



by-pass oil filter

Best Environmental Practices for Auto Repair and Fleet Maintenance • July 2003

What is a By-Pass Oil Filter?

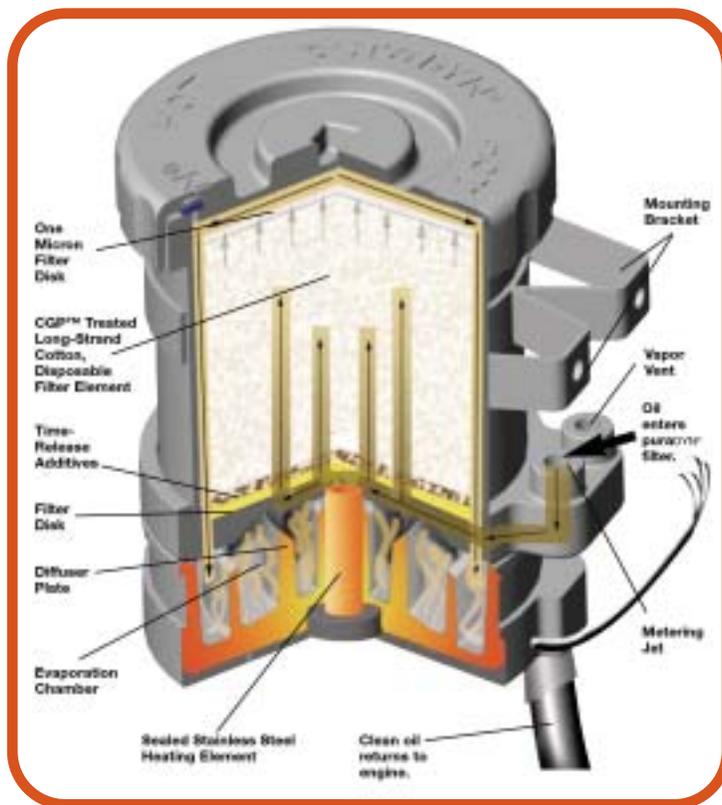
A by-pass oil filter is an added system designed to be used with a full flow oil filter to remove more and finer contaminant particles, such as dirt and metals, than the full flow filter alone. It consists of an outer casing and mounting bracket, a dense inner filter media, such as cotton, and a flow rate regulator. Some by-pass filters also include a heating element and time released additives. By-pass filters are available in various sizes for use in all kinds of vehicles from a passenger car to large trucks and other equipment.

Why Use a By-Pass Oil Filter?

Lubricating oil is made from a limited natural resource and used oil is by far one of the largest hazardous waste streams generated in California. A fleet maintenance facility can generate thousands of gallons of used oil each year from routine engine maintenance. You can reduce the amount of used oil you generate by using by-pass oil filtration systems to extend oil life in your fleet vehicles. The by-pass filtration system allows you to reduce purchase and disposal costs of oil while still maintaining optimal operating conditions.

Internal combustion engines require that their lubricating oil maintain proper viscosity and total base number (TBN) in order to perform at peak efficiencies or to perform at all. Through normal use, the viscosity and TBN of the oil changes as the oil gets contaminated with metal, soot, and water and the additive package breaks down. Lubricating oil itself does not wear out, so if the contaminants are removed the oil can keep doing its job.

If you install the by-pass filter and a reusable full flow filter, you can reduce your oil filter waste stream even further. See the fact sheet "Reusable Oil Filters" for more information.



Cutaway Picture of the By-Pass Oil Filter

Illustration courtesy of puraDYN Filter Technologies Inc.

What Does A By-Pass Oil Filter Do?

It filters solid contaminants from the engine oil including fine abrasive particles and soot as small as one micron or less in some types. Most full flow filters alone can only remove particles larger than thirty or forty microns without overloading, and plugging up. Some by-pass filters can help evaporate liquids, such as fuel, coolant and water, which can reduce or eliminate oxidation by-products known as gum and varnish.

How Does a By-Pass Oil Filter Work?

A small amount of oil from the main oil galley is directed through the by-pass filter where the contaminants are trapped in the filter medium. The cleaned oil is returned to the oil sump. The oil flow rate through the filter is low, three to eight gallons per hour, and is controlled by a metering jet, orifice or check-ball.

Why Sample Oil?

To maximize the benefits of a by-pass oil filter you need to begin an oil sampling and testing program to ensure oil quality. Some oil distributors and filter vendors provide this service. Besides allowing longer oil change intervals, performing oil testing can provide early warning signs of engine problems. This also works if you want to test oil from transmission, differential, power steering, or other hydraulic systems. Your oil testing program can serve as a “window” into your vehicles’ components to warn you before it is too late. You can find problems early and perform the preventative main-

tenance that your fleet vehicles need to keep them running their best, which will help to save long term operational costs.

See the fact sheet “Oil Life Extension” to learn how to begin oil sampling and testing for your vehicles. With a by-pass filtration system end-users have reported cost savings up to 90% on both oil purchases and oil disposal. By-pass filters can save thousands of dollars and reduce used oil.

Advantages of By-pass Filters

Operational

Protect engine against: abrasive particles such as dirt and soot; liquid such as antifreeze and water; and oxidation by-products gum and varnish; Maintain proper oil viscosity for cooling properties, extend oil life, save on costs of oil purchases, and used oil disposal

Environmental

Conserve a non-renewable natural resource ...OIL.
Reduce potential for used oil contamination of: groundwater, soil, and surface water



The California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) certified the puraDYN™ Oil Filtration System in 1994 as “A Pollution Preventing Technology.” In 1998, DTSC



re-certified the puraDYN™ By-Pass Oil Filtration System. DTSC stated: “an effective means of extending engine oil change intervals through the removal of particulates, water, and dissolved fuel. Extension of drain intervals reduce: 1) use of new oil, 2) generation of used oil, and 3) potential of spills while draining and transporting used oil.” They went on to say that, “If properly operated, monitored and maintained, the puraDYN™ By-Pass Oil Filtration System maintains the following engine oil properties within acceptable limits for continued use: viscosity and solids content, water, coolant, fuel, wear metals, and oil additives.”

Vendor Contact Information

puraDYN Filter Technologies Inc.
(800) 488-0577
<http://www.puradyn.com/>

Racor Divison - Parker
(800) 344-3286
<http://www.parker.com/racor>

These vendors provided information for this fact sheet. This list is not complete: other vendors may provide similar or identical products and services.

Your state or local government environmental agencies have additional information about compliance and pollution prevention opportunities for auto repair shops and fleet maintenance operations in your state or area. For information on California regulatory compliance issues contact your nearest Department of Toxic Substances Control (DTSC) Regional Office by calling 1-800-728-6942. You may also access the CAL EPA website at www.calepa.ca.gov for links to California Regulatory Agencies. To obtain additional copies “The Pollution Prevention Tool Kit, Best Environmental Practices for Auto Repair” (Document number 626) or “The Pollution Prevention Tool Kit, Best Environmental Practices for Fleet Maintenance” (Document number 625) contact “DTSC’s Office of Pollution Prevention and Technology Development (OPPTD)” at 1-800-700-5854. Accompanying videos, “Profit Through Prevention” are available at the same phone number for either auto repair (Document number 1504) or fleet maintenance (Document number 1504). DTSC’s OPPTD also provides technical assistance and pollution prevention resources to businesses and government agencies. Electronic versions of the fact sheets can be found at

www.dtsc.ca.gov/PollutionPrevention/VSR/.



Mention of trade names, products, or services does not convey, and should not be interpreted as conveying, U.S. EPA, California Department of Toxic Substances Control (DTSC) or any local government approval, endorsement, or recommendation.
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