

## **Chrysler Group LLC Introduces Fiat's 1.4-liter, In-line 4-cylinder, Fully Integrated Robotized Engine with MultiAir Technology to Powertrain Lineup**

December 16, 2009, Auburn Hills, Mich. - Chrysler Group LLC will debut Fiat's 1.4-liter, in-line four-cylinder Fully Integrated Robotized Engine (FIRE) featuring MultiAir in the Fiat 500 starting in 2010. The engine, well-suited for a small car application, delivers 100 horsepower (75 kW) at 6,750 rpm and 95 lb.-ft. (129 N•m) of torque at 4,250 rpm. A turbo version also will be available in future applications. The 1.4-liter FIRE features Fiat's MultiAir technology, which significantly reduces emissions while improving fuel economy and power delivery.

The 1.4-liter FIRE features four valves per cylinder and incorporates state-of-the-art technology for Fully Variable Valve Actuation (FVVA), also known as MultiAir. MultiAir is a sophisticated technology that delivers an increase in power up to 10 percent and a reduction in fuel consumption and emissions up to 10 percent when compared to similar engines. A turbo version of the engine is also planned and will produce a fuel economy improvement up to 25 percent when compared to a V-6 engine with equivalent power.

The MultiAir system consists of electro-hydraulic variable valve actuators filled with conventional oil, which is interposed between the camshaft and each valve. A solenoid valve is energized every 360-degree camshaft rotation, regulating the quantity of oil addressed to the actuator or to a reservoir. The lift of the valve is a function of the quantity of oil addressed to the actuator, ranging from full lift to complete valve closure. Each solenoid valve may also delay application of the actuator in advance, leading to late valve opening or early valve closing.

MultiAir is exclusive for Chrysler Group in North America and is based on a series of Fiat Powertrain patents related to hardware, combustion strategies and controls that allow for full control of the lift and timing of engine valves.

In the early 1970s, robotics in assembly plants was not common. The term "FIRE" came into existence when Fiat integrated the use of robotics in the production process of manufacturing plants. Although mechanized assembly is commonplace today, the brand name FIRE has remained with Fiat's powertrain lineup.

The 1.4-liter FIRE with MultiAir is the world's first mass production engine to incorporate such technology to control the intake valves. Dedicated components have been developed to accommodate four "bricks" (one for each cylinder), which package relevant components. MultiAir technology can be adapted to different types of engines, including Diesels for enhanced NOx control, and is planned for Chrysler Powertrain's four-cylinder World Gas Engine and all-new Pentastar V-6.

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