How air pre-cleaners reduce your operating costs.

Dirt destroys engines. It's just that simple.

In order to lengthen your engine's life, extensive air filtering systems have been developed to keep the dirt from entering the engine. Most filters effectively remove all but the smallest particles of dirt from the air.

However, there **is** a weak link in any filter engine.

Filter elements become clogged with the dirt they remove from the air, and their replacement is time consuming **and expensive!**

Thus, you have been faced with these choices:

1. **Operate the engine longer than recommended between element changes.** Engine performance drops as air intake is reduced by dirty filter elements, resulting in higher operating costs for you.

2. **Clean filter elements instead of replacing them.** However, any tear, crack or other disfigurement to the filter element will result in dirt entering the 'un-filtered path', damaging your engine.

3. **Replace the filter element frequently as it becomes clogged.** While the most effective of the three choices, this also is the most expensive choice for you. Filter elements are expensive, and the more often they must be changed, the greater the operating cost for you.

However, you **do** have a practical fourth choice, use an air pre-cleaner to remove the dirt from the air **before** it gets to the filter element! With less dirt in the filter, the element lasts longer, and you can **drastically** cut your operating costs.

Types of pre-cleaners available.

Collector Bowl

Air, directed by vanes, swirls into the unit's hood and, through centrifugal force, the dirt drops into a collector bowl. The dirt is emptied by removing the bowl. This style must be mounted vertically.

Problems encountered: The dirt is stored inside the pre-cleaner where it can be drawn into the filter element. Also, moisture entering the unit can turn the dirt to mud, clogging the bowl. Thus, the bowl must be emptied frequently.

Aspirated

The same centrifugal type of dirt separation from the air is utilized in this sytem, but the dirt is removed from the pre-cleaner hood section by suction. Tubing, attached to a venturi tube on either the muffler or exhaust pipe, carries the dirt from the pre-cleaner to the exhaust, where it is expelled with the exhaust.

Problems encountered: Moisture mixes with the dirt and clogs the ports or vacuum tubing. The tubing also is subject to leaks and breaks. If the venturi burns out, exhaust gases can feed back through the tubing to ruin the filter elements. Restriction, caused by the venturi, can create back pressure, resulting in an engine running hotter and less efficient.

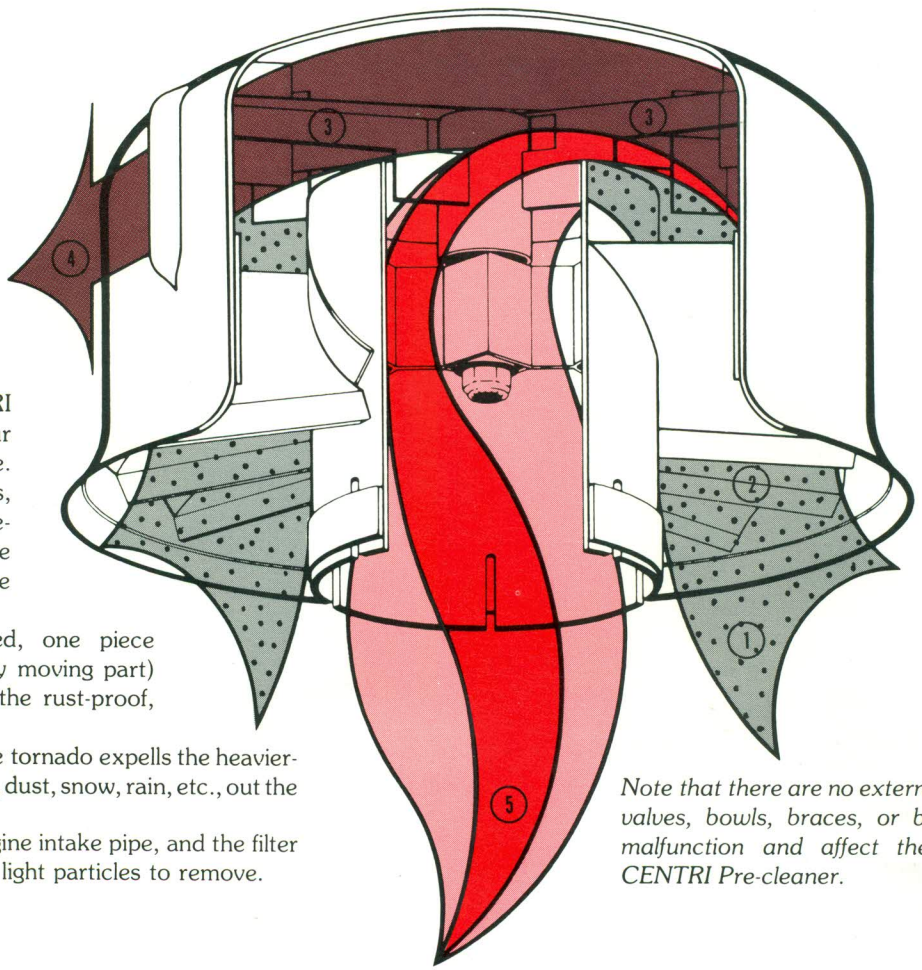
Atmosphere Discharge

The most efficient long range pre-cleaner. Dirt and moisture is expelled back into the atmosphere from the pre-cleaner by centrifugal force. There are no collector bowls, evacuator valves, piping, electrical connections, etc., since the entire pre-cleaner is self-contained.

Problems encountered: Bottom discharge units must be mounted vertically to efficiently discharge dirt and moisture. (The side discharge unit can be mounted in any position.) Plastic models can crack or shatter. Carbon steel models rust out.

Note: **Any** air pre-cleaner **cannot** remove the smallest and lightest particles of dirt. Consequently, the air pre-cleaner is meant to **augment** your engine's air filter system, **not** replace it.

How CENTRI Air Pre-cleaners help protect your equipment investment.



1. Dirty air enters the CENTRI which is clamped onto your equipment's air intake pipe.
2. Specially designed vanes, **curved** and **angled** to precisely direct air flow, move the dirty air toward the stainless steel impeller.
3. The dynamically balanced, one piece spinning impeller (the only moving part) creates a tornado inside the rust-proof, shatter-proof housing.
4. The centrifugal force of the tornado expells the heavier-than-air dirt particles, chaff, dust, snow, rain, etc., out the discharge louver.
5. Cleaned air enters the engine intake pipe, and the filter element has only the very light particles to remove.

Note that there are no external piping, evacuator valves, bowls, braces, or brackets which can malfunction and affect the efficiency of the CENTRI Pre-cleaner.

Applications:

Agriculture
Forestry and Lumbering
Off-highway Construction
Mining and Gravel Pits
Stationary Engines
Marine Shipyards

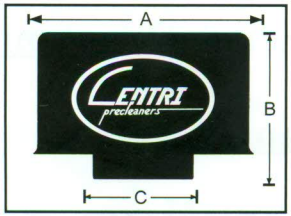
Wherever there is an engine operating in dirt, chaff, dust, rain or snow, the CENTRI air pre-cleaner will give you longer filter element life. Types of dirt and dust and operating conditions will determine how much extra life you can obtain from any pre-cleaner. But with the highly efficient CENTRI, you can expect the **BEST** performance of **ANY** pre-cleaner on the market today.

With the CENTRI Pre-cleaner you get:

Cleaner air for your engine!
Longer filter element life!
Increased engine performance!
Reduced operating costs!
Increased engine life!

SPECIFICATIONS

	DIMENSIONAL			WEIGHT	C.F.M. RANGE
Model No.	A inches	B inches	C inches	Weight lbs.	Range C.F.M.
METRIC	mm	mm	mm	kg	m3/Min.
EX-20	5 1/4	3 3/8	2	1	50 to 100
	133	86	51 (2")	455g	1,4-2,8
EX-25	6 1/2	4 1/4	2 1/2	1 3/4	100 to 200
	165	108	64 (2 1/2")	795g	2,8-5,6
EX-30	6 1/2	5	3	2 3/4	150 to 275
	165	127	76 (3")	1,247g	4,2-7,8
EX-40	8 7/8	5 7/8	4	3 3/4	200 to 400
	225	149	102 (4")	1,7kg	5,6-11,3
EX-50	11 1/4	7 1/2	5	6 1/2	350 to 700
	286	190	127 (5")	3kg	10-20
EX-60	12 3/4	7 3/4	6	7 1/4	500 to 950
	324	197	152 (6")	3,30kg	14-27
EX-70	14 3/4	8 1/2	7	9 1/2	750 to 1350
	375	216	178 (7")	4,3kg	21-38
EX-80	14 3/4	8 1/2	8	9 1/2	950 to 1600
	375	216	203 (8")	4,3kg	26,6-44,8



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CUBIC FEET PER MINUTE (C.F.M.) OF AIR FORMULA

For all engines the C.F.M. can be determined by using the following formula: engines equipped with twin air intake pipes, divide the engine C.F.M. by two and apply the proper CENTRI™ Precleaner to each of the pipes.

2 CYCLE ENGINES

$$\text{C.F.M.} = \frac{\text{C.I.D.} \times \text{R.P.M.} \times \text{Vol. Eff.}}{1728}$$

VOLUMETRIC EFFICIENCY

Diesel Engines -
- Blower-Scavenged ..... =1.40
- Turbocharged ..... =1.90
- Turbocharged - Innercooled ..... =2.10

Gasoline Engines -
- up to 2500 r.p.m. ..... = .85
- 2500 to 3000 r.p.m. ..... = .80
- 3000 to 4000 r.p.m. ..... = .75

4 CYCLE ENGINES

$$\text{C.F.M.} = \frac{\text{C.I.D.} \times \text{R.P.M.} \times \text{Vol. Eff.}}{3456}$$

VOLUMETRIC EFFICIENCY

Diesel Engines -
- Normally aspirated ..... = .85
- Turbocharged ..... =1.60
- Turbocharged - Aftercooled ..... =1.85
- Turbocharged - Innercooled ..... =1.95

Gasoline Engines -
- up to 2500 r.p.m. ..... = .80
- 2500 to 3000 r.p.m. ..... = .75
- 3000 to 4000 r.p.m. ..... = .70

C.I.D. - Cubic Inch Displacement R.P.M. - Revolutions per Minute Vol. Eff. - Volume Efficiency

To convert Metric Displacements to C.I.D. for use in the formulas, use the following conversion factors:
Displacement in Cubic Centimeters (cm^3) x 0.06102 = C.I.D.
Displacement in Liters x 61.02 = C.I.D.

CENTRI™ precleaners

MFG. By DRM Diversafab Baraboo, WI USA

EXPERTLY ENGINEERED FOR HIGH HEAT APPLICATIONS

Protect the safety of your equipment operators and equipment with CENTRI™ HIGH HEAT (HH) PRECLEANERS & PRESCREENS.

CENTRI™ HH PRECLEANER features:

- Heat Resistant Stainless Steel and Aluminum Construction - No plastic to melt and warp
- Self Contained for Easy Installation at Any Angle
- Operating Temperature up to 350°F / 177°C
- Shielded Impeller Bearings for Dependable Operation
- High Efficiency - Removes up to 90%+ of Contaminants
- Low Air Restriction and Reduced Operating Costs
- Increased Engine Life and Performance
- Stainless Steel Clamp Included
- **Exclusive Five Year Performance Warranty**

CENTRI™ HH PRESCREEN features:

- Square Mesh Stainless Steel .036" (0.0009144m) for Superior Ember Control - Exceeds NFPA Standard 12.2.4.4
- High Temperature Silicon Coated Fiberglass and Kevlar® Thread
- Proven Attaching Method for Confident Ember Control
- Operating Temperature up to 1832°F / 1000°C
- Durable Steel Rings
- Low Profile Lengths also Available
- Custom Designs Available (see reverse)

Comprehensive inventory of installation adaptors

HH Prescreen ▲

▲ Low Profile HH Prescreen

GREEN PRODUCT

ISO 9001 Registered

Proudly Made in the U.S.A.

Note: Patent Pending on CENTRI™ High Heat Products

CENTRI™ precleaners

MFG By DRM Diversafab Baraboo, WI USA

EXPERTLY ENGINEERED FOR **HIGH HEAT APPLICATIONS**

CENTRI™ HH PRECLEANERS

Model	Width		Height		O.D. (Pipe)		Weight		Range	
	inches	mm	inches	mm	inches	mm	lbs.	kg	C.F.M.	m3/Min.
HHEX-20	5 1/4	133	3 3/8	86	2	51	1	455g	50 - 100	1,4 - 2,8
HHEX-25	6 1/2	165	4 1/4	108	2 1/2	64	1 3/4	795g	100 - 200	2,8 - 5,6
HHEX-30	6 1/2	165	5	127	3	76	2 3/4	1,247g	150 - 275	4,2 - 7,8
HHEX-40	8 7/8	225	5 7/8	149	4	102	3 3/4	1,7kg	200 - 400	5,6 - 11,3
HHEX-50	11 1/4	286	7 1/2	190	5	127	6 1/2	3kg	350 - 700	10 - 20
HHEX-60	12 3/4	324	7 3/4	197	6	152	7 1/4	3,3kg	500 - 950	14 - 27
HHEX-70	14 3/4	375	8 1/2	216	7	178	9 1/2	4,3kg	750 - 1350	21 - 38
HHEX-80	14 3/4	375	8 1/2	216	8	203	9 1/2	4,3kg	950 - 1600	26,6 - 44,8

Cubic Feet Per Minute (C.F.M.) of Air Formula: The C.F.M. for all engines can be determined by using the formula given below. However, please note that for engines equipped with twin air intake pipes, the engine C.F.M. should be divided by two, then the proper CENTRI™ Precleaner should be applied to each pipe.

FOUR-CYCLE Engine: $C.F.M. = \frac{C.I.D. \times R.P.M. \times Vol.\ Eff.}{3456}$

VOLUMETRIC EFFICIENCY:

Diesel Engines:
- Normally Aspirated..... = .85
- Turbocharged..... = 1.60
- Turbocharged-Aftercooled..... = 1.85
- Turbocharged-Innercooled.... = 1.95

Gasoline Engines:
- Up to 2500 R.P.M..... = .80
- 2500 to 3000 R.P.M..... = .75
- 3000 to 4000 R.P.M..... = .70

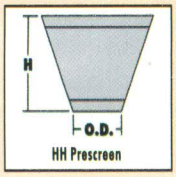
TWO-CYCLE Engine: Contact DRM Diversafab

(C.I.D. = Cubic Inch Displacement, R.P.M. = Revolutions per Minute, Vol. Eff. = Volume Efficiency) To convert Metric Displacements to C.I.D. for use in the formulas, use the following conversion factors: Displacement in Cubic Centimeters (cm3) x 0.06102 = C.I.D., Displacement in Liters x 61.02 = C.I.D.

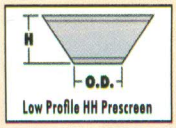
Note: Patent Pending on CENTRI™ High Heat Products

CENTRI™ HH PRESCREENS

CENTRI™ High Heat Prescreens are custom designed to securely fit the CENTRI™ HH Precleaner and the air intake pipe. The prescreen restricts embers and debris larger than .036" (0.0009144m). For additional CENTRI™ High Heat Prescreen models please visit the CENTRI™ website: www.centriprecleaner.com, click on the Accessories Tab for the most current model listing. To discuss your specific high heat prescreen needs please contact DRM Diversafab.



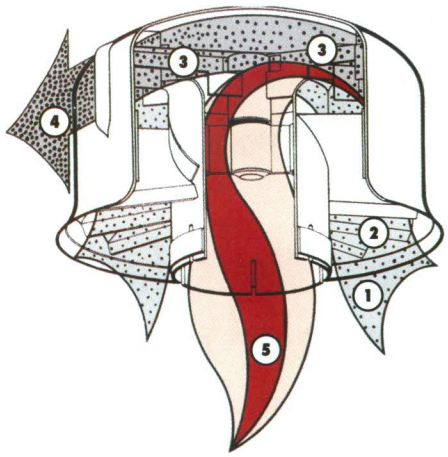
HH Prescreen



Low Profile HH Prescreen

HH Prescreen Model	HH Precleaner Model	O.D. (Pipe)		Height	
		inches	mm	inches	mm
48-5040	HHEX-50	4"- 4 1/2"	102-108	7"	178
48-5040S	HHEX-50	4"	102	4"	102
48-5050	HHEX-50	5"	127	9"	229
48-5050S	HHEX-50	5"	127	6"	152
48-5060S	HHEX-50	6"	152	6"	152

S = Low Profile HH Prescreen



How CENTRI™ High Heat Precleaners work:

1. Dirty air enters the CENTRI™ High Heat Precleaner installed on the engine's air intake.
2. Curved and angled vanes direct the flow of dirty air toward the stainless steel impeller.
3. The impeller creates centrifugal force inside the housing.
4. The centrifugal force expels heavier- than-air dirt particles (chaff, dust, snow, rain, ash, embers, etc.) out the discharge louver.
5. The precleaned air enters the engine intake pipe leaving only the very light particles for the filter element to remove.
6. For ember control with the CENTRI™ High Heat Precleaner, install a CENTRI™ High Heat Prescreen.

Note: Heat Resistant Stainless Steel and Aluminum Construction - No plastic to melt and warp.

The results:

- Increased operator safety in ember environments (CENTRI™ HH Prescreen installed)
- Cleaner air for your equipment
- Increased air filter life
- Increased engine life and performance high heat applications