efficiency
- 70% dust removal efficiency

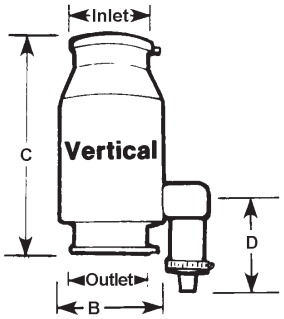
How It Works

1. When moisture — and/or dust-filled air — enters at one end, the built-in, stationary vanes cause the air to spin.
2. This spin creates centrifugal force, which pushes all moisture and dust to the outside wall where it separates from the air.
3. Moisture and dust are thrown into the Vacuator Valve tubing, then automatically released by the Vacuator Valve.
4. Clean air (acceptable for maximum filter life and engine performance) passes to the air cleaner.









In-Line Separators

Part Number	CFM Range	Inlet in	Inlet mm	Outlet in	Outlet mm	Diameter (B) in	Diameter (B) mm	Length (C) in	Length (C) mm	(D) in	(D) mm
HORIZONTAL STYLE											
H001474	100-400	4 OD[1]	102 OD	4 OD	102 OD	5.50	140	11.50	292	7.18	182
H000875	500-1,000	6 ID[2]	152 ID	6 ID	152 ID	8.56	217	17.25	438	11.58	294
H001906	700-1,400	7 ID	178 ID	7 ID	178 ID	9.59	244	17.0	432	12.02	305
VERTICAL STYLE											
H000878	500-1,100	6 ID	152 ID	6 ID	152 ID	8.56	217	17.25	438	7.80	198
H000886	750-1,100	7 ID	178 ID	7 ID	178 ID	8.56	217	17.25	438	7.80	198
H001220	900-1,500	8 OD	203 OD	8 ID	203 ID	9.59	244	17.0	432	4.56	115

1 - Outer diameter
2 - Inner diameter