

MAKE MORE POWER!

CNC Ported Cylinder Heads... ...Horsepower and Torque for Less.

S&S® now offers a CNC porting service for stock cylinder heads for 1999-up Harley-Davidson® big twin engines. This is an economical way to get a substantial horsepower increase while maintaining a stock appearance. S&S has developed high flowing intake port, exhaust port, and combustion chamber shapes for stock cylinder heads. S&S then digitally reproduces them in a stock head casting with our 5 axis CNC machining centers. After CNC porting, heads are assembled with new one-piece, forged racing grade stainless steel alloy, valves, valve guides and high performance, conical single coil valve springs.

Fitment

- Available for 1999-up big twin engines
- Ideal for 88" - 124" engines
(must use Screamin' Eagle® high flow injectors, HD #27796-08, with our kits over 106")

Features and Benefits

- CNC machined ports for a consistent performance increase from stock heads
- Great throttle response, high velocity port without losing low RPM torque
- Assembled with performance valves and springs
 - Choice of .585" or .650" lift valve springs
- Combustion chambers are available in the following volumes:
 - 83cc – generally used for stock 88" up to 106" engine displacements
 - 85cc – same as stock Twin Cam 88® and 96™ engine displacements
 - 89cc – recommended for up to 117" engine displacements
 - 90cc – generally used for 124" and up engine displacements
- Available in factory black or silver

Service Options

Exchange Service

- CNC ported heads are available for immediate delivery, core charge of \$450 per set must be paid
- Stock heads sent to S&S
- Core charge credited if customer's returned heads pass inspection (see notes)
- No turn-around delay

Rework Service

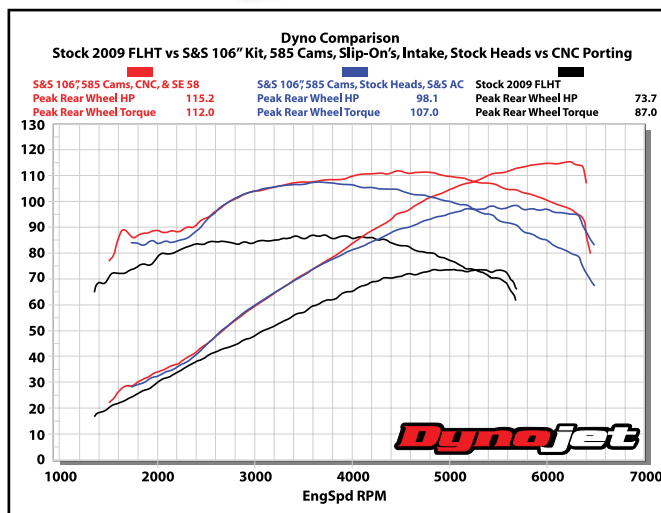
- Stock heads sent to S&S
- Get the same set of heads back with CNC machined ports
- Best option for heads with a special cosmetic treatment
- Allow 2 week turn-around

Custom CNC Port Duplication

- S&S can digitize your port design and machine it in your heads, ask an S&S customer service representative for details



CNC Porting Service



The CNC Difference

The dyno chart compares a stock 2009 FLHT (black curves) with the same bike after an S&S 106" kit, 585 cams and S&S slip on mufflers, and an S&S teardrop AC were installed (blue curves). The top (red curves) show the same engine after the heads were CNC ported and a 58mm throttle body was installed. Both 106" engines perform much better than stock, and are pretty comparable to each other until about 3500 rpm. At that point the engine with CNC heads continues to increase in torque and horsepower because it can still get enough air.

S&S CNC PORTING SERVICE

rework or with exchange MSRP \$950.00
without exchange MSRP \$1,400.00

106-5880



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THE CNC DIFFERENCE

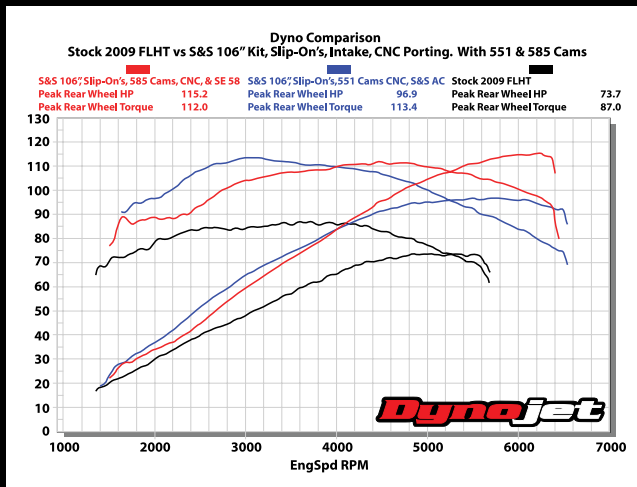
Proven Performance[®]



This photo shows the S&S CNC machined intake port before the valve guide is installed. Notice the raised vane ahead of the valve guide hole. The purpose of this vane is to split the air stream ahead of the valve guide to reduce turbulence and increase flow.



Digitized port shapes are faithfully reproduced in any stock Harley-Davidson[®] cylinder head on our 5-Axis CNC machining center. Intake port, exhaust port and combustion chamber are all modified. This head will be assembled with new forged stainless steel valves and high lift valve springs to complete the package.



Choose The Right Cam For You.

This dyno chart compares a stock 96" 2009 FLHT with the same bike with an S&S 106" kit, CNC ported heads, S&S slip-on mufflers, and performance intake. The blue curves represent the 106 with S&S 551 touring cams, the stock 50mm throttle body, and S&S teardrop air cleaner. Great torque for touring applications. The red curves show the S&S 585 cams with a 58mm throttle body. This combination produces slightly less low and midrange torque, but significantly increases usable rpm and top end horsepower. A good choice for lighter bikes and racing applications. Both engines were tuned with Harley-Davidson[®] Race Tuner.

		STOCK HARLEY-DAVIDSON [®]	CNC PORTED BY S&S [®]
Valve Size	Intake	1.805"	1.900"
	Exhaust	1.575"	1.610"
Max Valve Lift		.585"	.650"
Max TDC Lift	Intake	–	.230"
	Exhaust	–	.215"
Port Flow	Intake	216.2 cfm	248.6 cfm
	Exhaust	191.8 cfm	209.7 cfm
Compression Ratio	88"	9.0:1	9.2:1
	95"	9.2:1	9.4:1
	96"	9.2:1	9.4:1
	97"	9.1	9.3
	103"	10.1:1	10.3
	106" Big Bore	10.0:1	10.2
	106" Stroker	10.1:1	10.3
124" Dished Piston	10.7	10.9	
Chamber Volume		85cc	83cc*

Flow testing performed on a SuperFlow[®] 1020 flow bench at 28" of water test pressure at .600" lift. Heads tested are 2006-up style.

* As a general rule of thumb, for every 1cc change in chamber volume equals a .1 increase in compression ratio.

NOTES:

- Only cylinder heads that are in good condition and have "like new" appearance, may be exchanged. Heads with compression release machining, superficial damage, peeling or discolored paint, or other cosmetic alterations are not acceptable for exchange, but may be reworked. Rework will take slightly longer than exchange service. Customer will be contacted to review options if heads do not pass inspection.
- CNC porting is not available for previously ported heads, heads that have been structurally damaged, or heads that are determined to be unserviceable during initial inspection. These heads will be returned to the customer without modification. In these cases customer will be notified and options reviewed. New, CNC ported stock heads or S&S heads are available for purchase.
- Due to variations in stock cylinder head castings, all inside surfaces of the ports may not "clean up" during machining. As a result, the inside of one or more ports may not appear to be completely machined. This does not effect performance and is not considered a defect.
- CNC porting is not currently available for Harley-Davidson[®] CVO engines or Screamin' Eagle[®] cylinder heads.

V-Twin Performance Since 1958 • *When a legend is not enough*

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