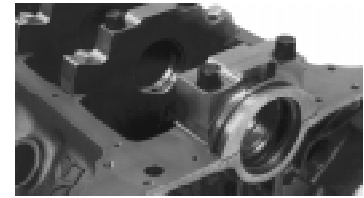
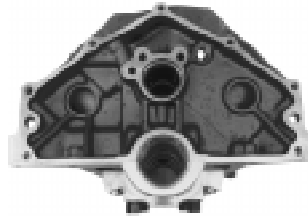


CHEVY SMALL-BLOCK V8

The following chart shows the differences between the standard/tall and dry/wet sump type blocks:

Part Number	22551788	22551790
Deck Height	9.025" (std.)	9.325" (tall)
Oiling System	Wet Sump	Wet Sump
Main Bearings	2.45" (350-type)	2.65" (400 type)
Bore Diameter	4.000"-4.190"	4.125"-4.190"



Rocket Block



ENGINE BLOCKS & COMPONENTS

CHEVROLET SMALL BLOCK QUICK REFERENCE CHART

Part Number	10066098	10051181	10105123	10066034	10051183	10185047	24502501	24502503
Block Material	Cast Iron	Cast iron	Cast iron	Cast iron	Cast iron	Cast iron	Cast iron	Cast iron
Cylinder Wall Type	Non-Siamesed	Non-Siamesed	Non-Siamesed	Non-Siamesed	Siamesed	Siamesed	Non-Siamesed	Siamesed
Cylinder Deck Height	9.025"	9.025"	9.025"	9.025"	9.025"	9.025"	9.025"	9.025"
Cylinder Bore Range	3.76"-3.84"	3.870"-4.020"	4.00"-4.030"	4.00"-4.030"	4.000"-4.090"	4.000"-4.090"	3.875"-4.030"	3.995"-4.160"
No. Bearing Cap Bolts	4	2	4	4	2	4	4	4
Cap Bolt Orientation	Straight	Straight	Straight	Straight	Straight	Straight	Splayed 20°	Splayed 20°
Bearing Cap Type	Gray Cast Iron	Gray Cast iron	Gray Cast iron	Gray Cast iron	Gray Cast iron	Nodular Cast iron	8620 Steel	8620 Steel
Crankshaft Journal Dia.2.45"	2.45"	2.45"	2.45"	2.45"	2.45"	2.45"	2.45"	2.45"
Oil Sump Type	Wet	Wet	Wet	Wet	Wet	Wet	Wet	Wet
Crankshaft Seal Type	2 piece	1 piece	1 piece	2 piece	1 piece	1 piece	2 piece	2 piece
Design Max. Stroke	3.75"	3.75"	3.75"	3.75"	3.75"	3.75"	3.75"	3.75"
Weight (lbs. - bare)	195	197	181	N/A	181	182	183	183
Intended Max Hp @ RPM	350 @ 5700	375 @ 5750	350 @ 5700	350 @ 5700	400 @ 5750	450 @ 6500	650 @ 8500	700 @ 8500
Intended Usage	Street	Street	Street	Street	Street	Amateur Competition	Professional Competition	Professional Competition
Part Number	24502600	24502525	24502650	24502495	10185075	10134400	22551788	22551790
Block Material	Cast iron	Cast Iron	Cast Iron	Aluminum	Aluminum	Aluminum	Cast iron	Cast iron
Cylinder Wall Type	Siamesed	Siamesed	Siamesed	Siamesed	Siamesed	Siamesed	Siamesed	Siamesed
Cylinder Deck Height	9.025"	9.150"	8.200"	9.525"	9.025"	9.025"	9.025"	9.325"
Cylinder Bore Range	3.995"-4.160"	4.160"	3.90"-4.190"	4.125"	4.00"-4.160"	4.125"-4.160"	4.000"-4.190"	4.125"-4.190"
No. Bearing Cap Bolts	4	4	4	4	4	4	4	4
Cap Bolt Orientation	Splayed 20°	Splayed 20°	Splayed 20°	Splayed 20°	Splayed 18°	Splayed 20°	Splayed 18°	Splayed 18°
Bearing Cap Type	8620 Steel	8620 Steel	8620 Steel	8620 Steel	Steel	8620 Steel	Steel	Steel
Crankshaft Journal Dia.	2.45"	2.45"	2.30"	2.65"	2.45"	2.65"	2.45"	2.65"
Oil Sump Type	Wet	Wet	Dry	Dry	Dry	Dry	Wet	Wet
Crankshaft Seal Type	2 piece	2 Piece	2 piece	2 piece	2 piece	2 piece	2 piece	2 piece
Design Max. Stroke	3.75"	3.75"	3.25"	4.125"	4.125"	3.75"	4.125"	4.125"
Weight (lbs. - bare)	183	183	167	101	90	89	200	202
Intended Max Hp @ RPM	700 @ 8500	700 @ 8500	700 @ 8500	850 @ 8000	800 @ 8000	800 @ 8600	500 @ 6800	595 @ 6800
Intended Usage	Professional Competition	Professional Competition	Professional Competition	Professional Competition	Professional Competition	Professional Competition	Professional Competition	Professional Competition

BLOCK COMPONENTS

GROUP 0.034 CYLINDER LINERS AND PLUGS

10134377 — Cylinder Sleeve (Standard)

These sleeves are for new design aluminum V8 and V6 90 blocks P/N 10134400, 10134351, 10134371. They are 4.117 bore I.D. only.



► **NEW** 12480032 — Cylinder Sleeve (Standard Tall Deck)

This sleeve is the replacement for aluminum "tall deck" block P/N 24502495 only. This iron sleeve I.D. bore is 4.120" and finish bores to 4.125".

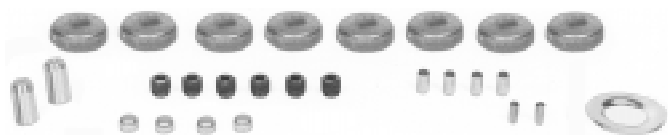


12480004 — Iron Cylinder Sleeve

These sleeves are 3.995" bore, designed for GM aluminum small block V8 and V6 engines.

12495500 — Engine Freeze Plug and Dowel Pin Kit

When rebuilding your engine use this kit for all small block V8 (except RPO LS1) or V6 90° Chevrolet engines. This kit includes eight brass freeze plugs, one cam plug, five oil hole plugs, four head dowel pins, and one camshaft dowel pin.



3826504 — Welch Plug (1⁵/₈" Brass)

Whether you call them "welch plugs," "freeze plugs," or "soft plugs," their job is still the same—to keep the water in the water jacket! Welch plugs are available in three different materials to suit various applications. Bow Tie aluminum blocks require aluminum plugs; either steel or brass plugs can be installed in cast iron blocks. Brass is more corrosion resistant than steel, and is recommended for marine applications.

10185067 — Welch Plug

Used on Chevrolet V8 aluminum blocks P/N 24502495, P/N 10134400, P/N 10185075, and on Chevrolet V6/90° aluminum blocks P/N 10134371 and P/N 10185051.

Technical Note: These plugs are threaded with o-ring seal.



GROUP 0.095-0.206 BLOCK COMPONENTS

3932482 — Nodular Iron Four-Bolt Cap

This nodular iron cap (casting number 2482) is stronger than the grey iron caps installed on most production small-blocks with 2.45" main bearings. It can be retrofitted on blocks originally produced with two-bolt mains, or used to upgrade a four-bolt block for racing. These caps are used on cylinder case 10185047.

Technical Notes: This is a semi-finished cap with four parallel bolt holes; the ends of the cap must be machined to register it in the block. The block must be align bored after installing replacement caps.



14011072 — Billet Steel Four-Bolt Cap

These billet main bearing caps are machined from 1010 cold drawn steel. The outer bolt holes angle outward toward the oil pan rails. This splayed bolt design improves reliability in highly stressed racing engines by tying the cap to the strongest part of the block. It also reduces distortion of the main bearing bores by increasing the cap's resistance to closing up under high loads. Billet steel main caps are designed for blocks with 2.45" main bearings. The Chevy Bow Tie is laser etched on top of the cap.

Technical Note: See the Chevy Power manual for machining instructions when installing splayed bolt caps on blocks originally equipped with two-bolt or production-type four-bolt caps.



14011052 — Billet Steel Two-Bolt Cap

This steel main cap replaces the grey iron front bearing cap on small-block and V6/90° engines with 2.45" main bearings. It is machined from 1010 cold drawn steel, and it uses the same bolts and studs as a production front bearing cap.

Technical Note: The block must be align bored after installing a replacement front bearing cap.



10134368 — Main Bearing Cap, #1

This 2.45" dia. main bearing cap is made from 8620 steel and is used on Chevrolet V8 aluminum blocks P/N 24502495, P/N 10185075, and on Chevrolet V6/90° aluminum blocks P/N 10134371. **NOTE: These bearing caps will not work on cast iron blocks.**

10134369 — Main Bearing Cap, Intermediate

These 2.45" dia. main bearing caps are splayed and are made from 8620 steel. They are used on Chevrolet V8 aluminum blocks P/N 24502495, P/N 10185075, and on Chevrolet V6/90° aluminum blocks P/N 10134371. **NOTE: These bearing caps will not work on cast iron blocks.**

10185033 — Main Bearing Stud Kit

This premium bearing stud kit is offered with the professional racing engine builder in mind. Designed for the small-block V8 and 90° V6 engines. It contains 10 inboard studs 7/16, 14 outboard studs 7/16, 4 outboard studs 3/8, all made of 4340 steel. Also included are a flat washer and nuts.

12342089 — Timing Cover

For use on Chevrolet small-block V8 1995-99 first design and V6/90° engines. It is a direct replacement for all late model small-block and V6/90° front covers that use a bolt-on timing pointer. Replacement oil-seal: P/N 10243247.

Technical Note: These timing covers, engineered to GM standards for reliable installation, are stamped with the distinctive Chevrolet logo. They are supplied with GM production oil seals installed.



12552557 — Timing Chain Cover

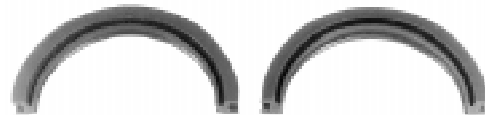
This new design cover is used on all ZZ4 crate engines, and will bolt to any small-block Chevrolet engine from 1995 through current model except LT1, LT4 and LS1.

Technical Note: Use RTV sealant to seal new timing chain cover. Not recommended for use with short leg water pump because there is no clearance between back of pump and the cover. Use chrome cover P/N 12342089 or early model sheet metal cover P/N 10046160 for short water pump application.



10121044 — Rear Oil Seal

This rear oil seal is for V6 and V8 Chevrolets with two-piece design. P/N 10121044 seal is designed to tolerate higher operating temperatures and has more face pressure than other seals for superior leak protection. This seal is used by most NASCAR teams.



HEADS

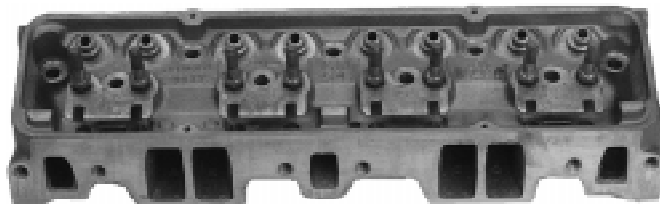
GROUP 0.269 CYLINDER HEADS

GETTING AHEAD

The choices in Chevrolet small-block V8 cylinder heads range from service replacement castings for street machines to lightweight aluminum heads for all-out competition engines. The following chart summarizes the important features of these heavy-duty cylinder heads.

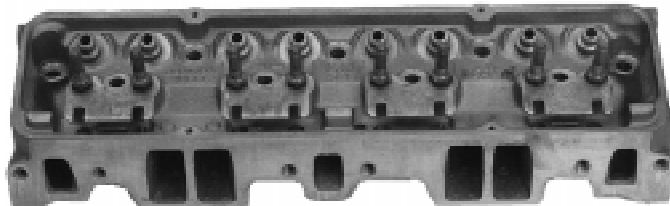
3987376 — Cast Iron High-Performance Head (Large Valve)

This cylinder head (casting P/N 3991492) was originally installed on special high-performance small-blocks such as the 302ci Z-28 and 350ci LT-1. It is popularly known as the "fuel injection" head because it shares many features with previous high-performance Corvette heads. This head has straight spark plugs, 3/8" screw-in studs, pushrod guideplates, and heat riser passages. The 64cc combustion chambers are machined for 2.02" intake valves and 1.60" exhausts. Seats are not heat-treated.



464045 — Cast Iron High-Performance Head (Large Chamber)

Give this cylinder head (casting P/N 462624) serious consideration if you are building a low-compression small-block. Its large 76cc combustion chambers are suited to the octane rating of today's gasoline. This head yields a 9:1 compression ratio with the flat-top pistons used in LT-1, Z-28, and L-82 Corvette engines produced from 1971-79. It is machined for 2.02" intake valves and 1.60" exhausts. It has heat riser passages for fast warm-ups on cold mornings, and it is supplied with screw-in 3/8" studs and pushrod guideplates. This head has straight spark plugs which will clear cast iron exhaust manifolds. Valve seats are heat-treated.

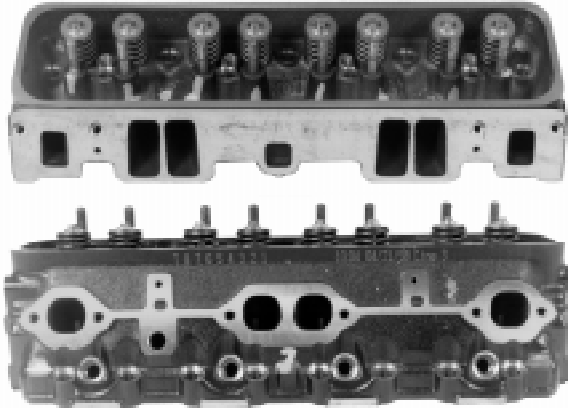


CHEVY SMALL-BLOCK V8

12558060 — Cast Iron Vortec Cylinder Head Assembly

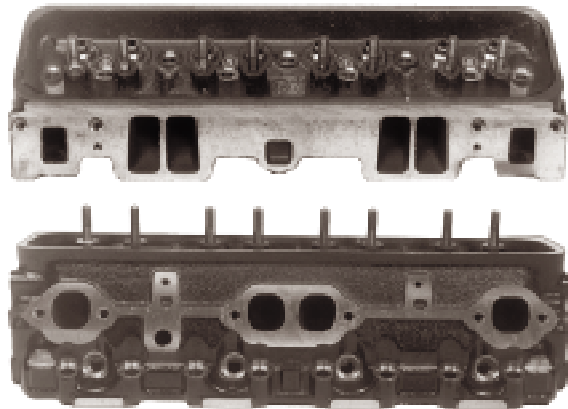
This production Vortec iron cylinder head was first used on the 1996 pickup truck RPO L31 with fuel injection. The intake and exhaust port are very similar to the Corvette 350 LT1 heads. This head includes 1.94" intake valves and 1.50" exhaust valves, with pressed-in $\frac{3}{8}$ " studs. This head with compatible valves flows more air than bow tie head P/N 10134392, but the casting may not be as durable. The water passages are the same as the original 1955 small block design. The eight-bolt intake bolt pattern is totally different than the early model V8 12-bolt design. They can be converted by using intake manifold gasket P/N 10148096, marking the six new bolt locations and drilling holes for $\frac{3}{8}$ " x 16 bolts, or use new manifold P/N 12366573.

Technical Note: *The valves seats in these heads can be machined to 2.02" intake and 1.60" exhaust. The rocker arm studs can be pinned or drilled and tapped $\frac{3}{8}$ ". (Casting P/N 10239906 or 12558062.)*



12529093 — Cast Iron Vortec Cylinder Head

This bare head is identical to complete head assembly P/N 12558060 except it does not include intake valves, exhaust valves, springs, and retainers.



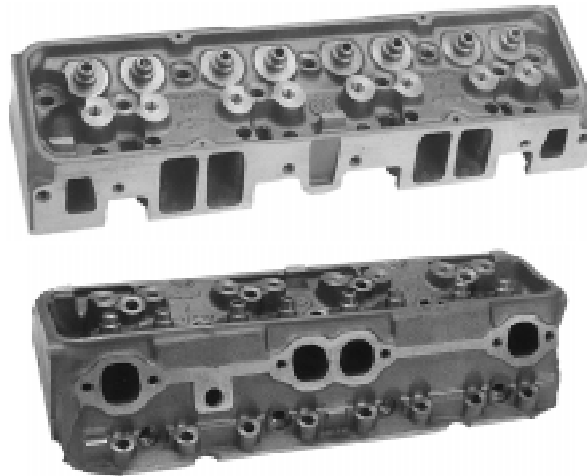
10134392 — Phase 2 Cast Iron Bow Tie Head

The Phase 2 Bow Tie cylinder head (casting P/N 14011034) has the highest performance potential of any cast iron Chevrolet head. It is intended for off-highway applications only. Although the Phase 2 cast iron Bow Tie cylinder head has the same casting number (14011034) as the Phase 1 head it replaced, there are several significant differences between these two heavy-duty cylinder heads. The Phase 2 cast iron Bow Tie head can be identified by its redesigned outer water jacket wall with a machined bar between the exhaust manifold flanges. (Phase 1 castings have a raised parting line between the exhaust manifold flanges.) The area around the tapped water temperature sensor hole is also machined flat on the Phase 2 head.

The Phase 2 Bow Tie head has a revised combustion chamber design with a true volume of 64cc's. The quench areas beneath the spark plugs are filled to increase compression in competition engines. The intake valve seats are machined for 2.02" diameter valves; the induction hardened exhaust valve seats are finished for 1.60" diameter valves.

The intake and exhaust ports are identical in Phase 1 and Phase 2 cast iron Bow Tie heads. The 184cc intake runners will satisfy the airflow requirements of most competition engines while enhancing throttle response and mid-range torque. In unmodified form, the Phase 2 Bow Tie head will flow more air than any production cast iron small-block head. Extra-thick wall sections allow the ports to be enlarged to increase their flow capacity. The manifold heat riser passages are deleted in Phase 2 Bow Tie heads to produce a cool, dense intake charge.

Technical Notes: *The valve spring pockets in cast iron Bow Tie heads are machined for up to 1.50" diameter competition valve springs. The rocker stud bosses are tapped for screw-in studs; studs and pushrod guideplates are not included. Use GM Performance Parts studs P/N 3973416 ($\frac{9}{16}$) or P/N 3921912 ($\frac{7}{16}$) and hardened pushrod guideplates P/N 3973418. Use $\frac{5}{16}$ " hex-head spark plugs with tapered seats and $\frac{3}{8}$ " reach. A bare casting weighs approximately 42 pounds. Valve seats are heat-treated.*



10125377 — Cylinder Head Assembly

This is a cast iron cylinder head assembly used on 285 hp 350 engine (P/N 12353641). This complete cylinder head assembly includes 1.94" intake valves, 1.50" exhaust valves, valve springs (P/N 3901068) and valve spring caps (P/N 14003978).

Technical Notes: *This cylinder head has 64cc chambers. The cast number for this head is P/N 14101083 or 14096217. This cylinder head has 1987 and later inlet manifold bolt pattern. The center two bolts are at a 72° angle.*