



Port Flow Analyzer v3.0 Performance World  
 Test: PW SBC 65220R [www.performance-world.com](http://www.performance-world.com)  
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Head #: Bore Adapter Diameter: 4.155"  
 Customer: Int Port Adapter: Radiused Inlet  
 Operator: Exh Port Adapter: Short "stub stack"

Test Comments:  
 PW 65220R SB Chevrolet 220 Full CNC. Note:

Report of:	Tested at	Corr to	# Vlvs	Vlv Dia	Stem Dia	Port Area
Comparing	28"	28.0"	1	2.10"	8mm	0.00 sq in
1 Cylinders	Exh: 28"	28.0"	1	1.60"	8mm	0.00 sq in

Port	Lift	Avg CFM	Cyl 1 CFM
Intake	0.100	68.5	68.5
Intake	0.200	140.5	140.5
Intake	0.300	197.3	197.3
Intake	0.400	249.1	249.1
Intake	0.450	268.0	268.0
Intake	0.500	287.1	287.1
Intake	0.550	300.0	300.0
Intake	0.600	309.0	309.0
Intake	0.700	307.0	307.0
Intake	0.800	306.5	306.5

**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.**

Exhaust	0.100	56.8	56.8
Exhaust	0.200	117.3	117.3
Exhaust	0.300	139.8	139.8
Exhaust	0.400	194.6	194.6
Exhaust	0.450	203.5	203.5
Exhaust	0.500	208.0	208.0
Exhaust	0.550	210.9	210.9
Exhaust	0.600	213.0	213.0
Exhaust	0.700	217.4	217.4
Exhaust	0.800	219.2	219.2

Head File: 65220R  
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Intake		Exhaust	
Layout:	1 valve & 1 port	Layout:	1 valve & 1 port
Valve Diameter, in	2.10"	Valve Diameter, in	1.60"
Stem Diameter, in	8mm	Stem Diameter, in	8mm
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	217cc	Port Volume, ccs	76cc
Avg Port Diameter, in		Avg Port Diameter, in	
Avg Port Height, in		Avg Port Height, in	
Port Length, in		Port Length, in	

**Specifications 65220R**

Material	A356 Aluminum
Combustion Chamber CC	65cc
Intake Port Volume CC	217cc
Intake Port Dimension	2.25"H x 1.30"W
Exhaust Port Volume CC	76cc
Exhaust Port Dimension	1.44"H x 1.55"W .250" Raised
Spark Plug Location	Angle
Intake Valve Diameter	2.10"
Exhaust Valve Diameter	1.60"
Valve Stem Diameter	8mm (.313")
Valve Spring Pocket I.D.	1.60"
Valve Guide Material	Manganese Bronze
Valve Guide O.D.	0.500" (.560" at base)
Rocker Stud Thread Size	7/16"x14
Valve Cover Mounting	Perimeter
Valve Angle	23 Degree
Valve Seat Machining	Intake=4-Angle Exhaust=3-Angle
Oiling	Through Pushrod

**Suggested Components**

<b>Size</b>	<b>Brand</b>	
Intake Valves	2.10" x 5.00" x 8mm	Manley 12312-8
Exhaust Valves	1.60" x 5.03" x 8mm	Manley 12303-8 or PW 360047
Valve Seals	8mm x .500" Viton	PW 360487
Head Gaskets		Fel-Pro 1003
Intake Gasket		Fel-Pro 1207
Exhaust Gasket		Fel-Pro 1405
Head Bolts		ARP 134-3601/134-3701
Head Studs		ARP 134-4001/234-4301
Pushrod Guide Plates	5/16" Flat Adjustable	Comp Cams 4835-8
Spark Plugs		Autolite 3922 or equivalent



# Cylinder Head Checklist

All PWHEADS “bare” cylinder heads are sold ready for assembly.

What this means is the heads are ready for the assembly process, but still MUST be checked per the following list below. This includes a visual inspection. Check all cylinders and measurements as you normally would for any engine assembly.

**It is the responsibility of the assembly technician/installer to:**

- 1) Check valves for proper seating. Lap them and check surfaces.
- 2) Check guide to valve stem clearance. Clearance as required.
- 3) Check valve guide O.D. and ensure you have the correct seals.
- 4) Check valve springs for coil bind height and ensure they are correct for your camshaft.
- 5) Check for correct installed height on valve springs. Do this with inserts installed. Shim as necessary.
- 6) Check for retainer to top of guide clearance. Do this with inserts installed.
- 7) Use a non-hardening sealer on the rocker arm studs for applications where the threads run into a port such as the Small Block Chevrolet intake.
- 8) After setting the guideplates in place, torque the rocker studs down to 45 lb-ft in three stages.
- 9) Install sensors or pipe plugs in any open external water jacket holes if applicable.
- 10) Don't forget to check for proper pushrod length after heads are installed.

Any questions, please contact your engine builder or e-mail [sales@performance-world.com](mailto:sales@performance-world.com)