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Oiling Systems for Grassroots Racing

Schroeder says Moroso is introducing new SBC oil pans with 7" deep sumps with extra capacity that are baffled for road racing applications and will clear 4.15" stroke. He says the new pans will fit C-3 and C-4 Corvettes, kit cars and other low ground clearance applications.

There are many schools of thought on what requirements an engine builder wants from a performance oil system, say experts. "Oiling requirements range from standard volume, standard pressure to high volume, high pressure and everything in between," says Melling's Paul Hauglie. "At Melling we have a wide selection of wet sump pumps to accommodate these needs."

Increases in an engine's oil requirements come from running at higher rpms, being able to rev faster, increased bearing clearances, remote oil cooler and/or filter and any combination of these. Most high volume pumps also have an increase in pressure to help get the oil

out to the bearings faster.

Vern Schumann of Schumann Sales & Service says that a high volume pump is required if you have excessive bearing clearances or if the engine is notorious for needing a high volume pump. "There are a few engines out there that really need a high volume pump. Big block Chryslers are an example of one you don't even dream of running a standard pump on. Oldsmobiles



Schumann's a new line of Pro Max Extra Volume LS pumps can nearly keep up with a dry sump at 17 gallons per minute. The pump also features a ball relief valve.

and Pontiacs have huge bearing clearances so you need more volume to handle the big clearances, big diameters and big dimensions on these engines."

Schumann says that about 70 percent of his pump sales are high volume pumps. But he says the actual need for a high volume pump is probably the reverse. "Thirty percent really need it and 70 percent don't."

The equation involves viscosity as well as volume, say our sources. If the engine needs 10 gallons of volume with 10W oil, it might only need 7-8 gallons with 50W oil. Because the viscosity takes up the clearance. If you don't have viscosity, you have to have a lot of volume to keep the clearance separated.

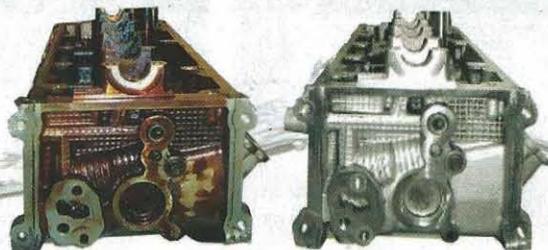
"The old adage that a high volume pump will suck the pan dry is incorrect," says Schumann. "The engine is going to consume what is built into it for total clearances with the viscosity of oil at a given rpm. If you have things out of sync, or a

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standard volume pump that can't keep up with the clearances or the thin viscosity, then you have metal-on-metal contact."

Melling's Hauglie says that a high volume pump is not always the answer to an engine with low oil pressure either. He says the engine's oil pressure is a result of how much resistance you have to the flow of oil. "It would be good to look at the late-model performance engines (GM LS, Ford Modular and Chrysler/Dodge Hemi). Also look at the priority oiling systems being used by after-market block companies such as Dart and the use of standard volume oil pumps instead of high volume oil pumps."

All the suppliers we spoke to said they have oil system products for several forms of racing, but most agreed that circle track applications had the highest demand for these components. "Circle track racers require oil pans specific for making left turns only, which makes the oil pan and oil system a necessary upgrade for every racer," explains Canton's Michael Zeranski, Jr. "They are the biggest users of parts as they frequently need to replace parts that get worn out or damaged during week after week of racing, or they need to update their equipment to stay competitive."

Drag racers may not wear out as many components, according to suppliers, but they still need upgraded oiling systems. Canton's Hamm says his company offers an oil pan for Mark IV BBC designed for hardcore racers, with features like trap door baffling, an oil recovery pouch and a built in louver-style windage tray. "Besides oil pans, we sell an entire line of high-performance oil filters, billet aluminum oil filter adapters, and filter relocation kits. One thing that we are most known for is our accusump, which we feel is an essential part to any oiling system and serves as the best insurance policy for your engine."

Schumann says a lower volume pump for small block Chevy drag racing applications has been a big seller. "We make a drag pump with a 1-inch gear for SBC. It actually shows dyno power

gains and we've sold quite a few over the last 3 years. Standard size pump for SBC is 1.200" and 1.500" is high volume. The one inch pump is really all you need; it puts out 7 gallons and gives you 68 horsepower."

Schumann says the rule of thumb to determining what you need comes from the OEM. "They try to calculate the gallons the engine will consume at idle, moderate speed and high speed. And the oil pump they use is 25 percent larger than what the engine needs. And it makes up for later in life when the engine is worn out and the tolerances are bigger, requiring more oil than it did new. So that's the teeter totter balancing act."

Melling's Hauglie says the Melling Select Performance line offers everything from entry level standard volume, standard pressure through high volume, high pressure cast iron pumps.

"For high end builds we offer our Melling Select billet aluminum pumps for small and big block Chevy engines for both drag and

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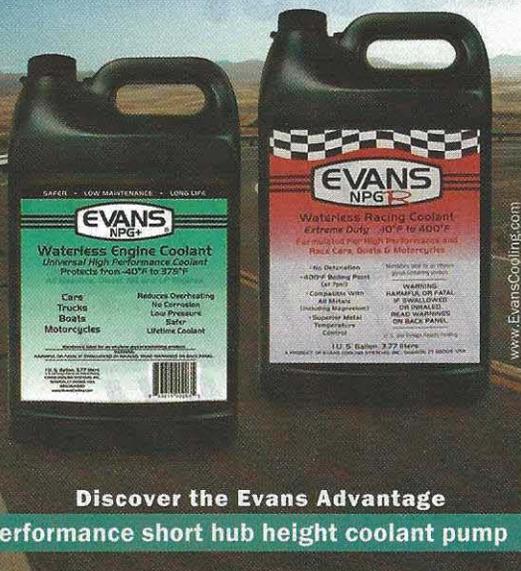
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Oiling Systems for Grassroots Racing

exotic and high performance street cars are better suited to a wet sump system. This is because a dry sump system adds complexity, cost, a user that has to be more mindful of what the system is doing and more maintenance."

It isn't just untouchable technology, however. "There are production cars out there that have OE dry sump or external oil pump oiling systems," he says. "Two such examples are the Corvette ZR1 2009-up and several Porsches," says Schroeder.

"In a lot of racing classes dry sump systems are not allowed, so a company like Moroso comes up with products such as baffled oil pans with trap door assemblies that keep oil in the oil pump pick up area during acceleration, de-acceleration, and cornering. The Moroso billet aluminum wet sump oil pumps for small and big block Chevy have a mounting area three times larger to prevent breaking and weigh one

pound less than stock oil pumps," Schroeder says. "And pick up inlet areas are increased to prevent cavitation, and thrust bearing assemblies increase housing and gear life due to drive shaft axial forces on the drive gear. Lastly, our oil accumulators also help with the performance of a wet



For high end builds Melling offers billet pumps for small and big block Chevy engines for both drag and circle track use.

sump oiling system and as an added bonus also prelube the engine before start up."

Schroeder gives these words of wisdom for engine builders to keep in mind when choosing an oil pump and pan for a particular performance application: "Upsell from a generic, one-size-fits-all system to one that is specific for the type of racing and/or chassis your customer is using. Engine builders should stay current with what the manufacturers are offering and if they have a question do not be afraid to call the manufacturer's tech line."

Another consideration when making a sale on components for an engine build, is this: don't forget the oil pan. "Especially if it's an aftermarket engine block or if the engine and chassis combination are unique," says Schroeder. "There is still the mentality out there that it's just an oil pan – but the oil is the lifeblood of the engine and the oil pan has a very important role, too." **EB**

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