



Foley Environmental

Thank you for inquiring about our Foley Exhaust Purifiers and Scrubbers for diesel engines.

Foley Environmental is a division of Foley Industrial Engines. We are the oldest engine distributor in North America. With almost 100 years in the engine business we have extensive knowledge of fuel injection and exhaust systems. This makes us the ideal supplier for your company's needs. Foley Environmental serves both the public and private sectors. Our customer base includes Boston's Big Dig, California public works projects, Brown University, Bucknell University, Hyster Forklift Co., Narragansett Electric Co, IBM, and many more public works projects and companies. Many OEMs, such as NACCO, the parent company of both Yale and Hyster Forklift Co, now include our Foley Environmental purifiers as standard equipment on new machines. These companies are a testimony to our effective solutions to exhaust emission problems. As the only U.S. based exhaust purifier specialist, we pride ourselves on shipping within 24 to 48 hours of the receipt of an order.



TWO STYLES OF PURIFIERS / SCRUBBERS



Our exhaust scrubbers allow you to work indoors close to a diesel or a gas engine without any health risk. These air purifiers install easily and come in different styles, depending on the application. Here in the East, purifiers

really came into their own on Boston's Big Dig. This was the largest public works project since the Tennessee Valley Authority. Foley Engines supplied most of the purifiers used on this project. Because of the experience gained during the Big Dig, Foley Engines is now an OEM supplier to Hyster and Yale for their forklift purifiers.

Clip-On Style. The easiest to install is simply a clip-on style purifier that installs at the end of the tail pipe. We supply the purifier with the appropriate sized muffler clamp and it installs easily. Depending on the horsepower of the engine, the scrubber is typically the size of a coffee can. Although scrubbers are physically larger for a high horsepower engine such as a 1000 HP engine in a generator. When the purifier is no longer needed, such as in a rental application, it can be removed and stored.

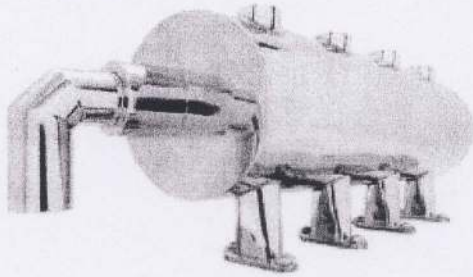


Combination Muffler/Purifier. The other style of purifier or scrubber is a direct fit combination exhaust purifier/muffler. This style is most appropriate where there is no room at the end of the tail pipe for a clip-on purifier. These applications include skid steer loaders, and zero tail swing mini-excavators. These combination muffler purifiers are exactly the same shape and spatial dimensions as the OEM muffler. Installation time is similar to changing out a muffler. Typically, once installed these are not removed. Because this style is closer to the exhaust manifold, they do work better than the clip-on style, but usually cost up to twice as much. This is due to the fact that they are both a muffler as well as a purifier.

To keep you up and running, we stock here in the US over 400 scrubbers. Both the clip-on style and the combination muffler/scrubber version. Since we are the only U.S. based exhaust purifier specialist, we are able to ship these units quickly. Often the same day as the order is placed, and without any customs delays.

We have diesel scrubbers for all industrial engines, including Perkins, Deutz, Deere, Cummins, and Caterpillar.

We also have scrubbers for gas-fueled engines, such as Honda and Wisconsin. The scrubbers for the Honda's are combination muffler/purifiers



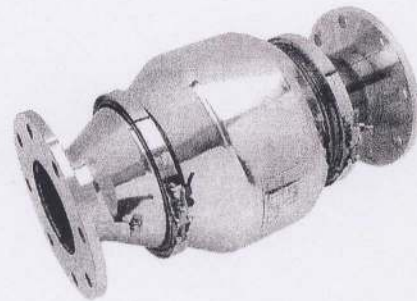
that are identical to the OEM Honda muffler in size and shape. For Wisconsin engines, we supply a clip-on purifier. Due to the fact that Wisconsin engines are inherently "dirty," we recommend that you change the carburetor jet size and install new spark plugs and Accell plug wires. See [Tech Tip 28, "Spark Plug 101,"](#) on our

website for more info on Wisconsin spark plugs. [Tech Tip 13, "Foley Engines Clean Air Tip,"](#) will also have more info on exhaust scrubbers for gasoline fueled engines.

What They Do & How They Do It

Simply put, exhaust purifiers allow you to work indoors close to a diesel or gas fueled engine without any health risks. They do this by using catalytic exhaust technology to make the exhaust emissions safe to breathe. Each purifier houses a catalytic core, which eliminates harmful emissions by collecting diesel particles and burning off dangerous pollutants. These include particles such as Carbon Monoxide (CO) and Hydrocarbons (HC). The harmful emissions of diesel engines are converted into water (H₂O) and Carbon Dioxide (CO₂), which makes it safe to work in close proximity with your machine.

Attached, you will find 5 diesel exhaust gas emission reduction curves, and 1 exhaust emission reduction table. Emission reduction curves #1-3 (for CO, HC, and SOF) are optimized reduction curves, which were obtained through in-house testing. Emission reduction curves #4 and #5 are part of an underground mining approval test. Emission reduction table #6 represents mining approval test data. In a typical diesel exhaust gas purifier application, the following average exhaust gas emission reductions can be expected:



Carbon Monoxide (CO)	=	80% - 90%+
Hydrocarbons (HC)	=	65% - 80%
Diesel Odor (HCHO)	=	70% - 85%
Soluble Organics (SOF)	=	70% - 85%
Diesel Particulate (DPM)	=	20% - 39%

These average exhaust gas emission reductions depend upon using a well-maintained diesel engine operating with a moderate to heavy load while burning a low sulfur content diesel fuel. Whenever possible the purifier/scrubber should be mounted as close (within 12"-24") to the engine's exhaust manifold or turbocharger.

Emission reduction curves #4 and #5 most accurately reflect the actual exhaust gas emission reductions, which can be expected in field tests. In curves #4 and #5 average carbon monoxide (CO) reductions were in the range of 93% to 97%, while average hydrocarbon (HC) reductions were in the range of 65% to 78%.

Please review the sample drawings and the listings found in these sections.

To better clarify curves #4 and #5, the following symbols are defined as:

Copd	=	Carbon Monoxide before purifier
Cozd	=	Carbon Monoxide after purifier
CHpd	=	Hydrocarbon before purifier
CHzd	=	Hydrocarbon after purifier
Td	=	Exhaust gas temperature in (°C) before purifier

In emission reduction table #6 (which is an 8 mode steady state test) maximum CO reductions was 95%, maximum HC reductions was 62%, and maximum DPM reduction was 39%.

We have detailed directions on how to install both styles of diesel exhaust purifiers in our Forms Section at FoleyEngines.com. See [Exhaust Purifier Installation Procedures](#). For the clip-on style, simply call us toll free at 1-800-233-6539.

If you have any questions, please call us toll free at 1-800-233-6539, or simply email your inquiry to info@foleyengines.com.

Foley Environmental is different: we're a three-generation, 95 year old family firm that wants to help!



Sincerely,

The Foley Engine Team

P.S. After you've got the exhaust fumes taken care of, you should think of the noise. Most diesel noise is from the air intake. We supply a combination air filter/noise reducer. This innovative device is called a Walker Airsep and it is ideal for noisy generators and other equipment.

Please call us toll free at 800-233-6539 with any questions. We can fax you detailed information. Or, email Dr. Diesel directly at DrDiesel@FoleyEngines.com.

P.P.S. In a rush? We have an optional special rush service, which guarantees shipment within 24 hours.

We Accept  and 

FOLEY MARINE & INDUSTRIAL ENGINES

Engine Disturbers Since 1916!

200 Summer St. Worcester, MA 01604

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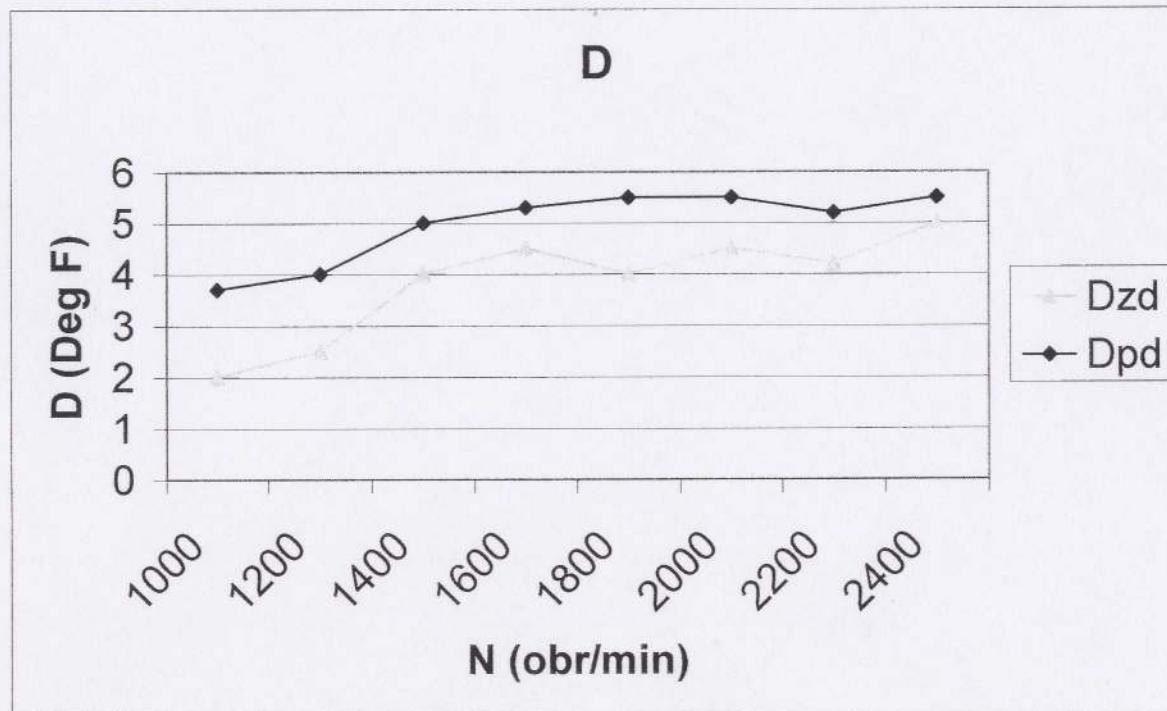
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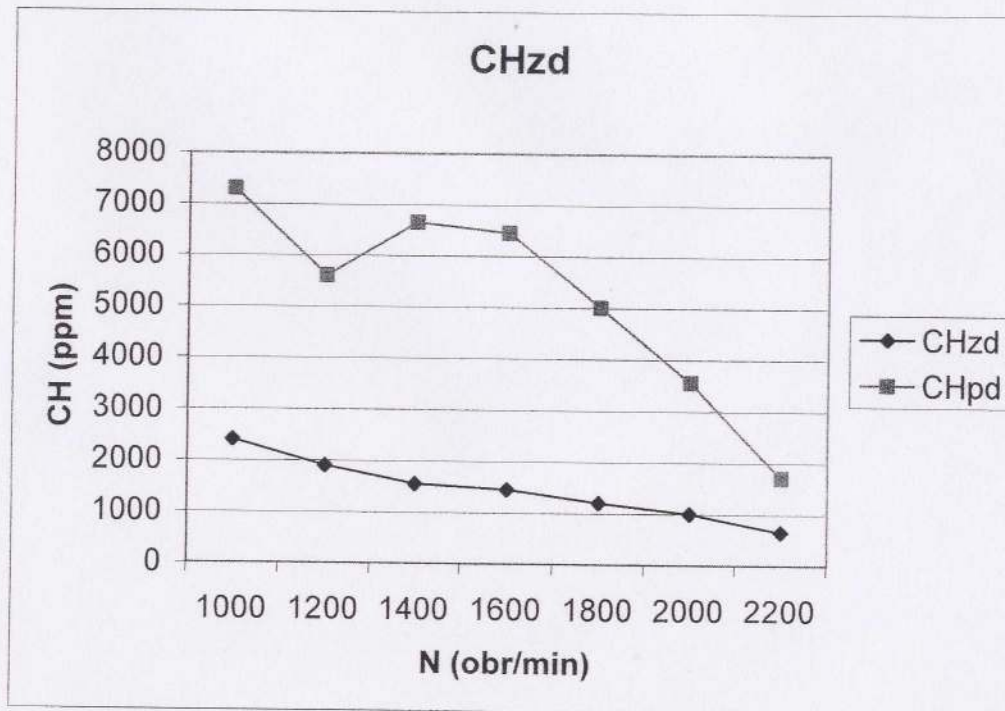
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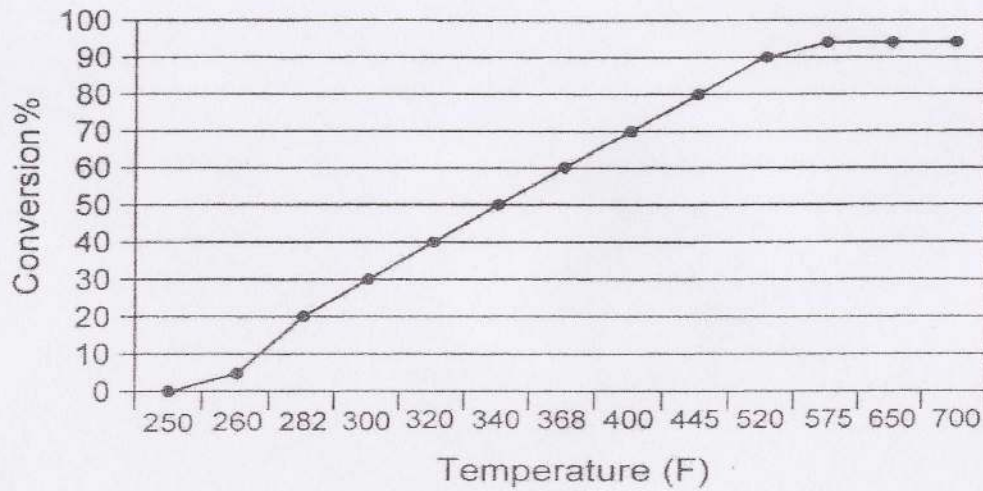




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Carbon Monoxide Conversion



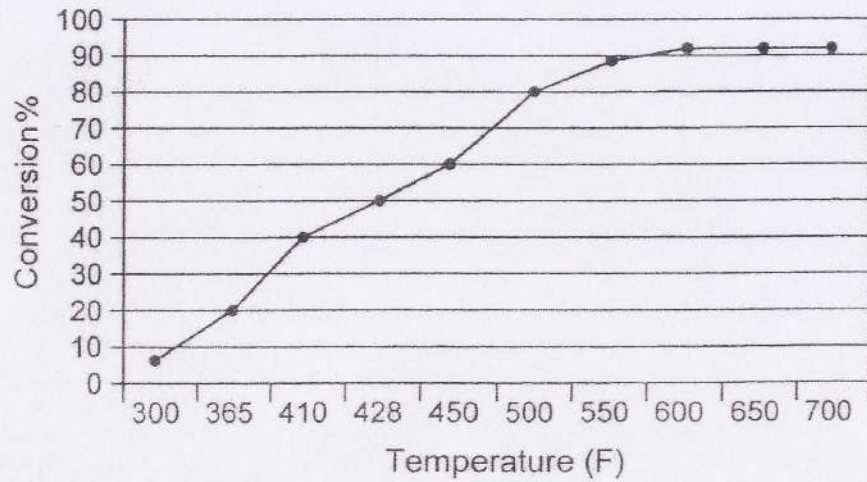
Temperature (F)	Conversion
250	0
260	8
282	20
300	30
320	40
340	50
368	60
400	70
445	80
520	90
575	94
650	94
700	94



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Hydrocarbon Conversion



Temperature (F)	Conversion
300	6
365	20
410	40
428	50
450	61
500	80
550	88
600	91
650	92
700	92



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