



## **MANN+HUMMEL Develops New Turbo-Driven Secondary Air Charger**

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PORTAGE, MI ([PRWEB](#)) August 13, 2004 -- MANN+HUMMEL, an original equipment supplier to the international automotive industry, has developed a new mechanical turbo-driven secondary air charger that reduces cold-start emissions by injecting fresh air into the exhaust system.

Unlike electrically driven secondary air pumps, the new air charger works as a turbocharger. Driven by the pressure differences on the throttle valve, it requires no electrical energy. The unit takes up less than one third of the space of an electric secondary air pump and weighs about 11 ounces (300 g).

“For many years, secondary air injection has proved effective in reducing cold-start emissions in gasoline engines,” explains Claude Mathieu, president of MANN+HUMMEL USA. “During the first 30 to 60 seconds of a cold start, fresh air is injected into the exhaust system close to the exhaust valves. As unburned hydrocarbons and carbon monoxide ignite, these uncombusted components of the exhaust air are reduced. This also helps to more quickly heat up the catalytic converter system to the proper conversion temperature.”

Measurements on test rigs and vehicles have shown that a secondary air charger, when used as a turbocharger, provides a higher flow rate than an electric pump, particularly at higher counter-pressures. The key components of the secondary air charger are its thermoplastic impellers. The durable turbine-driven secondary air charger uses a roller bearing with life-time lubrication that can operate at 140,000 rpm, with proven component strength.

Engineers at MANN+HUMMEL verified the operational reliability of the secondary air charger through periodic operation and under vibration loads. In endurance tests, the charger speed and pressure behind the compressor remained practically unchanged. During vibration tests, the secondary air charger withstood temperature cycles of -20 to 120°C without loss of performance. Testing also showed that acoustic characteristics were comparable with those of the electrical secondary air pump.

With its compact design, the secondary air charger can be easily integrated into the intake system, for example into the air filter housing, the engine intake manifold or the clean air line. This reduces some of the pipe work and eliminates the need for brackets, and requires only a small amount of extra space.

The MANN+HUMMEL Group is an international company. In 2003, the company achieved sales of approximately \$1.3 billion. The MANN+HUMMEL Group currently employs around 9,000 people at 41 locations worldwide. The company develops, produces and sells technically complex automotive components such as air filter systems, intake manifold systems, liquid filter systems and cabin filters for the automotive industry, and filter elements for vehicle servicing and repair. For general engineering, process engineering and industrial manufacturing sectors the company’s product range includes industrial filters, filter systems and materials handling systems and equipment. MANN+HUMMEL’s customers come from a large number of sectors, with series production for the automotive industry occupying a key position. Further information about



MANN+HUMMEL can be found under <http://www.mann-hummel.com>.

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