



LiquidPiston Unveils Power-Dense, 70 Cubic Centimeter, Gasoline Powered “X Mini” Engine Prototype

The near-zero vibration, quiet, four-stroke engine could significantly improve a variety of applications, ranging from lawn & garden equipment to small generators to mopeds & UAVs.

BLOOMFIELD, CT (November 19, 2014) - [LiquidPiston, Inc.](#), a leader in advanced combustion engine technology, today unveiled the [X Mini](#), a power-dense, low-vibration, quiet, 70 cubic centimeter gasoline powered rotary four-stroke engine prototype. The compact engine has only two primary moving parts, a 4-pound core, and fits in a 6.6” x 6.2” x 5.4” box. In prototype testing, the spark-ignited X Mini engine has shown high power density, producing 3.5 horsepower (indicated at 10,000 RPM). When mature, the engine is expected to weigh 3 pounds, produce over 5 horsepower at up to 15,000 RPM, and be over 30 percent smaller and lighter than comparable four-stroke piston engines.

The X Mini will enable many small engine applications to be smaller, lighter, and quieter, including handheld power equipment, lawn and garden equipment, portable generators, mopeds, unmanned aerial vehicles, robotics, range extenders for electric vehicles, and auxiliary power units for boats, aviation and other vehicles. The engine’s improved noise, vibration and harshness (NVH) characteristics will also increase product performance, enhance operator comfort and prolong application life.

[Dr. Alexander Shkolnik](#), President and Co-Founder of LiquidPiston, said: “We are currently in discussions with interested industry partners looking to enhance their existing product lines. The X Mini is an incredible breakthrough, and we expect to further optimize the engine for increased power (greater than 5 horsepower) and efficiency, and even lower operational noise.”

[SM Shahed](#), a LiquidPiston advisor, past President of SAE International, and former VP, Advanced Technology at Honeywell, added: “The high power density and smooth vibration signature of the X Mini together with its simplicity (fewer parts) make it an ideal candidate for its intended markets. Further developments are likely to greatly expand its range of applications.”

In addition to improving existing engine applications, the X Mini may enable entirely new applications not possible with current engine technology. In early 2015, LiquidPiston will host an open call for ideas regarding these new applications. The company will award a cash prize for the most innovative submission. [Click here for more information.](#)

The X Mini is based on LiquidPiston’s patented thermodynamic cycle and engine architecture and has demonstrated the ability to run steady state with air-cooling. In the past, the company has demonstrated compact, low-vibration, high-efficiency 70 horsepower and [40 horsepower compression ignition diesel engines](#). The gasoline-powered X Mini is proof that LiquidPiston’s innovative engine technology can scale down in size and can be configured for spark-ignited operation to support both gasoline and diesel applications.

LiquidPiston will present the X Mini at the [SAE International/JSAE 2014 Small Engine Technology Conference](#) on November 19 in Pisa, Italy. The paper “[Development of a Small Rotary SI/CI Combustion Engine](#)” is available [here](#). [Click here to download photos of the X Mini.](#)

About LiquidPiston

LiquidPiston, Inc. develops compact, quiet, high-efficiency, low-vibration, multi-fuel capable combustion engines that are scalable from 1 horsepower to over 1000 horsepower. The company's patented High Efficiency Hybrid Cycle (HEHC), an improved thermodynamic cycle, and engine architecture enable LiquidPiston to create engines optimized for fuel efficiency. LiquidPiston's engines have only two primary moving parts - a shaft and rotor, resulting in compact size and low-vibration operation. Although they are rotary engines, LiquidPiston's engines are not Wankel engines; they are uniquely configured to adopt the company's patented thermodynamic cycle and its associated efficiency and low-noise benefits. To learn more, visit www.liquidpiston.com.

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