



INSTALLATION INSTRUCTIONS

P/N 35570 **ENGINE BLOCK FILLER**

This part number is comprised of 4 one gallon jugs with 7.5 lbs. of Block Filler in each jug.

FILL 'ER UP

Should I fill the block of the new engine I'm building? The answer is yes, and this is why. Blocks with thin decks and/or cylinder walls are prime candidates for filling, but most blocks will benefit to some degree after being properly filled. Filling a block is pouring a substance in a liquid state into the coolant jacket of your cylinder block. When the substance cures, it solidifies and lends stability to the engine block. The added density of the filled block also lessens harmonics and vibration. The two basic types are epoxy and grout. Epoxy costs five to ten times as much as grout, and the pouring procedure is critical for satisfactory results. If you choose an epoxy, pick one specifically for filling engine blocks and talk to someone who has used the product with acceptable results. Using the wrong type of epoxy, or using it incorrectly, can create problems and even cause the block to split!

The following relates to grout fillers, which will extract more horsepower from your engine while improving its longevity. As mentioned earlier, pick a grout specifically for filling engine blocks. To be a suitable block filler, the grout must be non-shrinking, non-gaseous, have an expansion rate similar to cast iron, and possess high compressive strength. Depending on the type of block, and how high you decide to fill it, the grout will add 10-30 lbs. to its weight compared to its weight with water only. Once a block has been filled, it can't be "unfilled", so follow the instructions carefully.

INSTALLATION

Begin with a clean, grease-free engine block. If you are filling a used block, have it "hot-tanked" and install new freeze plugs. Wash out the coolant jacket with a laundry or dish detergent and hot water, and flush it thoroughly with clean water. Make sure that the freeze plugs and drain plugs are installed, and set up the block where you want to pour it. Pick a spot where it can stay for a few days and not be in the way. Usually it's bolted in an engine stand. Place a bubble level on the deck surface of the block and level it side to side and front to rear. If the block hangs down in the front, use a small hydraulic jack to level it, or make a support to hold up the front of the block, using a piece of metal long enough to reach from the floor to any convenient hole in the front of the block. Drill a hole in the support and bolt it to the block.

Temperature and amount of water are the basics to consider when preparing the grout. The hotter the water, the faster the grout will solidify. Cool or cold water allows extra time to work with the filler before it sets up. (in a very cold environment you may want to use warm water or heat the block to accelerate the hardening process.) The amount of water affects curing time, and to a lesser extent, affects the overall maximum compressive strength of the grout. The less water used, the stronger the block will be.

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Mix two or three cups, or 12 to 24 oz. of cool tap water with a jug of Moroso Engine Block Filler. Start with a small amount of water and only add as much as you need to make the grout easy to pour. Shake the jug for two or three minutes to make a soupy consistency. Using a funnel, slowly pour about half of the mixture into the water jacket through any of the large water passages in the deck surface.

Tamping the mixture is necessary to ensure a dense, uniform fill. If you have an air chisel, use it with a blunt ended tool. (An old or broken cutter can be modified on a grinding wheel to make a tool.) Move the chisel back and forth from front to rear on the outside of the block, and in the same direction inside the valley. This removes any air pockets, and assures correct filling of block. If you don't have an air chisel, use the flat end of a ball-peen or dead blow hammer to sharply rap the block in the areas mentioned. Whichever tool you use, remember that we only want to vibrate the block, not ventilate it. Shake the remaining mixture in the jug and pour it into the water jacket. This procedure should be followed with each jug of block filler.

The amount of filler you use is a matter of preference. If the grout's main function is to dampen unwanted harmonics, you can use much less than if it is being used to support thin cylinder walls. On SBC and BBC engines, the highest point of fill is usually to the bottom of the water pump holes. This allows free circulation of the coolant around the top of the cylinders and through the heads, yet gives maximum strength over most of the height of the cylinder wall. Fill the block to the desired height all at once rather than letting it harden and adding more filler later. BBC and SBC engines will require slightly less than two full jugs per side to fill them to the recommended height. If you're unsure of the amount of filler you need, test fill the block with a measured amount of water before beginning the procedure.

The following step is a source of "free" horsepower, as proven by several engine builders, and is most effective on blocks with severe stability problems. (Like those with thin wall castings.) Lower leak-down tests and higher horsepower levels have been credited to this procedure. Once you have one side of the block filled to the desired height, bolt an old cylinder head or deck plate to the side of the block that you have just filled. This pre-stresses the block to simulate its assembled state. Let the whole thing "cure" for at least 24 hours. Allow the side of the block that has been poured to harden overnight. The next day you can repeat the procedure to fill the water jacket on the other side of the block.

Moroso Engine Block Filler reaches maximum compressive strength after it has dried for 28 days, but if you must machine the block before that, remember the following: After one day it has 39% of its ultimate strength; after three days, 58%. Seven days of hardening will attain 74% of its total compressive strength. Remember, if you want to be able to drain the coolant from the block once the engine is assembled, you must drill and tap new drain holes above the level of the block filler. To build the best engine you've got to start with the best block. If you follow these instructions, you'll be starting off in the right direction.