



MOTOWN II Cast Iron Block

Specifications, Technical Data and Instruction Sheet

| Part # | Bore Size | Main Size /Type | Cam Journal | Deck Height | Stage |
|----------|-----------|-----------------|-------------|-------------|------------|
| 084010 | 3.995 | 350 Nodular Cap | Std. | 9.025 | Bare Block |
| 084020 | 4.120 | 350 Nodular Cap | Std. | 9.025 | Bare Block |
| 084030 | 4.120 | 400 Nodular Cap | Std. | 9.025 | Bare Block |
| 084110 | 3.995 | 350 Billet Cap | Std. | 9.025 | Bare Block |
| 084120 | 4.120 | 350 Billet Cap | Std. | 9.025 | Bare Block |
| 084120RC | 4.120 | 350 billet Cap | BBC | 9.025 | Bare Block |
| 084125RC | 4.120 | 350 billet Cap | 50mm | 9.025 | Bare Block |
| 084130 | 4.120 | 400 Billet Cap | Std. | 9.025 | Bare Block |
| 084130RC | 4.120 | 400 billet Cap | BBC | 9.025 | Bare Block |
| 084135RC | 4.120 | 400 billet Cap | 50mm | 9.025 | Bare Block |

- Special Notes:** RC Blocks have +.134" raised cam tunnel sized for 50mm roller bearings or BBC Babbitt bearings. Also available with .904 lifter bores. Add -904 to RC part number. All RC blocks require that the lifter bores be fit.
- Block Applications:** The Motown blocks are designed to be a replacement for the small block Chevy two piece seal, driver side dipstick applications. In applications where the combination is making 700 plus H.P normally aspirated or nitrous or blower applications, billet main caps are **HIGHLY RECOMMENDED**.
- Block Material:** High density cast iron
- Deck Height:** 9.025" (Standard Chevrolet)
- Deck Thickness:** Approximately .600" minimum.
- Cam Bearings:** **STD.** cam height blocks use Durabond DT1T 2.000 cam tunnel bore
BBC cam +.134 Raised cam blocks use GMP2T BBC cam bearings 2.120 cam bearing bore
50mm cam + .134 Raised cam blocks use PBM5020 50mm roller bearings 2.283 cam bore
- Rear Main Seal:** All blocks use 2909 Fel-Pro rear main seal or equivalent
- Main Caps:** Blocks come with nodular iron or Billet steel main caps, located by deep stepped ends and ring dowels. All main caps use 7/16" bolts or studs. Torque spec, both inner and outer is 70 ft. lbs. using ARP Lube. Nodular caps use bolts at all locations, while billet caps use studs on the straight locations and bolts on the splayed locations. All Motown II blocks have a 400 block main cap bolt pattern spread. Most windage trays fit the 350 bolt pattern. Custom fitting of the windage tray may be required..
- Lifter Bores:** Indexed. Lifter bore size is standard Chevy diameter .8437" or add -904 to end of part number for .904 lifter bore
- Maximum Bore:** 4.185"
- Cylinder Bores:** Block cylinder bores are of a Siamese design. Because of increased cylinder wall thickness, it is not necessary to incorporate steam holes for street use.
- Cyl. Wall Thickness:** @ 4.125" bore: approximately .300"
- Gear & Belt Drives:** Due to the expanded water jackets, **do not run gear drives** because of clearance issues with the backside of the idler gears and the cylinder block in the timing cover area. Jesel belt drives will work with minor grinding of the block and/ or belt drive cover.
- Lubrication:** Priority main oiling system. We recommend oils designated SM/SL/SJ, 15W-40 or 20W-50.
- Oil System Features:** Blocks are set up for OE style internal oil pump, with provisions to be converted to a dry sump oiling system.
- Oil Restrictors:** All Motown blocks use a 1/8 in. pipe plug it is the engine builder's option as to what size hole to put in the plug
- Filtration:** Integral mount for spin on filter.
- Oil Pan Rails:** Solid (stock width) can be clearanced for strokers. Billet splayed cap blocks may have oil pan interference with the front and rear main caps. It may be necessary to hand fit the oil pan.

- Clearance:** Blocks can handle up to a 4.000 inch stroke with a 6.000 inch steel **Stroker** H-beam style connecting rod. It is recommended to mock up the engine to verify clearance before final assembly.
- Camshaft:** In long rod and stroker combinations it is recommended to use a camshaft base circle of 1.050" for flat tappet applications and a .875" base circle for roller camshaft applications. RC blocks with +.134" raised cam location and BBC cam journal do not require a small base circle camshaft with up to a 4.000" stroke, or up to 3.750" stroke with the 50mm journal.
- Fuel Pump:** Uses stock style fuel pump and stock length fuel pump pushrod. RC blocks require fuel pump pushrod # PBM5004 for steel tipped or PBM5005 for brass tipped When using a billet aluminum fuel pump block off plate you may need to modify it slightly for fit due to overall size.
- Starter:** Starter mounting pad is drilled for both straight across and stagger bolt pattern
- Motor Mounts:** Drilled and tapped for side and front mounts in OEM locations.
- Cyl. Head Bolt Holes:** Threads 7/16. Head bolt holes are blind tapped and do not extend into the water jackets. **IT IS THE BUILDER'S RESPONSIBILITY TO DETERMINE THAT BOLTS OR STUDS USED HAVE THE PROPER ENGAGEMENT TO PREVENT STRIPPING THE THREADS.**

Definitions and Dimensions:

- Bare Block** Blare blocks are finished within GM +/- tolerances. Motown blocks are supplied with the following specs:
- Deck Height:** 9.025 +/- .005.
- Cylinder Bore:** 3.995 or 4.120 +/- .001.
- Main Journals:** SBC 350: 2.641 +/- .0005 ** SBC 400: 2.841 +/- .0005.
- Lifter Bores:** .8437 +/- .0005.
- Stroke Notch:** 9.025 deck, 4.000.

It is the responsibility of the engine builder to finish the block to his or the end user's preferences. Freeze plugs, dowel pins, oil galley plugs and cam bearings are not included or installed.

Before Final Assembly:

1. Before any assembly begins, thoroughly inspect the block for any defects. Once machined, the block is **NON-RETURNABLE**.
2. Make sure block is free of debris. Clean block thoroughly.
3. Lifter bores are machined to the factory spec of .8437. Lifter diameters vary by manufacturer. Honing of the lifter bores may be needed
4. 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.
5. Motown blocks come with a deck height of 9.025. If a lower deck height is desired, **PLEASE** measure the deck before any cutting is done. **REMEMBER: MEASURE TWICE, CUT ONCE.**

WARRANTY TERMS:

World Products Inc. (World) manufactures parts to meet QS 9000 specifications. In addition, all parts go through several inspection procedures before shipping. However, **YOU ARE THE FINAL INSPECTOR**. Please note: Inspect all parts before doing any machine work or assembly. Remember the saying "measure twice and cut once." If any defects are found or suspected, call World before proceeding. **World will replace or repair at its option any defective part which has not been modified or misused within one year of INVOICE purchase date.** Any modification or marine use of parts will void all warranties.

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