



# MOTOWN II ENGINE BLOCKS

## Iron SBC Specifications and Instructions

Technical data and specifications for IRON MOTOWN II block part numbers:

Part #	Series	Type	Deck	Bore	Mains	Lifters	Main Caps	Max Stroke
084005	Street	Bare	9.025"	3.990"	350	.8437"	Straight 4-bolt	4.000"
084005-4000	Street	Prepped	9.025"	4.000"	350	.8437"	Straight 4-bolt	4.000"
084005-4030	Street	Prepped	9.025"	4.030"	350	.8437"	Straight 4-bolt	4.000"
084025	Street	Bare	9.025"	4.115"	400	.8437"	Straight 4-bolt	4.000"
084025-4125	Street	Prepped	9.025"	4.125"	400	.8437"	Straight 4-bolt	4.000"
084025-4155	Street	Prepped	9.025"	4.155"	400	.8437"	Straight 4-bolt	4.000"
084010	Sportsman	Bare	9.025"	3.990"	350	.8437"	Nodular splayed 4-bolt	4.000"
084010-4000	Sportsman	Prepped	9.025"	4.000"	350	.8437"	Nodular splayed 4-bolt	4.000"
084010-4030	Sportsman	Prepped	9.025"	4.030"	350	.8437"	Nodular splayed 4-bolt	4.000"
084020	Sportsman	Bare	9.025"	4.115"	350	.8437"	Nodular splayed 4-bolt	4.000"
084020-4125	Sportsman	Prepped	9.025"	4.125"	350	.8437"	Nodular splayed 4-bolt	4.000"
084020-4155	Sportsman	Prepped	9.025"	4.155"	350	.8437"	Nodular splayed 4-bolt	4.000"
084030	Sportsman	Bare	9.025"	4.115"	400	.8437"	Nodular splayed 4-bolt	4.000"
084030-4125	Sportsman	Prepped	9.025"	4.125"	400	.8437"	Nodular splayed 4-bolt	4.000"
084030-4155	Sportsman	Prepped	9.025"	4.155"	400	.8437"	Nodular splayed 4-bolt	4.000"
084110	Race	Bare	9.025"	3.990"	350	.8437"	1045 billet splayed 4-bolt	4.000"
084110-4000	Race	Prepped	9.025"	4.000"	350	.8437"	1045 billet splayed 4-bolt	4.000"
084110-4030	Race	Prepped	9.025"	4.030"	350	.8437"	1045 billet splayed 4-bolt	4.000"
084120	Race	Bare	9.025"	4.115"	350	.8437"	1045 billet splayed 4-bolt	4.000"
084120-4125	Race	Prepped	9.025"	4.125"	350	.8437"	1045 billet splayed 4-bolt	4.000"
084120-4155	Race	Prepped	9.025"	4.155"	350	.8437"	1045 billet splayed 4-bolt	4.000"
084130	Race	Bare	9.025"	4.115"	400	.8437"	1045 billet splayed 4-bolt	4.000"
084130-4125	Race	Prepped	9.025"	4.125"	400	.8437"	1045 billet splayed 4-bolt	4.000"
084130-4155	Race	Prepped	9.025"	4.155"	400	.8437"	1045 billet splayed 4-bolt	4.000"

**Block Applications:** The MOTOWN II blocks are designed to be a replacement for the small block Chevy two piece seal, driver side dipstick applications. In applications where the cylinder bore is 4.200 or the combination is making 700 plus H.P normally aspirated or the block is being used in a nitrous or blower application, it is **HIGHLY RECOMMENDED** to use the Motown II block with the billet, splayed main caps.

**Block Material:** High density cast iron.

**Deck Height:** 9.025 (Standard Chevrolet)

**Cam Bearings:** Standard SBC. NOTE: When installing, BE SURE the oil hole in the bearings aligns with the oil feed hole to the main bearings. This block has the oil hole at the 5 o'clock position to prevent bearing hole closure at high spring pressures.

**Main Bearings:** Utilizes 350 or 400 Chevrolet style main bearings. 350 main blocks use a standard SBC rear main seal Fel-Pro #2900 or equivalent. 400 main blocks use Fel-Pro #2909 or equivalent. This is the oversize seal for line bore/line hone applications.

**Main Caps:** All five main caps are four bolt nodular iron or 1045 billet steel caps with the center three being of the splayed design. The inner row of bolts are 1/2 inch thread. The outer row of bolts are 7/16 thread. Torque specs with on main bolts are: 100 ft. lbs. inner & 70 ft. lbs. outer with oil. All MOTOWN II blocks (with either the 350 or 400 main size) will have the bolt pattern spread of a 400 block. 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.

**Maximum Bore:** All IRON blocks can be bored safely to a maximum of 4.200.

**Cylinder Bores:** IRON 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.

**Cylinder Wall Thickness:** IRON block @ 4.125 bore: approximately .200.

**Water Jackets:** Expanded for better cooling. Capacity is 152 fl.oz. per bank.

**Gear Drives & Belt Drives:** The face of the block has more clearance built in to accommodate all aftermarket belt and gear drives.

**Lubrication:** Priority main oiling system. Another benefit is that the distributor is now at the end of the oiling cycle, preventing leaks that were a common occurrence when the distributor was improperly fitted or the O-rings were damaged. We recommend oils designated SM/SL/SJ, 15W-40 or 20W-50.

**Oil System Features:** As is, block is set up for OE style internal oil pump. Integral bosses front and rear for dry sump applications. Oil pressure can be drawn from rear of block, at the top of the bellhousing.

**Oil Restrictors:** Relocated to the lifter valley for easier access. 1/8" pipe plugs are used with a hole drilled through the center (not provided). Contact your engine builder for hole diameter as it will vary by application and components employed.

**Filtration:** Integral mount for spin on filter.

**Freeze plugs:** #EPC 41B-1 5/8"

**Oil Pan Rails:** Solid (stock width) can be cleared for strokers. 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:** IRON blocks can handle up to a 4.00 inch stroke with a 6.00 inch steel H-beam style connecting rod.

**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.

**Fuel Pump:** Uses stock style fuel pump and stock length fuel pump pushrod.

**Starter:** Starter mounting pad is drilled for both straight across and stagger bolt patterns.

**Motor Mounts:** Drilled and tapped for side and front mounts in OEM locations.

Cylinder 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

Due to a vast difference of opinion among professional builders regarding specifications and procedures, all blocks when purchased bare, are finished within GM +/- tolerances. MOTOWN II blocks are supplied with the following specs:

Block Weights: 190 lbs.

Deck Height: 9.025 +/- .005.

Cylinder Bore: 3.990 or 4.115 +/- .005.

Main Journals: SBC 350: 2.6412 or SBC 400: 2.8412 +/- .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 users preferences. Freeze plugs, oil galley plugs and cam bearings are not included or installed. However, stock Chevrolet hardware can be used.

##### Prepped Block

MOTOWN II blocks, when purchased prepped, will be sized to the above specs with the following exception: Cylinder bores: 4.001 or 4.126 +/- .0005. All prepped blocks will be painted and have dowel pins, freeze plugs, cam bearings and oil galley plugs installed. The block will just need a final cleaning and be ready for assembly.

##### Before Final Assembly:

1. Before any assembly begins, thoroughly inspect the block for any defects. Remember you are the final inspector. Once machine work has begun, 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. Slight honing of the lifter bores may be needed for proper lifter to lifter bore clearance.
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 II 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.

WORLD MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, REGARDING PARTS. THIS WARRANTY IS EXCLUSIVE AND IT IS EXPRESSLY MADE IN LIEU OF, AND WORLD HEREBY DISCLAIMS ANY AND ALL OTHER WARRANTIES, EXPRESSED, IMPLIED, INCLUDING, BUT NOT LIMITED TO ANY IMPLIED WARRANTY OR MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE.

World's sole and exclusive obligation and liability with respect to parts sold is expressly limited to repair or replacement, at World's option, of parts. In no event will World be liable for any claim of any kind for direct or indirect incidental, consequential or special damages, whether known or unknown, including without limitation, cost of labor, installation, disassembly, lost revenues and profits, loss of property, production, or injury to persons and/or property. The maximum liability of World for any and all damages with respect to any part is limited to an amount not to exceed the original purchase price of the part. This warranty gives you specific legal rights and you may also have other rights which vary from state to state. DO NOT CALL THE DEALER FROM WHICH YOU PURCHASED YOUR PARTS. If you have any questions, please contact Customer Service, World Products 631-981-1918 (Fax 631-734-0467).

##### WARRANTY CLAIMS:

Contact Customer Service to obtain a Return Material Authorization number directly from World Products for any warranty return. DO NOT CONTACT YOUR DEALER. DO NOT RETURN PARTS WITHOUT AUTHORIZATION. Returned product must be shipped prepaid. Collect shipments will be refused. Returned parts must have RMA number on the outside of the package, a copy of original bill of sale inside and a written explanation of the suspected defect. If the item is found defective, World Products will repair or replace it at its discretion and return it freight prepaid. No additional labor claims will be paid. There will be no exceptions to this rule.

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#### SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

##### ALL SALES FOB RONKONKOMA, NEW YORK

WORLD PRODUCTS

51 Trade Zone Court · Ronkonkoma, NY 11779

(631) 981-1918 · Fax (631) 981-1712

[www.worldcastings.com](http://www.worldcastings.com)

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