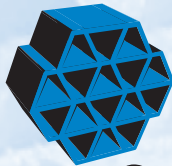


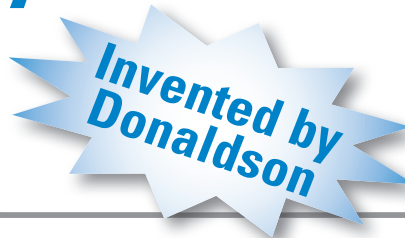
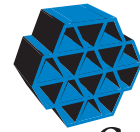
PowerCore® Delivers Improved Filtration Performance



PowerCore®
A DONALDSON FILTRATION TECHNOLOGY

Section Index

PSD (Medium to Heavy Dust).....	19
PSD Service Instructions	34



Why was it developed?

Vehicle design is moving from classic to aerodynamic. This means less under-hood space, highly stylized, cost effective designs, greater operator visibility, higher horsepower engines with greater airflow and other emission requirements with hotter engines...

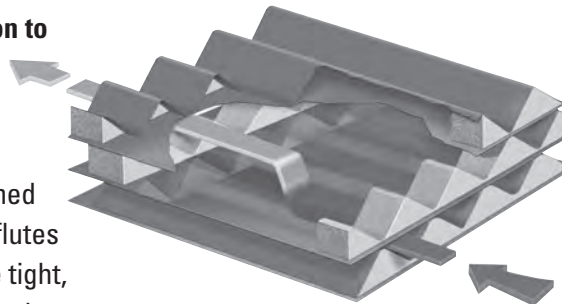
Therefore Donaldson developed PowerCore® Filtration Technology, to do more in less space and to allow system optimization.

What is it about?

- Proprietary air filtration technology developed to improve engine protection.
- Revolutionary, fluted media design for improved air filtration.
- PowerCore® media is visually unique.
- PowerCore filters can be designed, based on an approved matrix, in obround (racetrack) and round shapes.
- High density media packaging technology.
- Built with Donaldson Technology.
- Backed by extensive lab and field testing

How does it work?

Clean air travels on to your engine

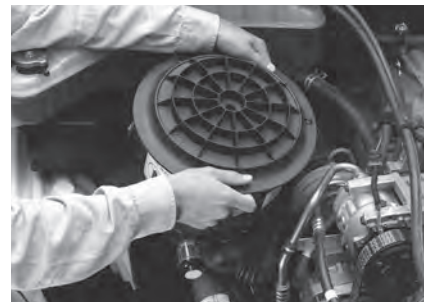


Filter media is formed into flutes - these flutes are layered to give tight, rugged structure to the filter

Fluted channels are alternately sealed: air enters an open flute and is forced to exit through an adjacent flute

Contaminants stay inside the filter - and won't drop back into an unprotected air filter housing.

Dirty air travels in and is filtered in one pass through the media



**Invented by
Donaldson**

With PowerCore, you will gain...

Greater Efficiency

The straight-through fluted design of PowerCore Filtration Technology is three times more efficient than average conventional pleated filters.

Engine Protection

No media movement, expansion, contraction or bunching, with less dust and dirt passed on to the engine.

Contaminant Encapsulation

Dust and dirt won't dislodge during servicing.

Equal or Better Performance in a Small Package

The freedom to design unique configurations to fit tight spots and overall design simplicity.

Donaldson Reliability

Backed by nearly a century of innovation and experience. Donaldson supplies air filtration products to almost every vehicle manufacturer.

Lower Shipping and Inventory Costs

PowerCore filters are lighter and take up less shelf space being so compact - in fact as much as half of a conventional filter.

Improved Handling and Maintenance

Lighter and smaller, changing filters is a snap.

Improved Environment Protection

Non-metal filters – both main and safety (where applicable).

System Design Flexibility

Multiple horizontal and vertical installation positions.

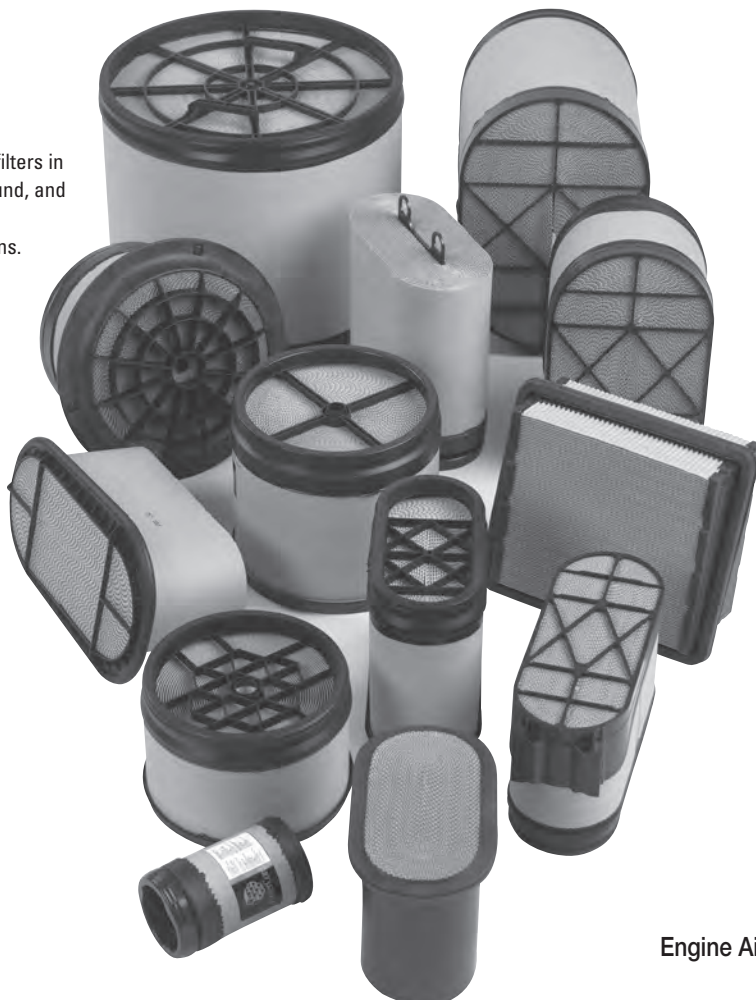
Dust Holding Capacity

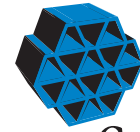
Gain over 100% more dust holding capacity in a given volume.

Built-In Pre-Separation and Mounting Brackets

To eliminate the need to purchase separate.

PowerCore filters in round, obround, and rectangular configurations.





Excellent Performance in Half the Space

The PSD PowerCore[®] Air Cleaner is a two-stage air cleaner with built-in high efficiency pre-cleaner using PowerCore Filtration Technology.

PSD PowerCore Air Cleaners are designed especially for on and off road equipment operating in medium to heavy dust environments.

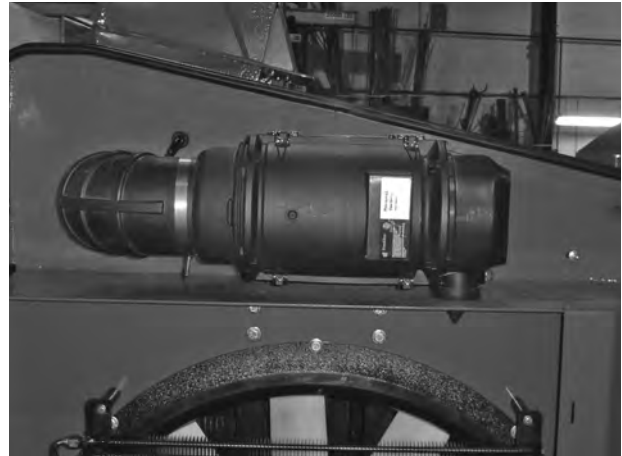
Can be used with Vacuator[™] Valve on the pre-cleaner or continuously scavenge of the pre-cleaner by an exhaust ejector or air blower cooling. See page 124-125 for all available Exhaust Ejectors.

Applications

- Equipment operating in medium to heavy dust conditions with engine airflow ranges up to 30 m³/min.
- Obround housing shape allows for a narrow or wide mounting orientation. Models have either end or side filter service access
- Sustained temperature tolerance: to 82°C

Features

- More compact at a given performance level than standard pleated filters
- Non-metal filters - both main and safety (where applicable)
- Improved engine protection: no media movement, expansion, contraction or bunching
- Improved contaminant encapsulation: dust and dirt stay contained in filter during service
- Improved filtration efficiency:
 - Three times more efficient than the average conventional pleated filter
 - PowerCore Filtration Technology with high efficiency pre-cleaner tubes improve engine protection
- Improved handling and maintenance: lighter and smaller, changing filters is a snap
- Easily serviced with clamp-on cover design
- Can be used with scavenge line or Vacuator[™] Valve depending on housing orientation
- Built in mounting brackets eliminate the need to purchase separate mounting bands
- Indicator thread size =
 - 1/8-27NPT (Male) for PSD08/PSD09/PSD10
 - 1/8-27NPT (Female) for PSD12



D080069 - Horizontal



D080070 - Vertical

Mounting Flexibility

The PSD air cleaner is available with two separate drop tube in orientations and built-in mounting brackets on the 2 long sides of the housing. The other three PSD models (09, 10 and 12) offer even more mounting flexibility with built-in brackets on three sides of the main body housing.



D090074 - Horizontal



D090073 - Vertical



D100030 - Horizontal

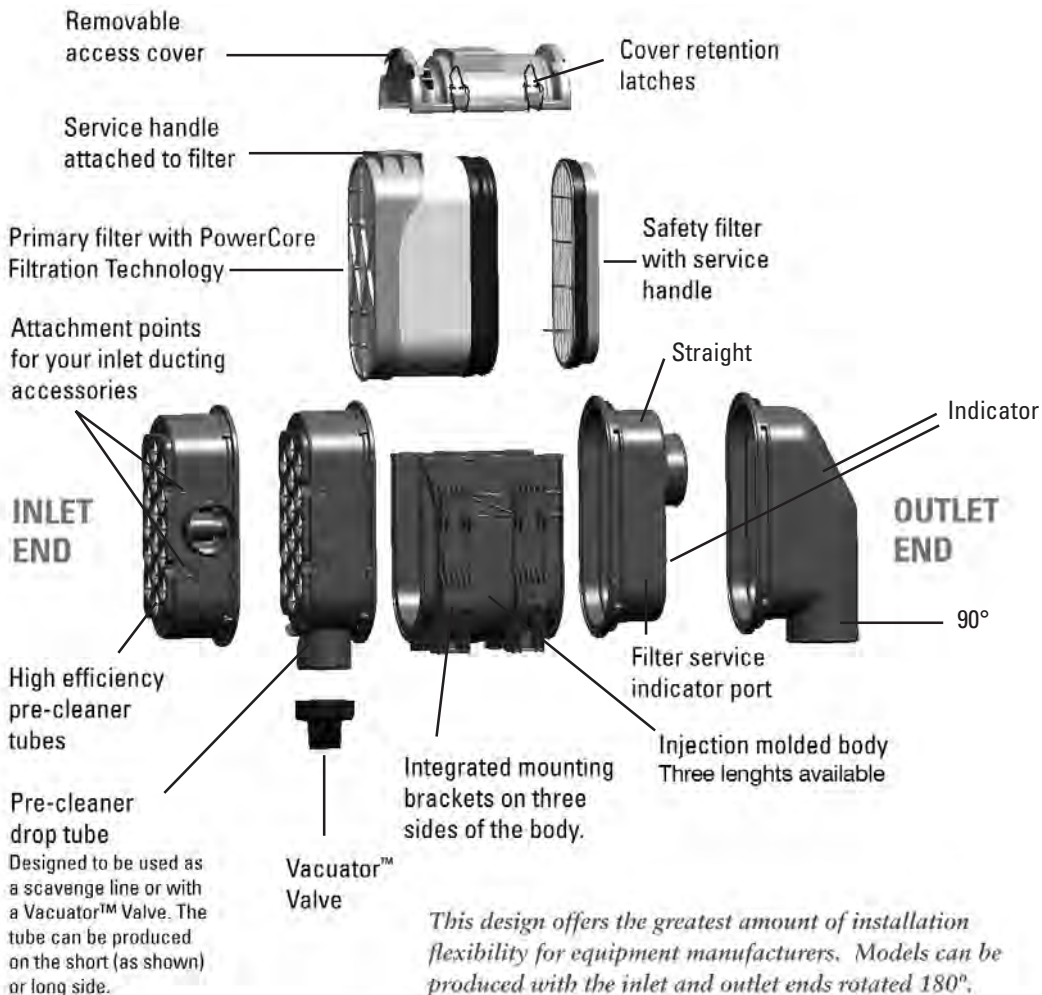


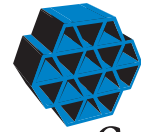
D100029 - Vertical

PSD 08 - Service Access on Inlet End



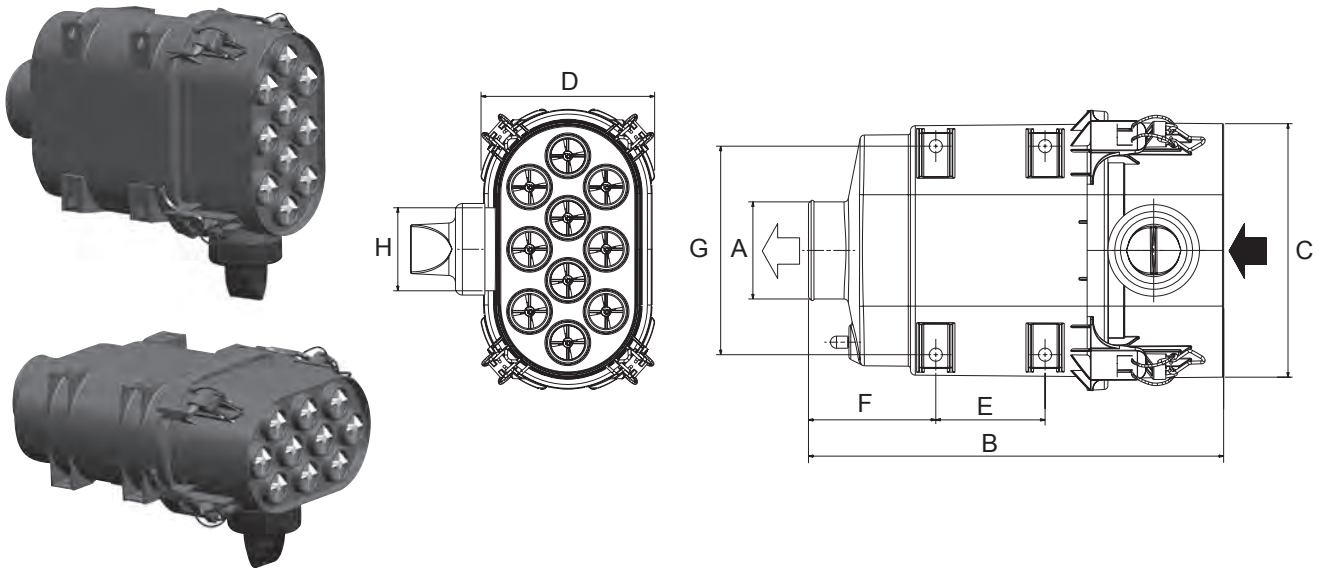
PSD 09-10-12- Service Access on Side





PSD 08 - Specifications

PowerCore®



Air Cleaner Model No.	Airflow Range m ³ /min.	Dimensions (mm)							
		A	B	C	D	E	F	G	H
D080069 (H) D080070 (V) With Vac Valve	up to 6	89	380	257	159	100	117	191	76
D080069 (H) D080070 (V) With Scavenge Flow	up to 8,5	(H) Horizontal / (V) Vertical Installation							

To Scavenge or Not Scavenge...

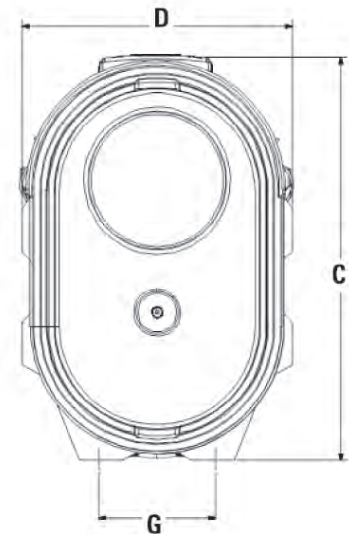
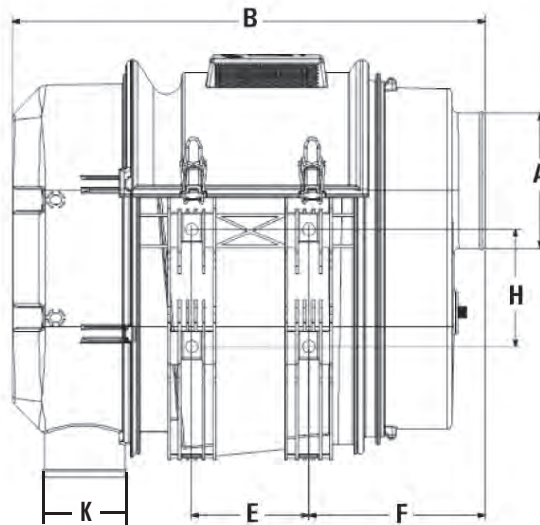
PSD air cleaners are designed to operate with or without aspiration, otherwise known as scavenging. Scavenging is accomplished by introducing a secondary airflow to the drop tube on the air cleaner (generally through the use of an ejector or ejector muffler). This flow pulls the separated contaminant from the pre-cleaner and inserts it into the exhaust stream.

The advantages to scavenging are:

- Higher pre-cleaner efficiency (resulting in longer filter service life)
- Completely self-servicing (no regular maintenance needed on pre-cleaner)
- Drop tube can be located in 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 filter service life. Conversely, the PSD air cleaner and pre-cleaner will function adequately without scavenge, with the result being less filter service life than with the use of scavenging.

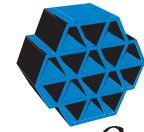
PSD 09 - 10 - 12 Specifications



Air Cleaner Model No.	Airflow Range m ³ /min. With 10% Scavenge Flow	Dimensions (mm)								
		A	B	C	D	E	F	G	H	K
D090073 (V)	6-10	102	433	362	180	110	174	100	130	76,5
D090074 (H)	6-10	102	433	362	180	110	174	100	130	76,5
D090099 (V)	7-11	102	458	362	180	135	174	100	130	76,5
D090098 (H)	7-11	102	458	362	180	135	174	100	130	76,5
D090101 (V)	9-13	102	533	362	180	180	174	100	130	76,5
D090100 (H)	9-13	102	533	362	180	180	174	100	130	76,5
D090086 (V)*	6-10	102	477	362	180	110	218	100	130	76,5
D090087 (H)*	6-10	102	477	362	180	110	218	100	130	76,5
D090088 (V)*	7-11	102	502	362	180	135	218	100	130	76,5
D090089 (H)*	7-11	102	502	362	180	135	218	100	130	76,5
D090090 (V)*	9-13	102	577	362	180	180	218	100	130	76,5
D090091 (H)*	9-13	102	577	362	180	180	218	100	130	76,5
D100029 (V)	12-18	127	429	375	254	110	165	110	110	76,5
D100030 (H)	12-18	127	429	375	254	110	165	110	110	76,5
D100031 (V)	18-25	152	529	375	254	210	165	110	110	76,5
D100032 (H)	18-25	152	529	375	254	210	165	110	110	76,5
D100124 (V)*	12-18	127	505	375	254	110	241	110	110	76,5
D100123 (H)*	12-18	127	505	375	254	110	241	110	110	76,5
D100122 (V)*	18-25	127	605	375	254	210	241	110	110	76,5
D100121 (H)*	18-25	127	605	375	254	210	241	110	110	76,5
D120035 (V)	23-27	152	496	430	306	168	160	154	110	76
D120036 (H)	23-27	152	496	430	306	168	160	154	110	76
D120037 (V)	27-30	152	596	442	306	268	160	154	110	76
D120038 (H)	27-30	152	596	442	306	268	160	154	110	76

(H) Horizontal / (V) Vertical Installation * 90° Outlet

PowerCore®



PSD PowerCore® - Service Parts

					Service Parts			
Air Cleaner Model No.	Air Cleaner Installation	Version	Orientation Drop Tube	Orientation Outlet	Access Cover Assy	U-Clip, Mounting (x4)	Main Element	Safety Element
D080069	Horizontal	-	Horizontal	Straight	P785236	P786050	P608533	P600975
D080070	Vertical	-	Vertical	Straight	P785237	P786050	P608533	P600975
D090073	Vertical	Short	Vertical	Straight	P785651	P784517	P608665	P606121
D090074	Horizontal	Short	Horizontal	Straight	P785651	P784517	P608665	P606121
D090099	Vertical	Medium	Vertical	Straight	P785978	P784517	P787281	P606121
D090098	Horizontal	Medium	Horizontal	Straight	P785978	P784517	P787281	P606121
D090101	Vertical	Long	Vertical	Straight	P786989	P784517	P608675	P606121
D090100	Horizontal	Long	Horizontal	Straight	P786989	P784517	P608675	P606121
D090086	Vertical	Short	Vertical	90°	P785651	P784517	P608665	P606121
D090087	Horizontal	Short	Horizontal	90°	P785651	P784517	P608665	P606121
D090088	Vertical	Medium	Vertical	90°	P785978	P784517	P787281	P606121
D090089	Horizontal	Medium	Horizontal	90°	P785978	P784517	P787281	P606121
D090090	Vertical	Long	Vertical	90°	P786989	P784517	P608675	P606121
D090091	Horizontal	Long	Horizontal	90°	P786989	P784517	P608675	P606121
D100029	Vertical	Short	Vertical	Straight	Upon request	P784517	P608666	P601560
D100030	Horizontal	Short	Horizontal	Straight	Upon request	P784517	P608666	P601560
D100031	Vertical	Long	Vertical	Straight	Upon request	P784517	P608676	P601560
D100032	Horizontal	Long	Horizontal	Straight	Upon request	P784517	P608676	P601560
D100124	Vertical	Short	Vertical	90°	Upon request	P784517	P608666	P601560
D100123	Horizontal	Short	Horizontal	90°	Upon request	P784517	P608666	P601560
D100122	Vertical	Long	Vertical	90°	Upon request	P784517	P608676	P601560
D100121	Horizontal	Long	Horizontal	90°	Upon request	P784517	P608676	P601560
D120035	Vertical	Short	Vertical	Straight	Upon request	P784517	P608667	P607557
D120036	Horizontal	Short	Horizontal	Straight	Upon request	P784517	P608667	P607557
D120037	Vertical	Long	Vertical	Straight	Upon request	P784517	P608677	P607557
D120038	Horizontal	Long	Horizontal	Straight	Upon request	P784517	P608677	P607557

Accessories used on all PSD Air Cleaners

Vacuator™ Valve	P112803 for the European PSD Range / P158914 for the US PSD Range - See page 27. When making use of a reducer, see page 141 for all available Vac Valves
Check Valve	P784790 for the PSD Range. See page 126 for all available Check Valves.
Adapters	ø 32 = P783747 ø 38 = P783746 ø 50 = P783748 ø 25 + 90° = P786685 ø 32 + 90° = P784019 (PP) ø 32 + 90° = P784834 (PA) ø 38 + 90° = P786778
Ejectors	See page 124-125 for all available Exhaust Ejectors



Media used on PSD PowerCore® Standard Air Cleaners

All PSD Standard Air Cleaners are equipped with White Media, Blue Ultra-Web® Media is optional. Contact your Donaldson representative for more info.

PSD Extended Product Line

For the PowerCore™ Air Cleaner Range, Donaldson now offers you more alternatives - an extended product line. These new alternatives provide you more flexibility and mounting options. A new range of accessories is also available (see page 26).

Standard PSD PowerCore® Line		
US Models	European Models	
PSD08		
D080020	D080069	New
D080026	D080070	New
PSD09		
D090019	D090073	New
D090020	D090074	New
-	D090099	New
-	D090098	New
D090021	D090101	New
D090022	D090100	New
-	D090086	New
-	D090087	New
-	D090088	New
-	D090089	New
-	D090090	New
-	D090091	New
PSD10		
-	D100029	Existing
-	D100030	Existing
-	D100031	Existing
-	D100032	Existing
-	D100124	New
-	D100123	New
-	D100122	New
-	D100121	New
PSD12		
D120035	-	Existing
D120036	-	Existing
D120037	-	Existing
D120038	-	Existing

PSD08 Extended Product Line - Features



- Lower initial restriction
- Mounting brackets on both sides to increase mounting options
- Drop tube diameter enlarged (same as PSD10 & 12)
- Possibility to fix different scavenge adapters > straight & 90°
- Possibility to integrate check-valve into scavenge tube of pre-cleaner
- 4 latches on service cover to improve accessibility & serviceability

PSD09 Extended Product Line - Features

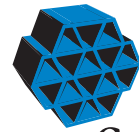


- Lower initial restriction
- Next to the short and long PSD09 we offer now a medium version
- Drop tube diameter enlarged (same as PSD10 & 12)
- Possibility to fix different scavenge adapters > straight & 90°
- Possibility to integrate check-valve into scavenge tube of pre-cleaner
- Optional 45° latch position on the cover
- New version with 90° outlet tube
- Male indicator tab with thread 1/8 27 NPT

PSD10 Extended Product Line - New features



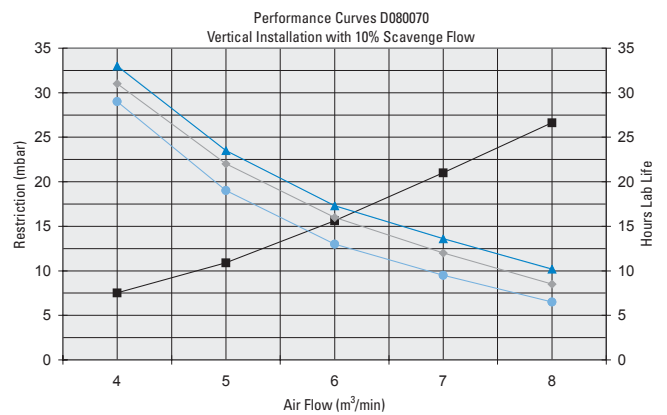
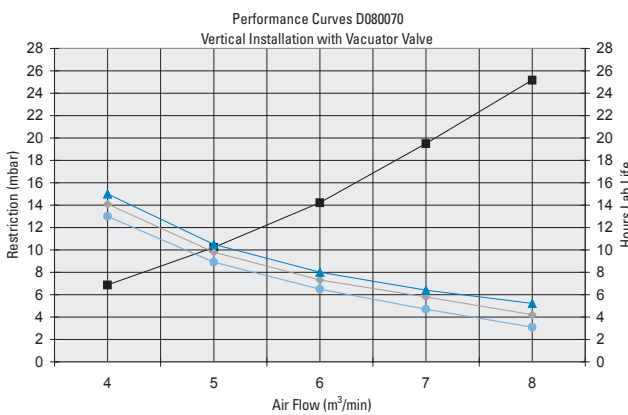
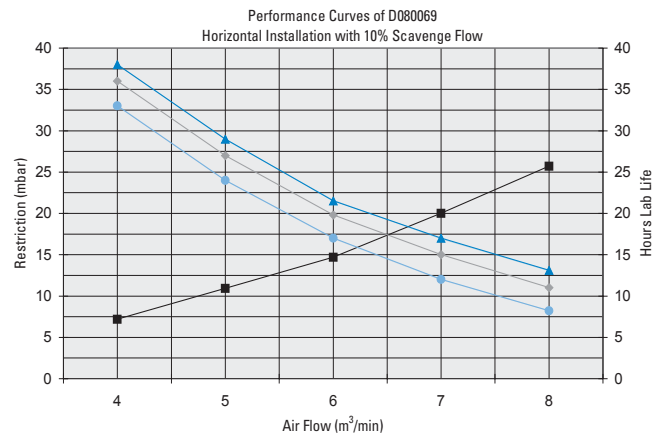
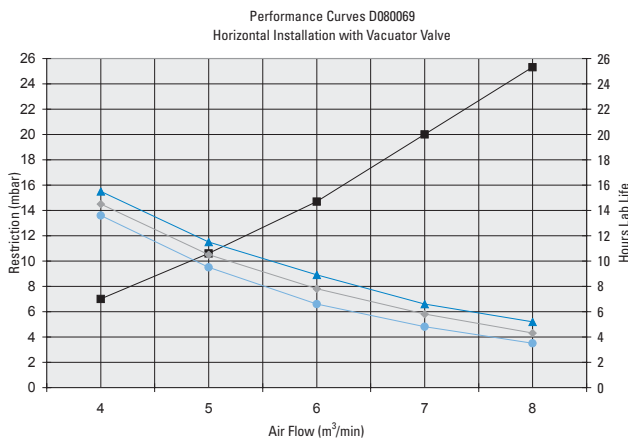
- New version with 90° outlet tube



When specifying an Air Cleaner...

Determine the Airflow Requirements of your engine, then find the corresponding m^3/min . airflow in the charts below. The restriction numbers - shown in mbar at the left side of the chart - indicate the approximate initial restriction of each model air cleaner at that m^3/min . When calculating total initial restriction of the entire air intake system, include the restriction caused by ducting, elbows, pre-cleaners, etc. The estimated lab life hours are indicated at the right side of the chart.

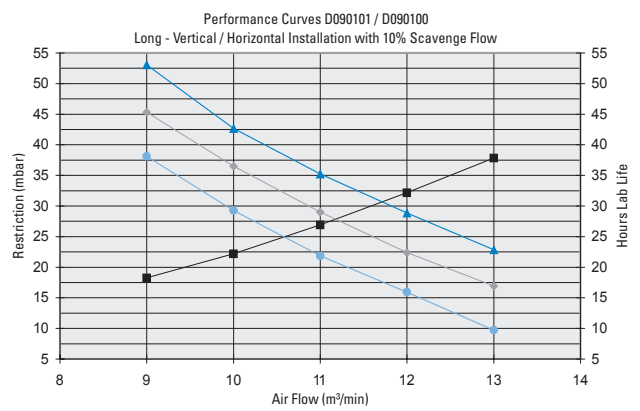
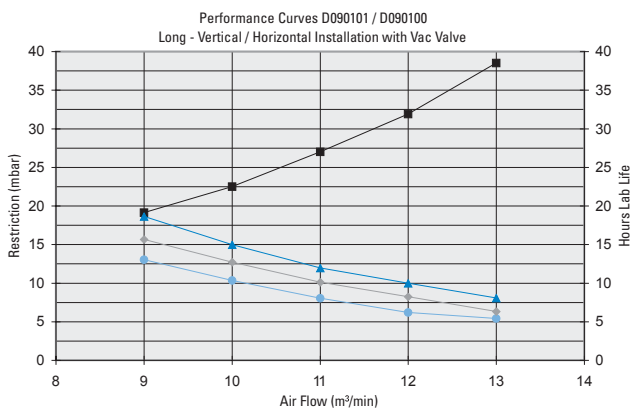
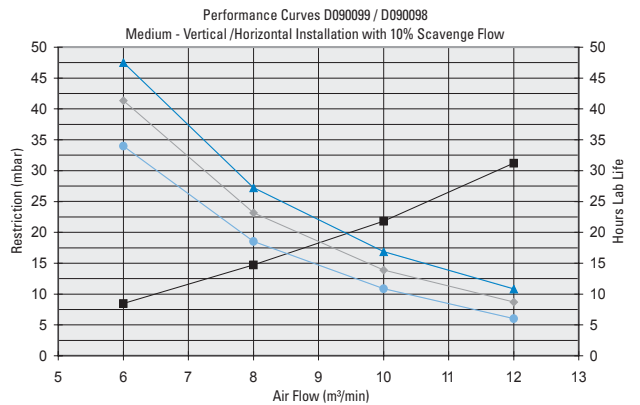
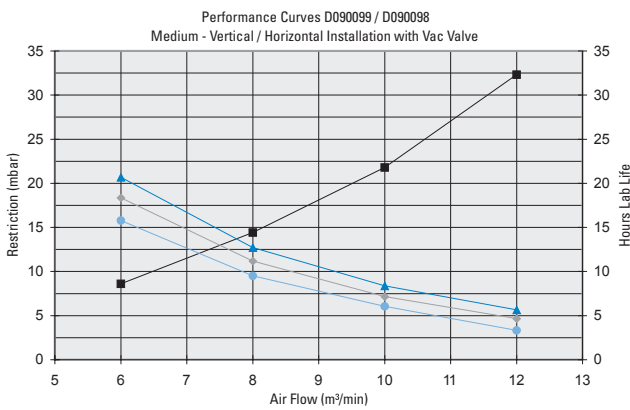
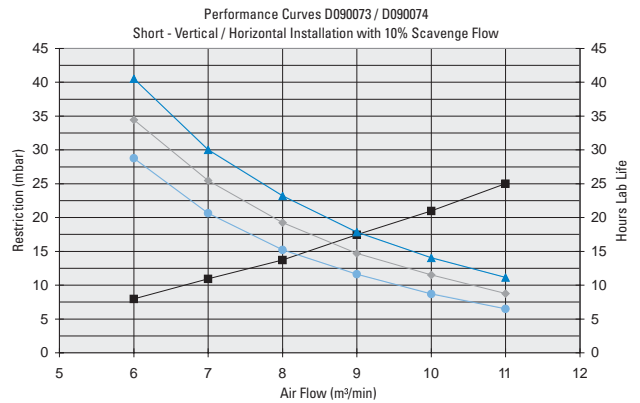
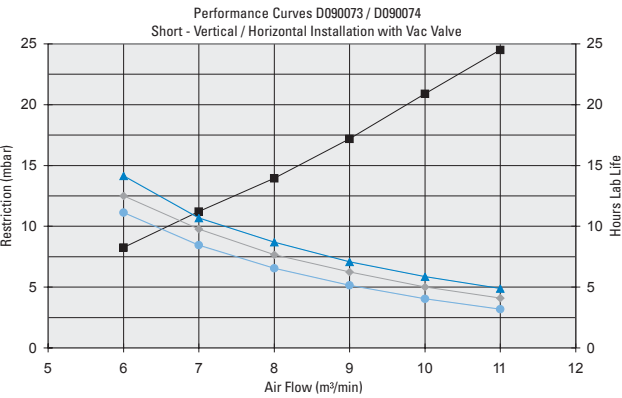
PSD 08 Performance Curves



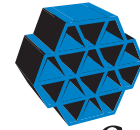
Restr. A/c Piezo
 LL50mbar
 LL62mbar
 LL75mbar

All performance curves are according ISO 5011 standards - Restriction measured at Piezo
All tests are done with ISO Coarse at Dust Concentration of $1g/m^3$

PSD 09 Performance Curves

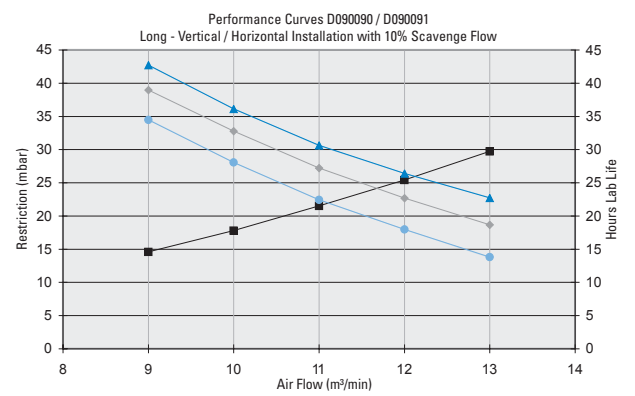
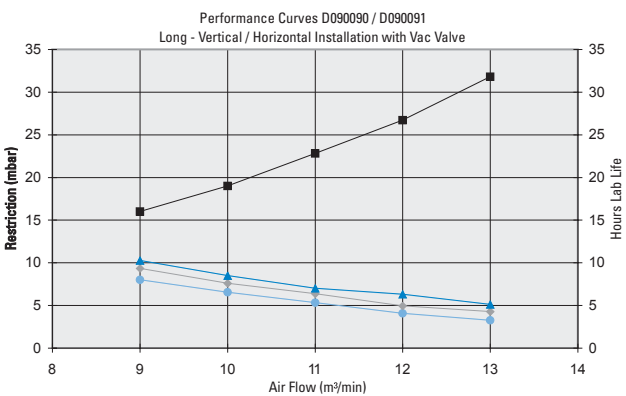
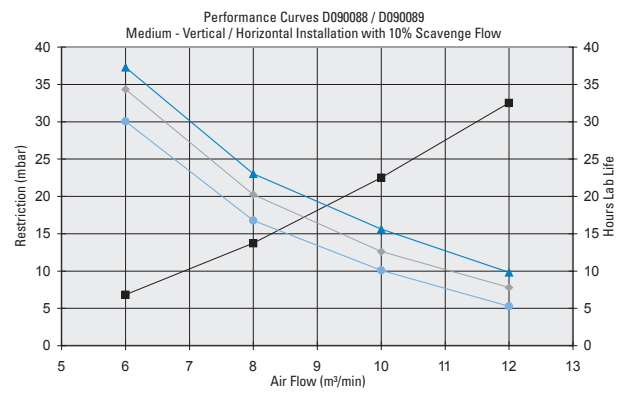
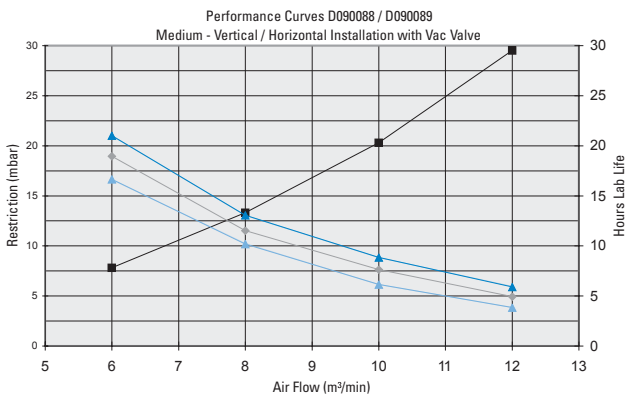
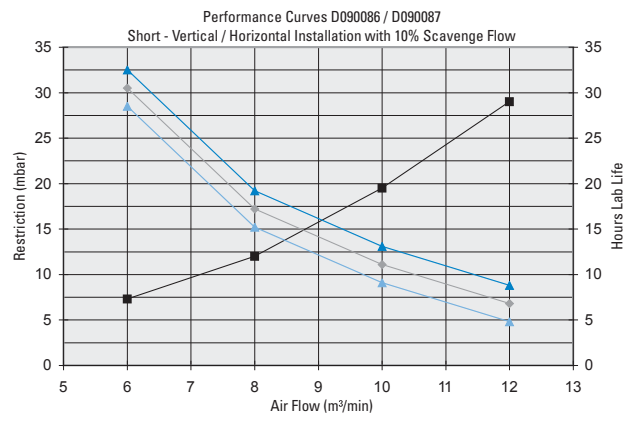
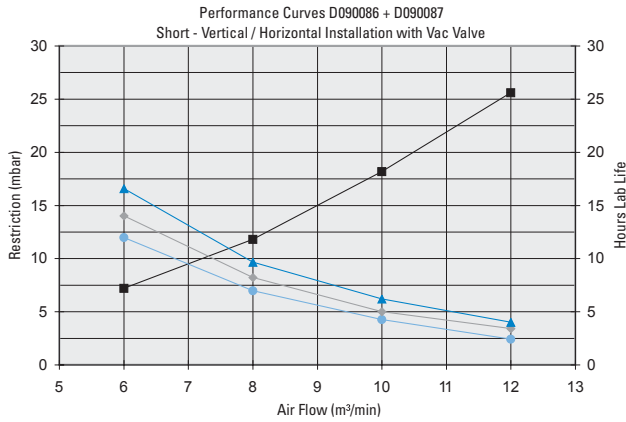


All performance curves are according ISO 5011 standards - Restriction measured at Piezo
All tests are done with ISO Coarse at Dust Concentration of 1g/m³



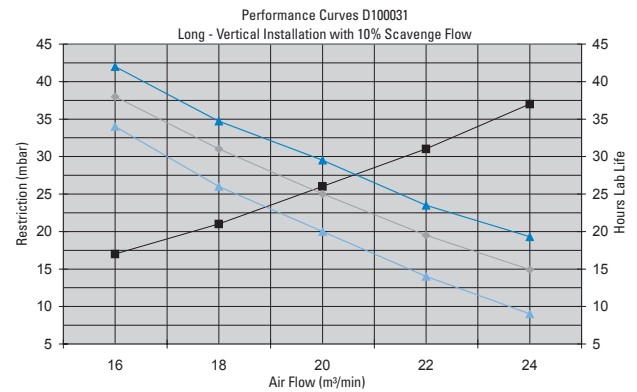
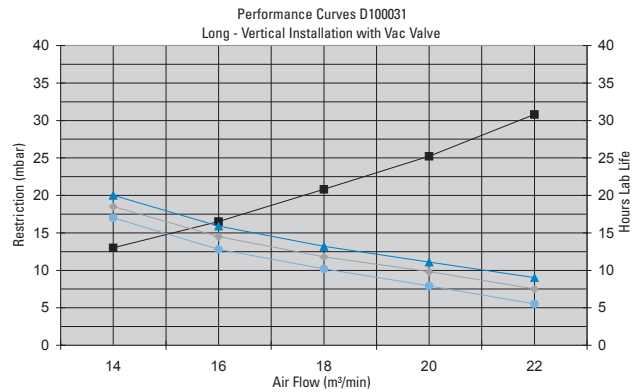
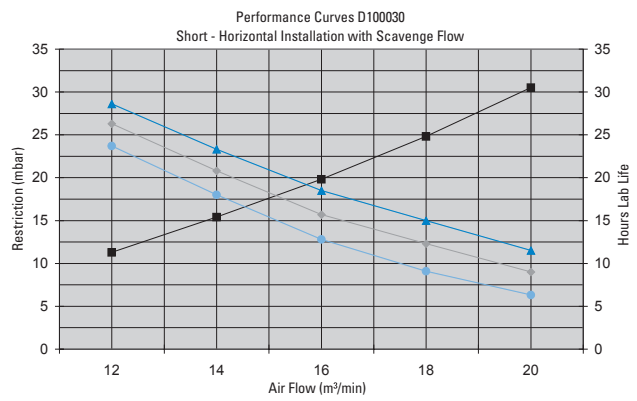
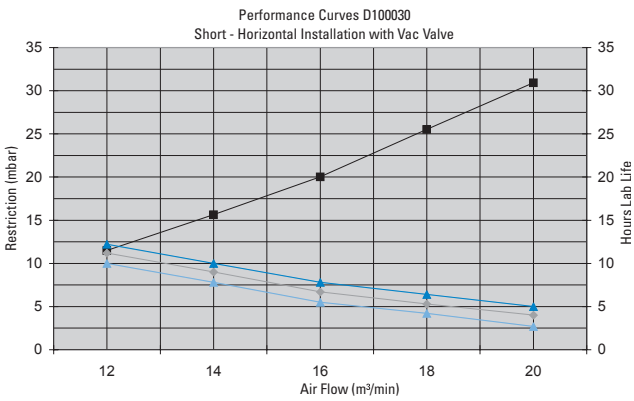
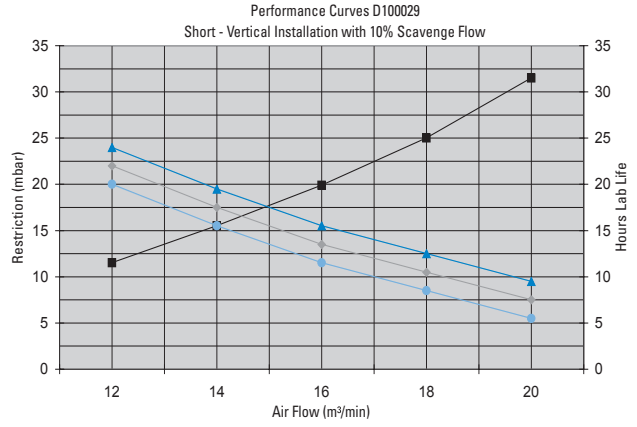
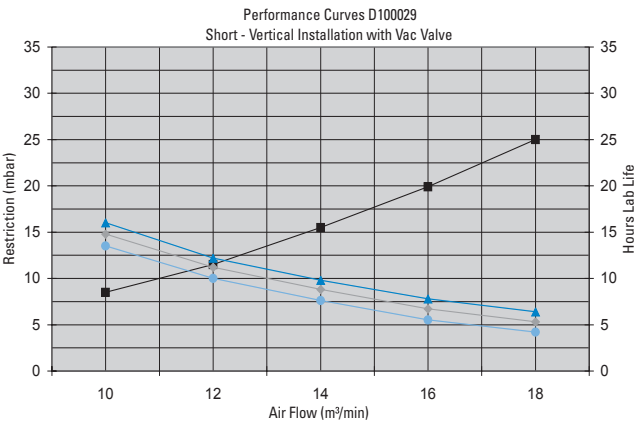
PSD 09 Performance Curves

PowerCore®



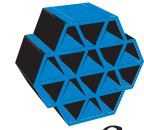
All performance curves are according ISO 5011 standards - Restriction measured at Piezo
All tests are done with ISO Coarse at Dust Concentration of 1g/m³

PSD 10 Performance Curves



Restr. A/c Piezo
 LL50mbar
 LL62mbar
 LL75mbar

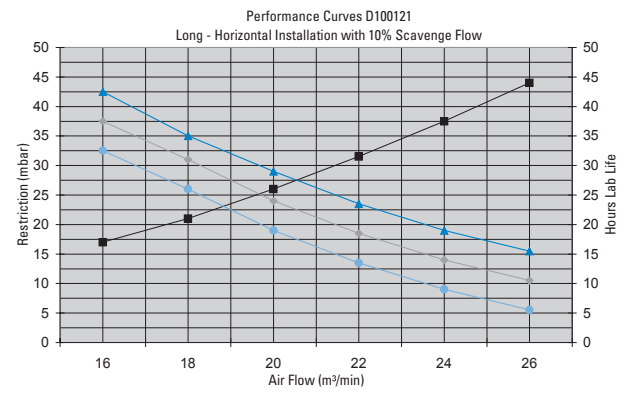
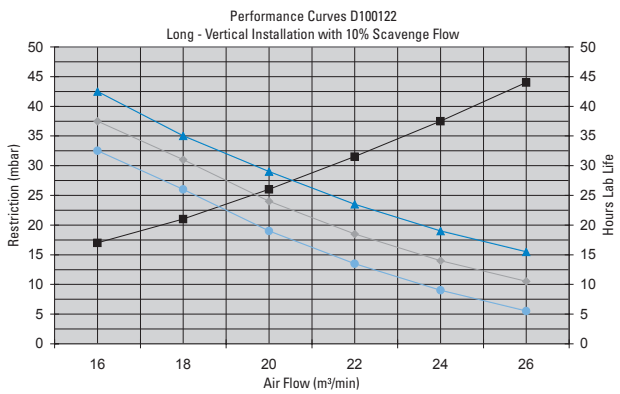
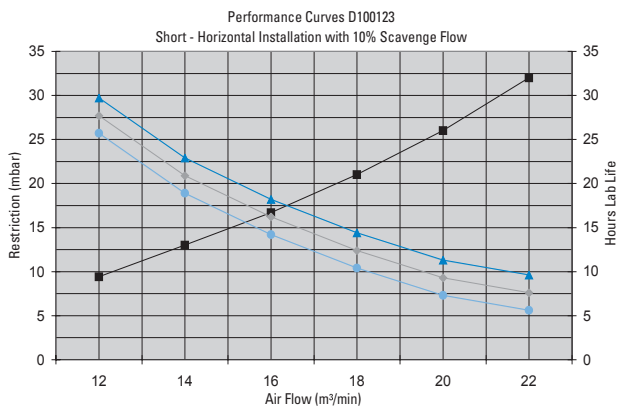
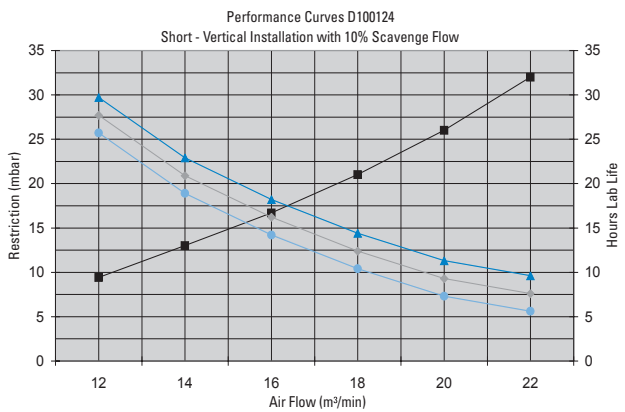
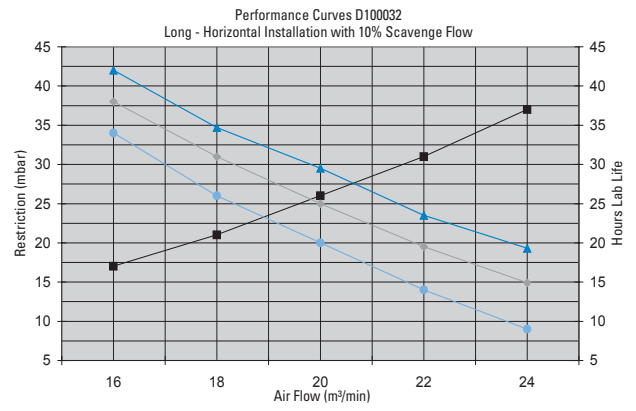
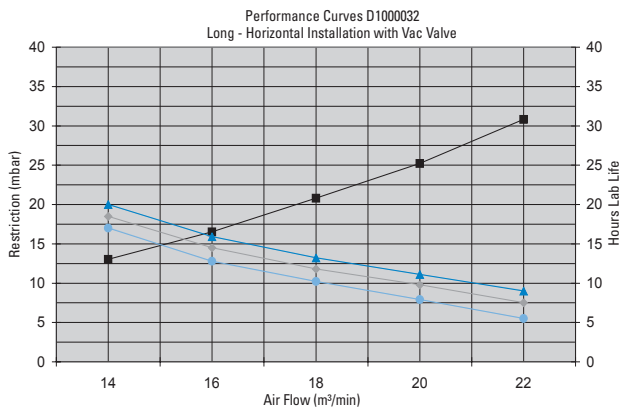
All performance curves are according ISO 5011 standards - Restriction measured at Piezo
All tests are done with ISO Coarse at Dust Concentration of 1g/m³



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PSD 10 Performance Curves

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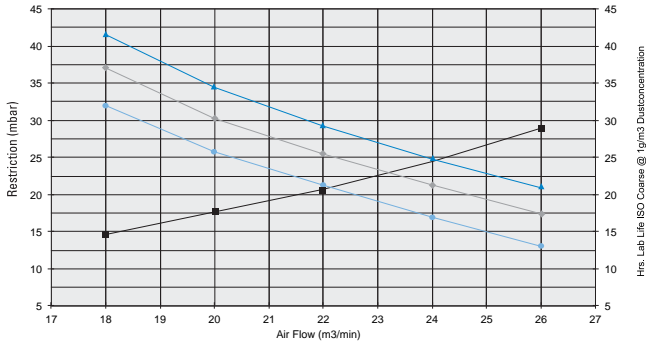


Restr. A/c Piezo
 LL50mbar
 LL62mbar
 LL75mbar

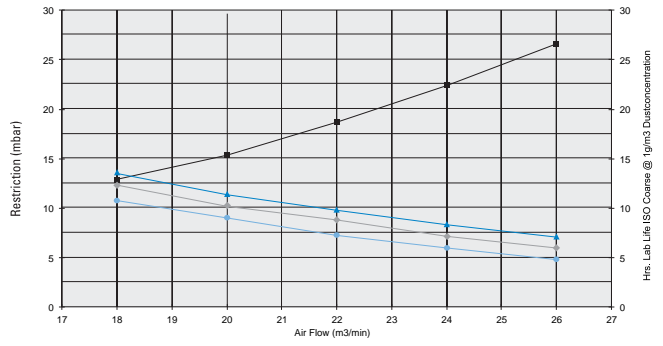
All performance curves are according ISO 5011 standards - Restriction measured at Piezo
All tests are done with ISO Coarse at Dust Concentration of 1g/m³

PSD 12 Performance Curves

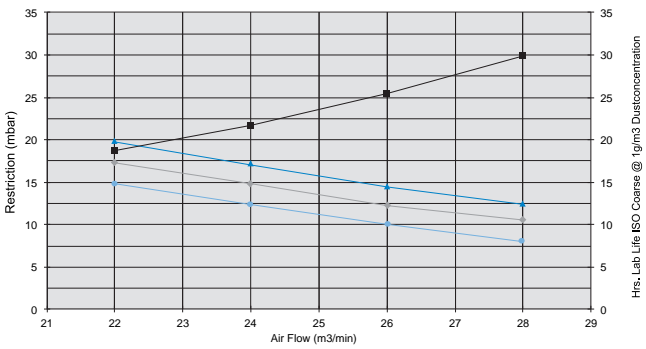
Performance Curves PSD120035/36 acc. ISO5011 with 10% Scavange (vertically installed)



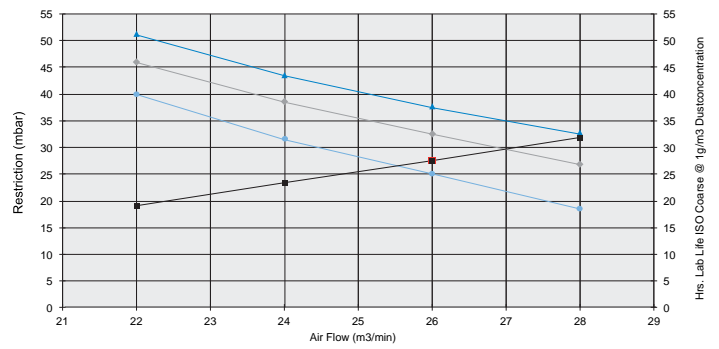
Performance Curves PSD120035/36 acc. ISO5011 with Vacuator Valve (vertically installed)



Performance Curves PSD120037/38 acc. ISO5011 with Vacuator Valve (vertically installed)



Performance Curves PSD120037/38 acc. ISO5011 with 10% scavange (vertically installed)



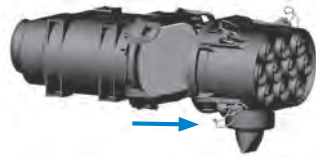
Restr. with S.E.
 LL50mbar
 LL62mbar
 LL75mbar

All performance curves are according ISO 5011 standards - Restriction measured at Piezo
 All tests are done with ISO Coarse at Dust Concentration of 1g/m³

Note: Your air cleaner service cover may be in a different position than shown.

PSD09, PSD10
or PSD12 Style

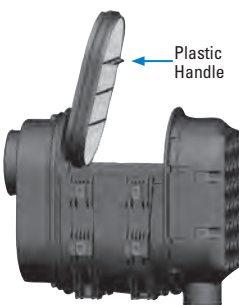
PSD08 Style



1 Shut off engine. Unlatch and remove the housing service cover.



2 Remove primary filter. Pull the filter out of housing. On PSD09, PSD10, and PSD12 you must first loosen the filter gasket seal. Using the handle, push down on the filter to loosen the seal, which will tilt the filter to approximately a 5° angle.



3 Remove safety filter. Using the plastic handle on the face of the safety filter, pull the filter toward the center of the housing and remove. **Note:** A safety filter only needs to be replaced at every third primary air filter change.



4 Inspect the new filter before installing. Visually check for cuts, tears, or indentations on the sealing surfaces before installation. If any damage is visible, do not install.

**PSD09, PSD10
or PSD12 Style**

PSD08 Style

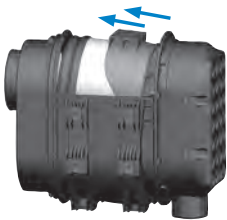


Safety Filter
Positioning Tab Location

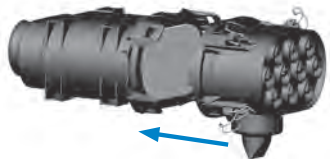


Plastic
Handle

5 If replacing safety, using the plastic handle on the safety filter, slide the filter at an angle into the outlet side and push in place until the filter seats firmly and evenly within the housing. **Note:** On PSD09, PSD10 and PSD12 models, insert the safety filter tab into the positioning slot before pushing the filter in place.



6 Insert the primary filter. For PSD08, slide the filter into the housing until the gasket seats against the housing. For PSD09, PSD10 and PSD12, slide the filter down at approximately a 5° angle until it hits the end of the housing. Rotate the filter toward the outlet section to complete the seal.



7 Replace the service cover. On PSD08, tilt the service cover into place and secure latches. For the PSD09, PSD10 and PSD12, place the service cover in position and fasten the latches. **Note:** If the cover doesn't seat, remove and re-check the filter position. The cover will be difficult to install if the filter isn't installed correctly.

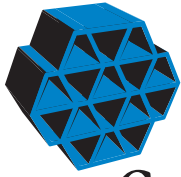


8 Visually inspect your inlet and outlet connections. If your air cleaner has a Vacuator Valve, inspect the valve. Replace if any signs of wear or damage are visible.

Engine Protection

in **All Conditions**

Like Never Before!



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Innovative vehicle designs call for new engineering solutions plus know-how from your suppliers. We have both – and are ready to help you solve your space or configuration problems.

PowerCore filters in round, obround, and rectangular configurations.

