

ARCTIC CAT C-TEC2 800

WITH DUAL-STAGE INJECTION



ENGINE	
TYPE	2-stroke
DISPLACEMENT (CC)	794cc
COOLING	Liquid
CYLINDERS	2
BORE X STROKE (MM)	85 x 70 mm
LUBRICATION	Electronic injection
IGNITION	Digital controlled 3D CDI
STATOR OUTPUT	325 Watts
FUEL DELIVERY	Dual Stage Injection, two 50mm throttle bodies
EXHAUST	APV with tuned pipe, EPTS and stainless steel muffler
MINIMUM OCTANE	91

Arctic Cat C-TEC2 800 Engine with Dual-Stage Injection

The all-new Arctic Cat C-TEC2 8000 Series engine delivers a rare combination of increased power, reduced emissions, and ultra-low oil consumption and overall crispness that sets new standards for performance and rideability in the 160-hp class.

It's 85 x 70mm bore/stroke delivers 794cc of displacement, and it incorporates many of the same technologies that debuted on the successful Arctic Cat 6000 C-TEC, including Dual-Stage Injection, slotted pistons and electronic oil metering. Plus the 8000 C-TEC2 delivers all-new features like an all-new Arctic Power Valve system with 3-stage control of the auxiliary exhaust ports via side valves, along with 3-stage control of primary exhaust port; a fuel-rail damper; and combustion chambers optimized for a single sparkplug per cylinder head.

"The new C-TEC2 800 sets a new standard in overall engine performance in the category while expanding the success of our domestic engine program," said Erik Nelson, Arctic Cat Snowmobile Vice President and General Manager. "It's more powerful than the engine it replaces, with far cleaner and crisper performance, yet with the same durability that Arctic Cat riders have always enjoyed.

The C-TEC2 800 with DSI will be produced at the Arctic Cat Engine facility in St. Cloud, Minn.

Knock Sensor

An engine knock sensor detects detonation due to fuel octane, quality and/or ethanol content. Based on information from the knock sensor, the engine management system adjusts ignition timing and fuel delivery for optimum performance and combustion. If fuel quality is such that the combination of reduced engine timing and a richer fuel/air mixture can't prevent detonation, the engine goes into safe mode until fuel quality improves. For optimum performance, riders should use 91-octane non-oxygenated fuel, however the Knock Sensor system will compensate for 87-octane fuel blended with 10 percent ethanol.

Dual-Stage Injection

This industry-exclusive design injects fuel directly into the combustion chamber, on top of the piston, at lower engine loads. At higher engine loads the fuel is also injected into the crankcase area and then through the transfer ports, improving the fuel/air mixture time for added efficiency while also lubricating vital engine components.



Slotted Piston

The unique open-window/slotted piston design allows fuel/oil mix to be injected into the crankcase area and then into the transfer ports as part of the Dual-Stage Injection design. The piston also features a friction-reduction coating for optimal performance.

ARCTIC CAT C-TEC2 800 ENGINE CUTAWAY

APV with Side Valves

The Arctic Power Valve (APV) exhaust valve system features an all-new, Arctic Cat-designed side valve design that delivers control to the primary and auxiliary exhaust ports, rather than just the primary port on previous designs. The result is more responsive and crisp engine performance, especially in low- and mid-range levels. The multi-stage valve movement is controlled electronically by the engine management system and works in concert with pipe temperature, engine RPM and barometric pressure for optimized performance and efficiency in all conditions.

Laydown Architecture

Arctic Cat continues to utilize the stiffest and most robust crankshaft-capture of any engine design because of the laydown engine architecture. The laydown design directs combustion forces in a different directional plane than the horizontal plane of the crankcase halves. Finite Element Analysis produced a case that's lighter than previous engines, yet retains the same level of stiffness.

EPTS

Designed and patented by Arctic Cat, the Exhaust Pipe Temperature Sensor (EPTS) system uses pipe temperature information as an input for the engine management system, helping to control fuel/air delivery, ignition timing and the APV opening stages.

Electric Oil Pump

Controlled by the engine management system, an electric oil pump delivers precision oil injection based on engine demands rather than throttle position. The result is precision oil management from engine idle to full-throttle, with compensation varying from sea level to high altitude, providing exact usage in all conditions. Oil is injected into the air intake flanges and the fuel rail for full engine lubrication including the pistons. The system offers reduced throttle pull effort and requires no adjustment.

Stainless Steel Y-Pipe and Muffler

The Y-pipe and muffler on the 8000 engine are made from 400-series stainless steel for improved power and resistance to corrosion.



Fuel Injectors

Lightweight, low-pressure Dual-Stage injectors feed fuel into the combustion chambers, crankcase, and cylinder port through the cylinder wall. Integrated with EPTS and APV exhaust valves, this clean-burning design helps the C-TEC2 800 achieve cleaner emissions. The cylinder-mounted fuel injectors are supplied with 4-bar fuel pressure and are controlled by the fuel management system using variable injection timing and duration.

Air-Only Throttle Bodies

Two 50-mm new-generation throttle bodies flow air into the crankcase. In addition to flowing only air (and not fuel), these throttle bodies are shorter, lighter and larger in bore than the 46mm bodies used with previous engines.

Optimized Oil Injection

For maximum bearing life, a small amount of oil is delivered to the fuel rail and mixed with the fuel prior to injection. When the fuel is injected and travels through the piston skirt slot, the piston pin bearing receives added lubrication to ensure optimal bearing life even in the most extreme situations.

Fuel Rail Damper

New on the C-TEC2 800, the fuel rail damper stabilizes the fuel pressure along – absorbing impulses along the rail – for more consistent calibration and performance of the two fuel injectors.

Automatic Decompression

The engine management system includes a reduced compression program for easier starting. The program is initiated when the engine is shut off, by automatically lifting the APV exhaust valves, which reduces engine compression. Once the engine is started, the valves sweep through the closed-to-open range before dropping down to their lowered position. The system is an improvement upon decompression holes in the cylinders, which reduce total performance. The new system eases both manual and electric starting.

W-Shaped Reed

W-shaped reed cages with 4-petal reeds optimize air flow into the engine for maximum performance and much improved durability.

Sealed Center Gear

The center water pump drive shaft and drive gear is sealed in an oil bath for optimal lubrication, reducing oil consumption.