



Port Flow Analyzer v3.0		Performance World					
Test: PW SBC 64180-CNCA		www.performance-world.com					
Folder: Chevrolet		Page: 1					
Head #: 64180-CNCA		Bore Adapter Diameter: 4.00"					
Customer:		Int Port Adapter: Radiused Inlet					
Operator:		Exh Port Adapter: Short "stub stack"					
Test Comments: PW 64180-CNCA SB Chevrolet aluminum head with 5 axis CNC pocket ported bowls and short turns							
Report of:		Tested at	Corr to	# Vlvs	Vlv Dia	Stem Dia	Port Area
Comparing	Int:	28"	28.0"	1	2.02"	.341"	2.58 sq in
1 Cylinders	Exh:	28"	28.0"	1	1.60"	.341"	1.22 sq in
Port	Lift	L/D	Avg CFM	Cyl 1 CFM	NOTE: ALL FLOWBENCHES ARE NOT CREATED EQUAL! Data from one bench to the next can be vastly different. If you are modifying this head, it is important to "baseline" first to ensure accuracy. The data on this sheet is for reference only.		
Intake	0.100	0.050	65.8	65.8			
Intake	0.200	0.099	123.6	123.6			
Intake	0.300	0.149	178.3	178.3			
Intake	0.400	0.198	223.2	223.2			
Intake	0.500	0.248	249.7	249.7			
Intake	0.600	0.297	257.8	257.8			
Intake	0.700	0.347	261.5	261.5			
Exhaust	0.100	0.063	51.3	51.3			
Exhaust	0.200	0.125	104.5	104.5			
Exhaust	0.300	0.188	142.5	142.5			
Exhaust	0.400	0.250	165.8	165.8			
Exhaust	0.500	0.313	186.1	186.1			
Exhaust	0.600	0.375	198.4	198.4			
Exhaust	0.700	0.438	206.4	206.4			
Head File: 64180-CNCA							
Head Comments: PW 64180-CNCA SB Chevrolet aluminum head with 5 axis CNC pocket ported bowls and short turns							
Head Number		Customer					
Intake		Exhaust					
Layout:	1 valve & 1 port	Layout:	1 valve & 1 port				
Valve Diameter, in	2.02"	Valve Diameter, in	1.60"				
Stem Diameter, in	.341"	Stem Diameter, in	.341"				
Throat Diameter, in		Throat Diameter, in					
Avg Seat Angle, deg	45	Avg Seat Angle, deg	45				
Port Shape:	Rectangular	Port Shape:	D				
Port Volume, ccs	186cc	Port Volume, ccs	72cc				
Avg Port Diameter, in	1.31	Avg Port Diameter, in	1.246				
Avg Port Height, in	1.966	Avg Port Height, in					
Port Length, in	4.75	Port Length, in	2.5				

Specifications 64180-CNCA

Material	A356 Aluminum
Combustion Chamber CC	67cc
Intake Port Volume CC	186cc
Intake Port Dimension	2.00"x1.20"
Exhaust Port Volume CC	72cc
Exhaust Port Design	D Shape
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 Cover Mounting	Perimeter & Centerbolt
Valve Angle	23 Degree
Valve Seat Machining	Intake=4-Angle Exhaust=3-Angle
Oiling	Through Pushrod

Hyd Flat Tappet (up to .525" lift) (Check Cam Manufacturer Recommendation)

Installed Components	Size	Brand
Intake Valves	2.02" x 4.91" x 11/32"	PW 360020
Exhaust Valves	1.60" x 4.91" x 11/32"	PW 360016
Valve Spring Spec	1.26" Single w/damper	PEP 053-574-700 (16pcs)
Valve Retainers	7-Degree 11/32"	Manley 23651-1 (16pcs)
Valve Locks	7-Degree 11/32"	PW 360410
Valve Seals	11/32" x .530"	PW 360480
Valve Spring Cups		PW 360112
Rocker Arm Studs	7/16"-14 x 3/8"-24	PW 360338
Pushrod Guide Plates	5/16" Flat	PW 360200
Spark Plugs	Autolite 3924 or Equivalent	

Valves Lapped & Checked

Valve Spring Installed Height & Pressure Checked

Vacuum Tested

NOTE: Assembled cylinder heads are supplied without the pushrod guideplates and rocker studs installed as they require adjusting for proper rocker alignment and pushrod clearance. Use thread sealant where required.



PW Heads Installation Instructions

Thank you for purchasing PW Heads!

Please read these instructions BEFORE attempting to install your new heads. Improper installation or undue care will void your warranty and potentially cause engine damage. Ensure you have the correct tools, gaskets, fasteners and mechanical knowledge to give you a trouble-free installation. Any questions can usually be answered by the place of purchase, or at www.performance-world.com. You can also contact us directly at sales@performance-world.com.

PW Heads are available in a variety of configurations. Bare (ready for assembly) or assembled. If you purchased your heads assembled, **PLEASE ENSURE THEY ARE COMPATIBLE WITH YOUR APPLICATION.** (ie. camshaft (style and max lift), valve springs, piston to valve clearance, intake manifold, headers, etc.) It is your responsibility to check **PRIOR** to attempting installation. **Cylinder heads or components damaged due to improper application will void your warranty and potentially cause engine damage.**

Our “Assembled” heads are assembled with the components listed on the supplied Data Sheet. As specifications are subject to change, please refer to that sheet for correct information. It is recommended to keep the Data Sheet for future reference if required. Now let’s get started!

Before installation:

Gaskets: You will require head gaskets, intake manifold gaskets, exhaust gaskets and valve cover gaskets (among others) that may be specific to these heads (size etc.) Please refer to the port sizes and styles for a correct match. Head gaskets should be for aluminum head applications (Fel-Pro Performance for example) so minimal brinelling occurs.

Spark plugs:

14mm x 3/4” reach x 5/8” hex gasketed (eg. Champion #RC12YC or equivalent) Use anti-seize to prevent galling and do not overtighten (maximum 10 ft/lbs).

Rocker Arms:

PW Assembled Heads are designed for use with standard non self-aligning rocker arms. Factory style adjustable or aftermarket roller rockers are acceptable. Do not use self-aligning rocker arms (has a “guide” on the end which locates on the valve tip) as they are designed for heads without the use of guide plates.

Pushrods:

Check for correct length. Using a pushrod length checker, determine the correct length for your application. Rocker geometry **MUST** be checked to ensure the rocker contact point sits correctly on the valve tip. In many instances, a longer pushrod may be required.

Piston to Valve Clearance:

It is always recommended to check piston to valve clearance. Changes in piston design and head design can cause interference. Minimum clearance should be .100” at lift on the intake and .110” at lift on the exhaust. PW Heads for SB Ford 5.0L engines can only be used with aftermarket pistons. OE pistons can not be used with 2.02” diameter intake valves.

Piston to Dome Clearance:

PW Heads are designed for use with flat top pistons. If domed or pop-up pistons are used check to ensure there is at least .050” clearance.

Valve to Bore Clearance:

On small bore engines (engines with less than 4.00” cylinder bores), do not use a camshaft with more than .450” lift at the valve. Contact between the valve and cylinder bore may occur. If in doubt...CHECK! (this excludes LS engines with our 63240 and 69225 heads)

Valve Springs:

Our assembled heads come with valve springs intended for specific applications. Please pay attention to the notes on your Data Sheet regarding style (hydraulic flat tappet, hydraulic roller, etc.) and maximum lift. Check with the camshaft manufacturer for recommended valve springs if unsure.

Exhaust Headers:

Any OE port design style header will work with our heads. Check the Data Sheet for the port size and choose the gasket to match your application. Anti-seize is recommended on header bolts.

Head Bolts or Studs:

OE or aftermarket head bolts (as well as studs) can be used providing they are used in conjunction with hardened washers. This prevents galling on the heads. Check bolt lengths to ensure they are correct for your application. Lubricate threads and washers prior to installation.

Valve Covers:

PW Heads are designed for use with OE or aftermarket valve covers. Check rocker arm clearance as required. Some SB Chevrolet applications are equipped with both perimeter bolt or centerbolt patterns for use with early or late valve covers.

Installation:

Follow OE installation guidelines with the exception of the few notes listed.

Head gaskets with internal pre-flattened wire for aluminum heads are recommended. For any subsequent replacements, the same part number must be used to ensure a good seal.

SB Chevrolet 400 engine blocks - The drilling of "Steam holes" is entirely optional but not required. Changes in cylinder head design, and improved high flow water pumps and cooling systems negate the benefit of "steam holes". If you wish to do so, it is entirely your choice.

Apply thread sealer where required on rocker studs that intersect ports and head bolts that cross into water passages. Torque rocker studs to 45 ft/lbs.

Torque heads using the factory sequence and to the torque specified by the head bolt/stud manufacturer. Re-torque after initial start up.

Some valve spring cups may interfere with the #1 head bolt washer. You can relieve the washer where required, or remove the valve spring and cup, position the washer and re-install the valve spring and cup.

Guide Plate Alignment. Our assembled cylinder heads are supplied with the pushrod guideplates and rocker studs NOT installed as they do require adjusting for proper rocker to valve tip alignment and pushrod clearance. The pushrod guideplates are secured to the head with two rocker studs. The stud holes have enough clearance to adjust the guideplates for optimum alignment. Most engines will require the use of thread sealer on at least some ports - CHECK!

Install pushrods and rocker arms and adjust lash/preload according to your application.

Check for any pushrod to cylinder head clearance. Slowly rotate engine through a few revolutions to ensure the pushrods do not make any contact with the cylinder head at any point. Adjust guideplates as necessary. Re-torque any rocker stud that was adjusted to 45 ft/lbs making sure the guideplates do not move. Re-check for rocker to valve tip alignment.