Chevy LS Aluminum Block Specifications and Instructions

Technical data and specifications for BARE ALUMINUM block part numbers:

Part#	Style	Bore	Bore Finish	Deck Height	Main Caps	Cam Height	Lifter Bores	Mains .
086505	LS	3.990”	Unfinished	9.240”	Billet Splayed	Std Cam	Unfinished	Standard
086515	LS	4.115”	Unfinished	9.240”	Billet Splayed	Std Cam	Unfinished	Standard
086525	LS	4.115”	Unfinished	9.800”	Billet Splayed	Std Cam	Unfinished	Standard

Casting Number: BMP-045A (9.800”) / BMP-045B (9.240”)

Block Material: Aluminum 357T6 aluminum alloy

Block Weight: 135lbs w/ caps and sleeves

Deck Height: 9.240” (Standard Chevrolet) or 9.800”

Deck Thickness: .600 minimum.

Camshaft: *Std camshaft location, Can be machined to 55MM*

Cam Bearings: Durabond Part # CHP-23 or equivalent. As of 2024, REV.2 Durabond Part# GM25, GMP25, GM25T
Note: When installing, BE SURE the oil hole in the bearings aligns with the oil feed hole

Main Bearings: Standard LS main bearings.

Main Caps: All five main caps are four bolt and cross bolted billet steel caps. The cap studs are 7/16” thread. The outer cross bolts are 8mm x 1.25” thread. Torque specs on studs are: 70ft. lbs. and 30lbs on cross bolts with oil.

Lifter Bores: Standard location, Indexed. Lifter bore size is standard Chevy diameter .8437”.

Cylinder Bores: 3.990” or 4.115” standard. Cylinder bores are of a Siamese design. Sleeves are a replaceable, centrifugal cast ductile steel pressed-in with a .001” to -.002” fit. Sleeves do not protrude into the water and are considered to be a DRY sleeve.

Maximum recommended bore size: 4.165”. Sleeve OD is size 4.280”

Cylinder Bore Centers: Stock 4.400”.

Freeze Plugs: All aluminum blocks include screw in freeze plugs. Torque to 35lbs with anti seize on threads and o-rings BMP part# 701645.

Distributors: N/A

Oil System Features: Priority main oiling. Block has provisions to be converted to a dry sump oiling system.

Stroke Clearance: Will accept a 4.250” stroke crank with steel rods. Larger strokes or aluminum rods may require additional clearance and rerouting the oil to the outside of the block.

Oil Restrictors: Due to the very efficient oiling system of the BMP LS aluminum block a std volume oil pump should be used and in addition to this oil restrictors of .150” should be the minimum starting point to control how much oil pressure your engine ultimately has. This is only a recommendation and should ultimately be the decision of the engine builder.

Filtration: Integral mount for spin on filter.

Oil Pan Rails: Solid (stock width) can be clearanced for strokers. When clearance is required for strokes larger then 4.500”, depending on the connecting rod used the notch may protrude into the internal oil passage but can be corrected by an external oil line utilizing the tapped holes in the side of the block.

Cylinder Head Bolt Holes: Standard GM LSX Bolt Pattern. Use of World Products LS7 heads using the extra bolt holes will need modifications to utilize the extra bolts.

Cylinder Head gaskets: If using the extra head bolt holes 6 bolt pattern Felpro 1085.

Fuel Pump: N/A

Rear Main Seal Block Cover Plater: Stock GM rear cover (GM Part # 12572014, 12556105). Must pay attention to gasket fitment around the inner oil dogleg passage for the priority main oiling. We recommend the Cometic Coated gasket part# EC1310SP1060AFM. CAUTION> the left side inner most bolt hole is tapped very shallow due to oil passage. You must shorten the bolt. DO NOT MAKE THE HOLE DEEPER!

Starter: Std Starter

Motor Mounts: Drilled and tapped for both stock mounts in OEM locations and conventional SBC for a retro fit into older cars.

Bell Housing Pattern: Stock GM

Gear Drives & Belt Drives: N/A

Accessory Brackets: Due to OE block design variations over the years some of the bolt holes in the BMP block may not be drilled or tapped deep enough to allow factory fasteners to completely seat against the heads. It is advisable before final assembly to verify whether the OE fasteners need alterations.

Special Notes :

1. The tapped hole adjacent to the motor mount pad on the drivers side of the block will need to have sealant and a bolt installed if not being used, as this is drilled into the crank case.

2. The upper drivers side water pump hole will need sealant as it is drilled into the water cavity.

3. When using a Jesel belt drive the front Cam retainer plate will need slight modifications around the perimeter in five locations.

Before Final Assembly:

1. Before any machine or assembly begins, thoroughly inspect the block for any defects including all oil passages to assure they have been drilled completely. Remember you are the final inspector. Trial fit of the rear main seal is highly recommended to assure a nice fit. Once any machine work of any sort has begun, the block is NON-RETURNABLE. We do our very best in quality control but is not impossible for something to slip by.

2. Due to the nature of aluminum blocks with ductile iron sleeves we highly recommend that the sleeves be pressed down (not hammered) to ensure that they are completely seated in the block prior to decking. (hammering down with big hammer and a piece of wood will not assure the seat to be fully seated as this could cause the sleeve to bounce. You may find that after decking and cleaning the block in the hot tank that the sleeves may rise .001" to .002" above the deck. This is completely normal and you can proceed with assembly as this will not affect the operation of the block. This condition will be corrected with the installation of the cylinder heads.

3. Make sure block is free of debris. Clean block thoroughly.
4. Lifter bores are rough bored to .8437 +/_.001". Lifter diameters vary by manufacturer
5. Long rod and stroker applications need to be dry assembled and checked for connecting rod to block interference. Grinding of the oil pan rail may be necessary. Clearance needs to be kept at a .050 minimum.

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While our products are used in many applications using super-chargers, Turbos or Nitrous successfully, please be aware that there is a greater potential for engine damage due to the possibility of tuning errors.

PLEAE DO NOT CALL THE DEALER FROM WHICH YOU PURCHASED YOUR PARTS. If you have any questions, please contact BMP customer service

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