

Deck Height	••••••	9.025 9.325		
Bore	••••••	4.000 4.125		
Main Bearing Size		350 (2.45) 400	0 (2.65)	
Weight		210 lbs		
Largest Recommended Bor	e	4.185		
Largest Recommended Cra	nk Stroke	4.125		
Camshaft Bearing Diameter	r	SBC - 2.00", BBC - 2.120"		
Camshaft Position Raised	••••••	.391 w/ optional	1.434''	
Cylinder Wall Thickness, m	iin	.275" @ 4.185"		
Deck Thickness, min		.625 (5/8)		
Torque Specs - Main Caps	3/8'' bo	olts	40 ft lbs w/ CMD # 3 high pressure lube.	
	7/16'' s	studs	75 ft lbs w/ CMD # 3 high pressure lube.	
	7/16'' ł	oolts	65 ft lbs w/ CMD # 3 high pressure lube.	
	1/2" st	uds	100 ft lbs w/ CMD # 3 high pressure lube.	

Actual deck height can be .002" - .005" taller for additional machining requirements.

With BBC cam diameter, camshaft snout must be machined to SBC size for gear or sprocket.

Special Timing gear is required for raised camshaft.

Cam bearing OD should be deburred before installation.

When initially removing main caps, the caps & block should be deburred before reinstalling. This will insure that correct main size is maintained.

Pan rails are spread .800" total, requiring a WIDE oil pan and gasket PN## 1839 FelPro.

Additional rod clearance may be necessary at bottom of cylinders.

Head stud holes are blind. They do not go into the water jacket.

Locktite # 620 is recommended when installing the head and main studs into the block.

Studs should *never* be torqued into block. They should only be lightly snugged.

Note: The tapered portion of the stud body should never contact the deck or bolt hole counter bore. If the stud body does thread to deep and makes contact with the deck surface then you should use a small ball bearing in the bottom of the bolt hole to space up the stud accordingly.

Press-in freeze plugs are provided.

Press-in cam plug dia = 2 3/8" PN# 32510000

When a mechanical fuel pump is used, a +.200 SBC push rod is required (5.950" OA) Dart PN# PR200FP

When a wet sump oiling system is used, a BBC oil pump driveshaft is needed.

Timing cover and Oil pump dowel pins are .246" O.D. in dart blocks

Note: Be sure to check distributor to oil pump shaft clearance with distributor, intake manifold and oil pump installed on block.

When using a wet sump you must plumb oil into inlets at front or rear of block. (1/2" NPT)

Note: With some intake manifolds the distributor will not fit into the block. The distributor hole is at 5 degrees instead of the stock 4 degrees for extra clearance for the larger oil pump driveshaft.

Solution: Machine hole in manifold, then re-machine top surface to match. Use collar on distributor if possible. Do not use o-ring on distributor to seal it. Always remove the o-ring.

Note: Make sure that distributor groove is lined up with lifter supply hole. If distributor is too high or too low it will expose the oil galley at the bottom.

DRY SUMP

If a dry sump oiling system is used you must plug the oil inlet hole in the rear main cap or in the block, underneath the rear main cap. (1/4" NPT)

Block has provisions for dry sump scavenge in the valley area. If no scavenge is used at this location or a wet sump is used a minimum 9/16" drain hole, centered in the rear of the valley, must be drilled to insure sufficient oil return. In some cases additional holes may be needed.

NOTE: The fuel pump pushrod bore is machined for a .500" rod. Be sure to check the clearance because of the inconsistencies in the diameters of push rods.

PRIORITY MAIN OIL SYSTEM

Oil feed can be directed through the front or the rear oil inlet.

Oil is directed to the main bearings first, then to the cam bearings.

If lifter oiling is restricted, restrictors must be installed in the front and rear lifter galleys to prevent oil from bypassing and feeding from opposite end.

FOR ADDITIONAL INFORMATION SEE DIAGRAM ON BACK

NOTE: Due to variations in lifter sizes and clearance preferences, most of our Engine Builder customers prefer the lifter bores sized on the small end of the specification. Sometimes these bores will need to be lightly honed.

SPECIAL NOTE: With a multitude of different crank, rod and piston combinations available it is important to check clearance of all moving parts (especially crankshaft counterweight to block) before attempting any type of assembly.

IT IS GOOD ENGINE BUILDING PRACTICE TO <u>ALWAYS</u> CHECK THE FIT OF THE DISTRIBUTOR BEFORE ANY MACHINING OR CLEANING IS COMPLETED.

NOTE: If you are using aftermarket cam profiles you must use the correct components for the application.

We Carry Stock Parts that are Unique to this Block:

Timing Chain Set	67110002
Gear Drive assembly	67130002
Head Stud Sets (specify cylinder head type)	Call for PN#



Part#	31121111 thru 31122223
Material:	Special RMR alloy
Bore:	4.00'' & 4.125''
Bore & stroke:	4.185" x 4.125" max recommended
Cam bearing bore ID:	SBC - 2.00" BBC - 2.120" 50mm Roller Brg - 2.2819"- 2.2831"
Cam bearings:	Special coated, grooved, w/3 oil holes
Cam Bearing O.S.	+ .010", +.020", +.030"
Cam bearing press:	.002''
Camshaft position:	Raised .391" or Optional .434"
Camshaft to Crank \varnothing	4.912''
Camshaft snout:	SBC on all
Cam Drive:	Timing chain, Gear drive & Belt drive for raised cam
Cam Plug:	2.375" dia. Cup plug Dart PN# 3251000
Cubic inch:	455'' max recommended
Cyl. Wall Thickness:	.275" min @ 4.185" bore
Deck Height:	9.025'' & 9.325''
Deck Thickness:	.625'' min.
Fuel Pump:	Mechanical pump provision
Fuel Pump Pushrod:	+ .200" long 5.950" OA Dart PN# PR200FP
Freeze Plugs:	Press in cup plugs 1 - 5/8"
Lifter Bores:	SBC .8427"8437"
Main bearing size:	2.450'' (350) 2.650'' (400)
Main bearing bore:	(350) 2.6401" /001" (400) 2.8401" /001"
Main cap press:	.004'' - 005''
Main caps:	Steel - 4 bolt #2, #3, #4 / 2 bolt frt. & rear
Oil system:	Wet or Dry Sump - Main Priority Oiling
Oil Pump shaft:	BBC shaft with wet sump
Oil Filter:	No provision (Must use remote filter)
Oil Pan:	Pan Rails spread .400" each side
Rear Main Seal	350 main - STD seal 🛛 / 400 main - Fel-Pro# 2909
Serial No.	Left front & main caps
Starter:	Mounts on either side
Studs holes, Head:	Blind holes
Timing chain/gears:	must use raised cam components
Timing Cover:	Can use stock cover / Mag w/fuel pump provision avail.
Torque Specs:	7/16" bolts - 65 ft lbs
	7/16" studs - 75 ft lbs
	1/2" studs - 100 ft lbs
Weight:	205 lbs @ 4.00" bore



ALUMINUM & CAST IRON BLOCKS



This Block should be assembled only by experienced, professional engine builders.

INSPECTION

Upon receiving this block it should be thoroughly inspected for shipping damage.

Prior to machining and assembly please inspect the following items: Cylinder bores - Oil passages - Deck surfaces - All threads

MEASURING & MACHINING

- All initial measuring should be done before any machining has begun.
- Decks are CNC machined to standard deck heights. If you need a particular deck height always measure before machining.
- Main journals are finish line honed to the low to middle of the specification. They should be measured for your preference. If you have need for a different diameter you must realign hone this yourself.
- Crankshaft & rod clearance should always be checked before any machining is started. You need .060" clearance for rotating counterweights and rods.
- Due to variations in OD dimensions of the numerous lifter manufacturers, lifter bores are finish honed on the tight side of the tolerance to leave room for lifters that are larger than the standard.

WASHING

Final washing should be very thorough, paying particular attention to all oil galleys. Use hot soapy water and rinse with hot water first, followed by cold water which helps reduces rust.



Iron Eagle Small Block Chevy Aluminum Race Series Small Block Chevy



Here at Dart we are constantly improving upon our products to ensure that you are receiving the latest and most technologically advanced products in the industry. Through our extensive R&D we have found that valvetrain oil is crucial in a high performance engine. The following modification will correct oil volume to the valvetrain that may occur when using solid roller lifters in any block.

Figure 1: Stock un-modified solid roller lifters



Figure 2: Dart oil galley modification from band to pushrod oil hole



We recommend a .020" deep x .080" radius wide groove from the pushrod feed hole to the oil band / machined feed hole in your solid lifters (**Front hole only** as shown in Figure 2 above) depending on your tooling & method. You can also do this with a cutoff wheel or a dremel. This allows you to use the restrictor provisions provided in your Dart block to tune oil volume to the lifter oil galley. This allows you to control the oil going to the pushrods, rocker arms and valve springs.



The use of lifters that are heavily lightened should not be used in Dart Blocks. The lightening holes will cause lifter oil to leak into the valley instead of oiling the pushrod, rocker arm and valvespring.

Please call our technical staff with any questions Mon-Fri 9am-6pm E/T (248)-362-1188