

THE EXTRA MILE

Engine Building and Power Techniques

BY SCOTT SEHR



Absolutely, The Most Motor For Your Money! *Guaranteed*

Sehr Performance
going the
"EXTRA MILE"

Machining a Better Block for a Stronger Foundation

There are many different aspects to attend to when building an engine for performance or durability. One must make sure that the right pieces are chosen and assembled correctly to have the success that we expect with an engine build. There are also many things that must be correct to exacting tolerances to achieve the output and durability in our engine builds. In the next several months, we are going to dig into many different things that are often overlooked or ignored that can diminish the success of your engine build. We are going to start right where we should with the engine block. We will examine and discuss the design objectives of all aspects of the engine block and all of the requirements for a successful build.

The engine block does many things; it houses the spinning crankshaft and holds its desire to flex, the cylinders guide the reciprocating pistons and ring combination keeping them in alignment and controlling the power of the exploding gas during combustion, the deck surface keeps the head

gasket sealed, it keeps the camshaft in control of the valve timing events, it holds coolant to keep the engine components cool, and it directs essential oil volume to properly lubricate all of the moving parts of the engine. With all of these operations happening at once, it is very essential to have everything exactly as it should be for maximum power output and reliability.

The first thing we need to look at is the strength and rigidity of the block for the use of the engine. If the block is not strong enough in material strength or material thickness, then the block will not be able to withstand the forces applied upon it and will fail. There are many aspects in engine block strength, the first being the material. Some blocks are made with an iron alloy that has a higher nickel content. This alloy is stronger and will withstand more stresses. Aftermarket engine blocks are made with a high nickel alloy. There are factory blocks that are available as well with high nickel, but they are harder to find.

The second thing to consider is the thickness of the material after machining. This is important in the cylinder walls to maintain round cylinders for proper ring seal, deck thickness to maintain head gasket seal, and pan rail area for main saddle strength. Many check for core shift to determine an adequate engine block for strength but this external look can be deceiving. The only way to know for sure is to completely sonic test the engine block to determine the actual material thickness. Once the material alloy and thickness has been approved for the specific build then we can move into the machining processes.

Here at Sehr Performance we know what is required for a successful engine build. We go the "EXTRA MILE" and thoroughly check all aspects of the engine components so there is nothing overlooked. That is why we have the best deal on the block.

