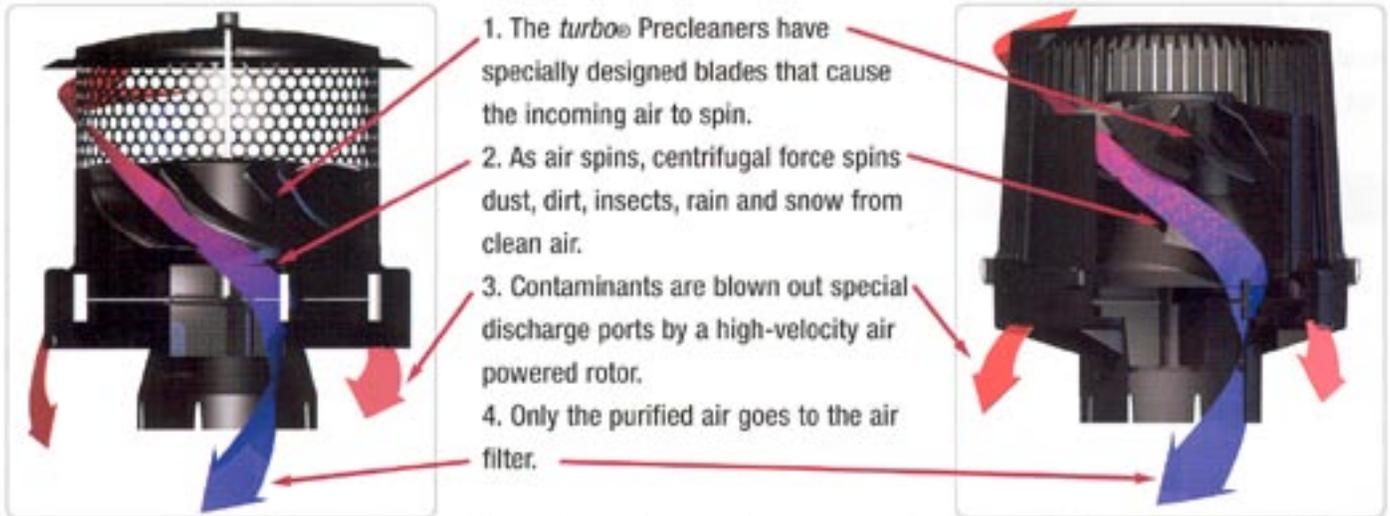


Harold Ag And Mobile Products

HOW CAN TINY DUST PARTICLES KILL MIGHTY EARTHMOVERS? Finally - the truth about dirt, filters, and precleaners.



The only moving part in the Turbo Precleaner is the spinner assembly. The bearings in the spinner assembly are enclosed in a plastic shell keeping out dirt and moisture. The spinner assembly has a lifetime warranty on it.

There's more dirt than meets the eye.

If you operate heavy machinery, working in dirt is your business. Yet the same dirt that is the lifeblood of your business is also the mortal enemy of your equipment.

You do regular maintenance. You do oil-analysis. You change your air filters frequently. And yet your engine is still not making it to the next maintenance cycle. So what is it about dirt that is still causing your problem?

You need to know that it's not enough just to worry about dirt. In fact, there's something much more destructive that you need to pay attention to - and something you may be completely unprotected from.

As you will see, what you don't know about dirt can hurt you.

Micro-abrasive dust: dirtier than dirt itself.

All around us, there are particles in the air that are much smaller than dirt, yet they account for as much as 85% of all engine damage. These particles are less than 20 microns in size, and are known as **micro-abrasive dust**.

Micro-abrasive dust consist of tiny silicone particles that severely damage engines and drastically shorten the life of filters. Worst of all, these nearly-invisible particles are everywhere - not just in extreme environments.

It's no wonder that the filter industry is researching solutions to combat micro-abrasive dust - it's quickly becoming recognized as the single most deadly contaminant to today's precision engines.

Micro-abrasive dust kills engines.

Micro-abrasive dust particles are extremely abrasive. They have razor-like flakes that grind and gouge surfaces, alter clearances, and generate even more abrasive debris. They are drawn into the engine through the air intake and destroy critical precision parts.

Micro-abrasive dust wreaks havoc on your equipment, your high-tech filters, and your livelihood. It's particles drastically degrade engine performance and increase fuel-consumption.

Not even dual-stage filters can stop these devastating particles

The choice is yours - either stop micro-abrasive dust, or it will stop you.

Quite simply, if you're not stopping micro-abrasive dust, you can expect to pay dearly.

In addition to jeopardizing your engine, you're going to waste expensive filters and fuel. You'll also have higher maintenance cost, more downtime, and a bundle of otherwise avoidable warranty claims.

So what can you do to protect your livelihood?

Micro-abrasive dust meets its match.

There is only one product on the market that is exclusively engineered to eliminate deadly micro-abrasive dust before it enters the filter - The turbo[®] Precleaner. No other precleaner can make this claim.

Regardless of how you may be combating dirt today the turbo[®] Precleaner is the single most critical investment you can make to protect your engine, and your livelihood.

This is all the more important in the age of today's precision-engineered Tier III and Tier IV engines. Their tighter tolerances and lower emissions demand ultra-clean air. Only turbo[®] Precleaner can deliver this up-front protection.

When it comes to protecting your engine, there is only one target zone that matters. Either your engine is protected from micro-abrasive dust, or it's not. Like a seat belt, there's no "in between".

Unless you have the turbo[®] Precleaner, you may as well have no protection at all.

The turbo's[®] top-through air flow creates the velocity needed to centrifugally separate micro-abrasive dust particles. No stop and go, bottom-through precleaner can match the turbo's[®] raw power and sheer effectiveness at stopping destructive dust.

In test after test, the turbo[®] has exceeded all other precleaners in the sheer power and efficiency of its exclusive top-through-airflow design.

This design is so efficient, that after thirty years, no other precleaner has even come close.

If it's not the genuine turbo[®], it's just a raincap[™].

There are two kinds of people in this profession - those who use the turbo® precleaner, and those who wished they had™.

If your precleaner is not quite the genuine turbo®, your very livelihood is vulnerable to the deadliest contaminates on earth. Upgrading to the turbo® is not only the smartest choice you can make - it's the only choice.

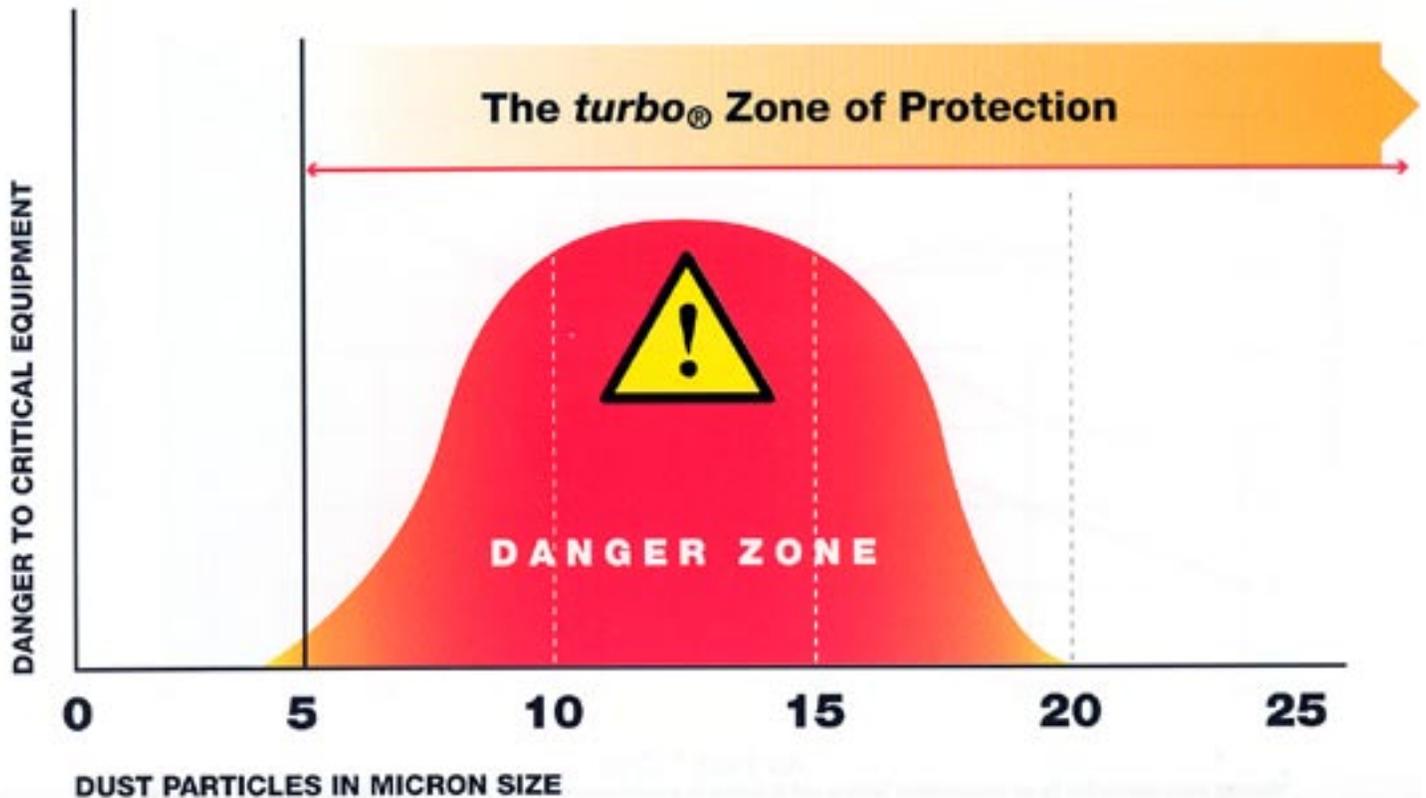
Is the turbo® worth the investment? Try the cost of not having one.



The turbo® II rugged metal pre-cleaner has been protecting engines from micro-abrasive dust in the harshest environments for over thirty years.



The turbo® III durable all-polymer pre-cleaner has been custom engineered to adapt to today's precision-designed engines to offer the ultimate protection in all environments.



CLEAN AIR FOR YOUR ENGINE

WITH a turbo® PRE-CLEANER

Features:

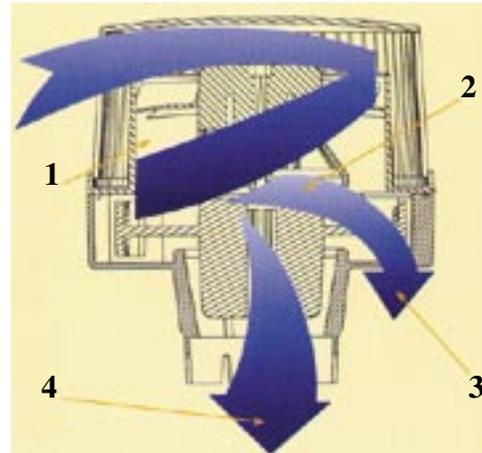
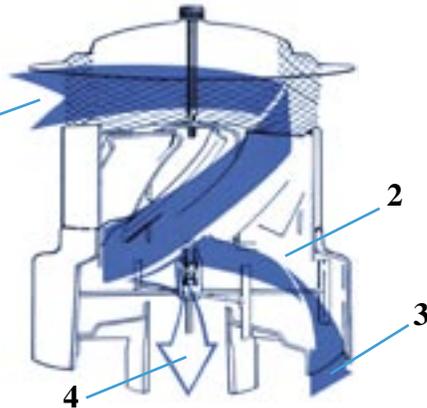
- Removes up to 98% of impurities from intake air
- Completely automatic
- Powered by intake air
- Installs in seconds

Saves Money:

- Extends air filter life
- Protects your engine
- Saves servicing time

HOW THE turbo II & III PRE-CLEANERS WORK

1. The Turbo II & III PreCleaner have a specially designed blade that causes the incoming air to spin.
2. As the air spins centrifugal force separates dust, dirt, insects, rain, and snow from clean air.
3. Contaminates are blown out special discharge ports by a high velocity, air powered rotor.
4. Only the purified air goes to the air filter.



GENERAL INSTALLATION INSTRUCTIONS

In most cases, installing a TURBO Precleaner is as easy as removing the rain cap from the air intake stack and slipping the precleaner on in its place. TURBO Precleaners do □

Once the proper model of TURBO Precleaners has been determined (based on CFM rating of the engine-see Specifications) the diameter of the air inlet pipe needs to be measured, in order to specify the proper intake size.

Having done that, there are a few simple steps (depending on the configuration of the air intake) to be followed in installing the precleaner.

Air Intake Stack With Rain Cap: Remove the rain cap and set the precleaner on the intake stack, using an adapter, if required. Make certain the precleaner is securely in place. Check to see that the precleaner is at least 4' above the hood to avoid restricting air flow or discharge. Always check the relationship of the engine's exhaust outlet which should be at least 12" above the top of the precleaner. Turn the exhaust pipe, if possible, to move exhaust gases away from the air intake. Regarding operator vision, offset pipes and extension pipes are available to position the precleaner as necessary.

Be sure to install a new, clean air filter at the same time that the TURBO Precleaner is installed. If it is possible, taking a vacuum reading with an Air Restrictor □

Air Intake Stack With Some Other Precleaner: If the TURBO Precleaner is to replace some other precleaner mounted on the intake stack, the procedure is the same as in the case of a rain cap, except it is necessary to completely remove the other precleaner.

If an aspirated precleaner is being replaced, be sure that the dirt transfer hose is capped off, and that the aspirator is removed.

When There Is No Intake Stack: Since most air cleaners have a limited inlet of some sort, it usually is only a matter of installing some plumbing to bring the air through the pipe on which a TURBO Precleaner can be mounted.

Sizing a Turbo Precleaner for your engine!

Provide the following information:

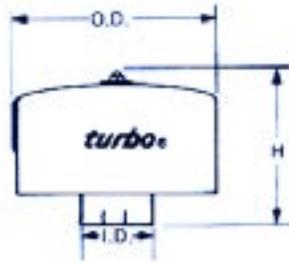
Engine model # of equipment

Intake stack size O.D. (Outside Diameter)

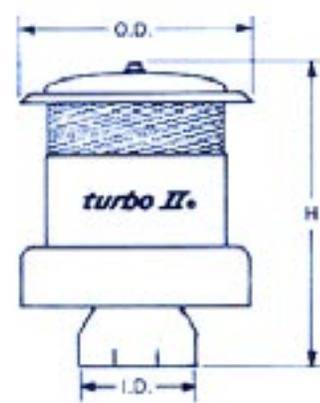
Harold Electric Co. | 811 W. Rose | Walla Walla, WA. 99362 | 1-800-541-8910

turbo® & turbo II® Precleaners Dimensional Specifications

Models 34,&45



Models 24,35,46,& 68



Model No.	Recommended OEM Operating Range	O.D.	① H	I.D.	Approximate Weight
MO45	270 to 460	10 1/4"	9 1/8"	5" to 3 3/4"	7 lb

turbo II® Precleaners

Model No.	Recommended OEM Operating Range	O.D.	① H	I.D.	Approximate Weight
MO35	250 to 350	9 1/2"	12 1/4"	4 1/2"	9 lb
MO46-4 1/2	350 to 700	12 1/4"	14"	4 1/2"	15 lb
MO 46-5	350 to 700	12 1/4"	15 1/2"	5"	15 lb
MO46-6	350 to 700	12 1/4"	15 1/2"	6"	15 lb
MO68-5	700 to 1100	14 1/2"	17 1/4"	5"	21 lb
MO68-6	700 to 1100	14 1/2"	16 1/2"	6"	21 lb
MO68-7	700 to 1100	14 1/2"	17 1/4"	7"	21 lb
MO68-8	700 to 1100	14 1/2"	17 1/4"	8"	21 lb

NOTE: To see the prices for turbos for the web only click the following link in your browser.

http://www.heco.net/maincat/prices_prices_user.pdf

turbo III® Precleaners

Model	Model No.	Recommended OEM Operating Range	O.D.	① H	I.D.	Approximate Weight
2" Inlet	1320000	15 to 75 CFM	5.27"	5.13"	2.06"	.50 lb
3" Inlet	1330000	50 to 250 CFM	7.50"	8.00"	3.05"	1.50 lb
3" Inline	1330002	70 to 225 CFM	7.50"	10.70"	3.05"	1.75 lb
4" Inlet	1330001	50 to 250 CFM	7.50"	8.00"	4.05"	1.50 lb
4 1/2" Inlet	1345000	200 to 500 CFM	9.75"	11.61"	4.55"	4.35 lb
4 1/2" Inline	1345002	200 to 500 CFM	--	--	--	--
5" Inlet	1350000	200 to 500 CFM	9.34"	11.61"	5.05"	--
6" Inlet	1360000	500 to 1100 CFM	--	--	6.05"	--
7" Inlet	1370000	500 to 1100 CFM	--	--	7.05"	--
8" Inlet	1380000	500 to 1100 CFM	--	--	8.05"	--

① Fits over intake pipe reducing height approximately 2".

TURBO PRECLEANERS - ADAPTERS	
Part Number	Product Description
Plastic Adapter kits	
Kit 1200154 includes:	Adapter Kit (included the 4 adapters below)
1200157*	3" - 2 3/4" Plastic Adapter Ring
1200153*	2 1/4" - 2 1/2" Adapter Ring
1200152*	2 1/2" - 2 3/4" Adapter Ring
1200151*	2 3/4" - 3" Plastic Adapter Ring
Kit 1200161 includes:	Adapter Kit (included the 4 adapters below)
1200162*	4" - 3 3/4" Plastic Adapter Ring
1200160*	3 3/4" - 3 1/2" Adapter Ring
1200159*	3 1/2" - 3 1/4" Adapter Ring
1200158*	3 1/4" - 3" Plastic Adapter Ring
Kit 1200165 includes:	Adapter Kit (included the 3 adapters below)
1200129*	5" - 4 1/2" Rubber Sleeve
1200166*	4 1/2" - 4" Plastic Adapter Ring
1200162*	4" - 3 3/4" Plastic Adapter Ring
Kit 1200173 includes:	Adapter Kit (included the 5 adapters below)
1200166*	4 1/2" - 4" Plastic Adapter Ring
1200162*	4" - 3 3/4" Plastic Adapter Ring
1200160*	3 3/4" - 3 1/2" Adapter Ring
1200159*	3 1/2" - 3 1/4" Adapter Ring
1200158*	3 1/4" - 3" Plastic Adapter Ring
Single Adapter 1012121*	2" - 1 3/4" Plastic Adapter Ring
* Can be ordered separately	
Rubber Adapter Kits	
Kit 1200170 includes:	Adapter Kit (included 2 adapters)
	5" - 4 3/4" Rubber Sleeve
	5" - 4 7/8" Rubber Sleeve
Kit 1200171 includes:	Adapter Kit (included 2 adapters)
	6" - 5 3/4" Rubber Sleeve
	5" - 4 7/8" Rubber Sleeve
Kit 1200172 includes:	Adapter Kit (included 2 adapters)
	7" - 6 1/2" Rubber Sleeve
	7" - 6 7/8" Rubber Sleeve
1200128	5" - 4" Rubber Sleeve
1200133	6" - 5 1/2" Rubber Sleeve

TURBO PRECLEANER - REPLACEMENT PARTS	
Part Number	Product Description
Spinner Replacement	
1024104	M24 Spinner Replacement
1035104	M35 Spinner Replacement
1046104	M46 Spinner Replacement
1068104	M68 Spinner Replacement
1320130	M15 Spinner Replacement
1330130	M50 Spinner Replacement
1345130	M200 Spinner Replacement
Rain Cap, Nut Stud & Screen Assembly	
1024200	M24 Rain Cap Assembly
	M24 Rain Cap Stud W/Nut
	M24 Intake Screen
1035200	M35 Rain Cap Assembly
	M35 Rain Cap Stud W/Nut
	M35 Intake Screen
1046200	M46 Rain Cap Assembly
	M46 Rain Cap Stud W/Nut
	M46 Intake Screen
1068150	M68 Rain Cap Assembly
	M68 Rain Cap Stud W/Nut
	M68 Intake Screen

HECO TURBO PRECLEANERS PRICES

Prices are Subject to change without notice

Part No	Price	Comment
1024200	\$44.50	
1046200	\$48.00	
1068150	\$61.00	
1200000	\$3.00	
1200128	\$12.00	
1200151	\$5.00	
1200152	\$5.00	
1200153	\$5.00	
1200154	\$18.00	
1200157	\$5.00	
1200158	\$5.00	
1200159	\$5.00	
1200160	\$5.00	
1200161	\$18.00	
1200162	\$5.00	
1200165	\$21.00	
1200166	\$5.00	
1200170	\$20.00	
1200171	\$20.00	
1200172	\$26.00	
1200173	\$21.00	
1320000	\$91.00	
1330000	\$149.00	
1330001	\$149.00	
1330002	\$191.00	
1345000	\$248.00	
1345002	\$265.00	
1350000	\$248.00	
1360000	\$347.00	
1370000	\$347.00	
1380000	\$347.00	
MO35	\$0.00	R/B 1345000
MO45	\$100.00	
MO46-4 1/2	\$372.00	
MO46-5	\$372.00	
MO46-6	\$372.00	
MO68-5	\$385.00	
MO68-6	\$433.00	
MO68-7	\$433.00	
MO68-8	\$433.00	