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# INSTALLATION MANUAL

## AEROFLOW PERFORMANCE

### ALUMINIUM CYLINDER HEADS

#### WARNING!

BEFORE PROCEEDING WITH INSTALLATION PLEASE READ INSTRUCTIONS CAREFULLY. THIS PRODUCT REQUIRES DETAILED KNOWLEDGE OF AUTOMOTIVE SYSTEMS. WE RECOMMEND THAT THIS INSTALLATION BE CARRIED OUT BY A QUALIFIED AUTOMOTIVE TECHNICIAN.

PLEASE CHECK THE HEAD THOROUGHLY IN EVERY POSSIBLE WAY. IF YOU SUSPECT A DEFECT OR SHIPPING DAMAGE, CONTACT AEROFLOW PERFORMANCE OR THE DEALER IT WAS PURCHASED FROM BEFORE ANY WORK HAS BEGUN. AEROFLOW PERFORMANCE WILL NOT BE RESPONSIBLE FOR DEFECTS AFTER ANY WORK HAS BEEN STARTED.

#### INTRODUCTION

Congratulations on your purchase of Aeroflow Performance Cylinder Head. Aeroflow Performance products cannot and will not be responsible for any damage, or other conditions resulting from misapplication of the parts described herein. However, it is our intention to provide the best possible products for our customer, products that perform properly and satisfy your expectations. Should you have any questions? Please call technical support at +61 2 8825 1979 and have the product part number on hand when calling.

The Aeroflow Performance small block Chevy cylinder heads are designed for entry level street performance engines to give the ultimate in flow at a budget price. Made from A356 aluminium castings the 186cc cylinder heads are ideal for operating in the idle to 6500 rpm range. These complete cylinder heads will fit a 4.00" bore and larger. The complete heads include larger then stock 1.43" ( 36.3mm ) diameter dual valve spring to handle up to 0.575" ( 14.61mm ) maximum lift. Suits flat tappet and hydraulic camshafts.

**Cylinder One Flow Testing on Flow Bench**  
**NOTE: ALL FLOWBENCHES ARE NOT CREATED EQUAL!**  
**Data from one bench to the next can be vastly different.**  
**The data on this table is for reference only.**

Port	Lift	L / D	Cylinder One Average CFM	Port	Lift	L / D	Cylinder One Average CFM
Intake	0.100	0.050	61.700	Exhaust	0.100	0.063	44.800
Intake	0.200	0.099	123.700	Exhaust	0.200	0.125	92.800
Intake	0.300	0.149	177.700	Exhaust	0.300	0.188	135.300
Intake	0.400	0.198	223.400	Exhaust	0.400	0.250	151.600
Intake	0.500	0.248	251.100	Exhaust	0.500	0.313	158.900
Intake	0.600	0.297	254.000	Exhaust	0.600	0.375	161.900
Intake	0.700	0.347	255.600	Exhaust	0.700	0.438	165.300

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## SPECIFICATIONS

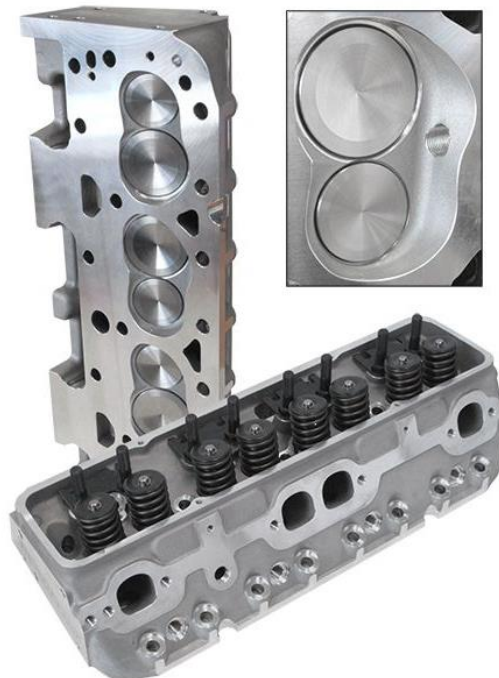
Material	A356 Aluminum
Combustion Chamber CC	67cc
Intake Port Volume CC	186cc
Intake Port Dimension	2.00" x 1.20"
Exhaust Port Volume CC	72cc
Exhaust Port Dimension	1.42"H x 1.53"W
Spark Plug Location	Straight
Intake Valve Diameter	2.02"
Exhaust Valve Diameter	1.60"
Valve Stem Diameter	11/32" (.343")
Valve Spring Pocket I.D.	1.49"
Valve Guide Material	Manganese Bronze
Valve Guide O.D.	0.530" (.570" at base)
Rocker Stud Thread Size	7/16"x14
Valve Angle	23 Degree
Deck Thickness	0.625"

Hydraulic Flat Tappet Cam (up to .575" lift )  
(Check Cam Manufacturer Recommendation)

Installed Components	Sizes	Part No
Intake Valves	2 .02" x 4.91" x 11/32"	AF59-3501
Exhaust Valves	1.60" x 4.91" x 11/32"	AF59-3502
Valve Springs	1 .43" Single w/damper	AF59-3503
Valve Retainers	7 -Degree 11/32"	AF59-3504
Valve Locks	7 -Degree 11/32"	AF59-3505
Valve Seals	11/32" x .530"	
Rocker Arm Studs	11/32" x .530"	AF59-3506
Push Rod Guide Plates	5/16" Flat	AF59-3507

## Suggested Components

Head Gasket	Fel-Pro 1003
Intake Gasket ( 1.20 x 2.00 port size gasket )	Fel-Pro 1204
Exhaust Gasket ( 1.34 x 1.39 D port size gasket )	Fel-Pro 1406
Head Bolts	ARP 134-3601/134-3701
Head Studs	ARP 134-4001/234-4301
Spark Plugs ( 14mm x 3/4" reach with flat gasket seat )	Champion RC9YC



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## **Installation Guideline**

For a complete installation of these Aeroflow Performance cylinder heads you will require some extra components other than the original parts that must be purchased separately.

Installation is the same as for original equipment cylinder heads. Consult the factory service manual for specific procedures, if necessary.

Once the heads have been installed and torqued to specs, install your pushrods, rocker arms, and rocker arm adjusting nuts.

The following list is a guideline of suggested parts that may or may not need to be purchased;

- Head gaskets
- Intake manifold gaskets
- Exhaust gaskets
- Valve Cover gaskets
- Head bolt or Head Stud kit
- 14mm x 3/4" reach x 5/8" hex, gasket spark plugs (heat range to be determined by specific application)
- Adjustable rocker arm assembly
- Pushrods (length to be determined by specific application once all rocker assembly is installed)

Although these cylinder heads will accept OEM components (rocker arms, valve covers, intake manifold, head bolts, etc.), we highly recommend that premium quality hardware be replaced with your new heads.

- The complete cylinder heads are assembled with valve springs that are compatible with stock flat tappet camshafts. If any other camshaft is used, check with the camshaft manufacturer for recommended spring pressures and maximum valve lift. The valve springs supplied will accommodate valve lifts up to .575". If valve springs are changed to achieve more spring pressures it will be necessary to also change rocker studs, rocker arms and pushrods. It is very possible that the supplied valve springs are not correct for your camshaft. All valve springs should be checked for compatibility to your camshaft. Severe wear of valve train components and severe engine damage could result from failure to do this. Check spring requirements before heads are installed on the engine.
- High quality head studs or head bolts with hardened washers must be used to prevent galling of the aluminium bolt bosses. Bolt threads, underside of bolt heads, and washers should be lubricated with an oil/moly mix prior to installation and torquing.
- These cylinder heads accept 14mm x 3/4" reach gasket seat spark plugs. Heat range may vary by application. Use anti-seize on the plug threads to prevent galling in the cylinder head, and torque to 13Nm.

It is highly recommended that valve-to-piston clearances are checked and corrected to minimum specs, if necessary. Minimum intake valve clearance should be .100". Minimum exhaust valve clearance should be .110".

It is highly recommended that piston-to-head clearances are checked and corrected to minimum specs. Especially when using a dome piston. Recommended minimum piston-to-head clearance is .050".

These cylinder heads are designed to be used on engines with a minimum bore size of 4.000". If used on engines with a bore size less than 4.000" (307, 305, 283, 267, 265, & 262 c.i.d.), do not use a camshaft with more than .450" lift or the valves may hit the cylinder bores.

Rocker geometry should be checked, making sure that the contact point of the roller (or pad on a stock rocker arm) remains properly on the valve tip and does not roll off the edge. Visual inspection of the rockers, valve springs, retainers, and pushrods should be made to ensure that none of these components come into improper contact with each other. If problems with valve train geometry occur, changes such as pushrod length may have to be made.

Complete Aeroflow Performance cylinder heads are sold with the pushrod guide plates and rocker studs installed, but they will require checking for proper valve train alignment and pushrod clearance before operating the engine. The pushrod guide plates are attached to the cylinder heads with two (each) rocker studs. The stud holes have enough clearance to adjust the guide plates for optimum alignment of your valve train components. Once the cylinder heads have been installed ensure to check the pushrod-to-cylinder head clearance. The clearance between the pushrods and the cylinder heads must be .005" min. If adequate clearance exists between pushrod and head, slowly turn the engine over through at least two full revolutions while inspecting pushrods and rocker arm components. Make sure that pushrod and/or rocker arm components do not rub on the head either at full lift or when the valve is seated closed. If any pushrod rubs on the cylinder head, remove rocker arms, loosen the rocker studs and move the guide plates as needed to provide clearance. After checking all pushrods for proper clearance, ensure that the tip of the rocker arm is making adequate contact with the top of the valve stem. Carefully re-torque to 60Nm any rocker studs that were loosened. Check alignment again to be sure that the guide plates did not move while torquing the studs.

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