

**- French Expertise in Diesel Technologies at SAE Commercial Vehicle Show this October (9/19/2007)**

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Diesel France logo

pavilion, organized by the French Economic Mission, will be a one-stop-shop for learning about the latest in diesel technologies for commercial vehicles. With the one of the largest diesel-engine productions in the world and more than 70% of passenger vehicles sold in the country being diesel-powered, a large market devoted to research and development of diesel technologies exists. The diesel experience and expertise fine-tuned for passenger engines is shared with commercial vehicle powertrain platforms as well. The 13 companies comprising the Diesel France pavilion will present a variety of technologies used on a diesel-powered vehicle, from engine parts to test benches, and from fluid transfer systems to exhaust treatment.



Autofrettage machine, Aquarese

Chicago, September 19, 2007 (word count:1,996)

**For the first time, French companies specializing in diesel technologies will be exhibiting at a collective booth at the SAE Commercial Vehicle Engineering Congress & Exhibition in Rosemont, Ill. From Oct. 30 to Nov. 1 at booth 706, the Diesel France**

**Aquarese**

Aquarese has developed high-pressure processes for diesel injection systems (common rails, tubes, and injectors). Its design department integrates those processes in automated lines including machines for deburring, flushing, cleaning, and the “autofrettage” technique. The autofrettage technique significantly increases the fatigue behavior of hollow mechanical parts. It is used on thick-walled metal tubes or pipes such as common rails, pipes, and injectors for diesel-injection systems, to improve the durability of the part by

creating a compressive residual stress at the bore. For a few seconds, the part is subjected to a pressure 43,000 to 116,000 psi (3,000 to 8,000 bars) generating a plastic distortion of the inside wall, which is similar to preloading strain-hardening. The result is that after the pressure is

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removed, the elastic recovery of the outer wall puts the inner wall into compression, providing a residual compressive stress.

## **CTI**

Céramiques Techniques et Industrielles (CTI) has developed a high-quality patented Monolith Diesel Particulate Filter (DPF) in silicon carbide able to reduce the particulate matter emission from diesel exhaust and to meet the upcoming Euro 5 standard for heavy-duty vehicles and passenger cars. The flexibility in the manufacturing process allows high-performance filters available with a large range of porosity and pore-size distributions that the company is able to offer at a lower cost than that of its competitors. CTI's DPF can be easily packed into different exhaust system designs, such as a single filter for light-duty vehicles or multiple filters for medium- and heavy-duty vehicles such as long-bed trucks, urban buses, and delivery or waste vehicles. Thousands of diesel engines in buses and small trucks have been using the CTI DPF for the last three years. The company produces nearly 9,000 cubic feet of DPF each year.



*Particulate filter, CTI*



*Actuator, Electricfil*

## **Electricfil**

Electricfil Automotive specializes in sensors and actuators for diesel engine control systems. The company develops and supplies more than five million electromagnetic actuators every year for the new generation of common rail

diesel injectors. To boost injector performance, Electricfil actuators optimize combustion in direct-injection engines by accurately controlling the quantity, flow rate, and timing of the injected fuel. They use robust, reliable, and efficient electromagnetic technology to provide a competitive solution with performance comparable to existing piezo technologies, but at a lower cost. The company also produces camshaft speed sensors for quick engine startup and crankshaft speed sensors for very accurate diesel-injection timing. More than 120 million Electricfil engine speed sensors are in use worldwide.

## **Famer**

Famer Industrie specializes in the production of small and medium series of large, complex machined engine components and gears for the leading manufacturers of off-highway vehicles and trucks. Its two facilities located in central France are equipped with the latest technologies in NC machining centers, flexible machining systems, and gear cutting

and finishing. Famer designs and produces its tooling equipment. Part production ranges from cylinder heads, flywheel and timing housings, transmission casings, as well as gears, crowns, and shafts for customers such as Allison Transmissions, Caterpillar, Dana, Renault Trucks, and Volvo to name a few.



*Transmission case for school bus, Famer*



**STRETCHYBELT®**, Hutchinson Belt Drive Systems

### Hutchinson Belt Drive System

Hutchinson Belt

Drives Systems is a full-service supplier of engine accessory drive components including belts,

decoupling pulleys, and tensioners for heavy duty vehicles and equipment. The rubber alternator decoupling pulley filters engine vibrations and reduces the effects of alternator inertia, extending the life of belts, tensioners, and engine accessories. The company's low modulus belt, the "STRETCHYBELT®," is a unique self-tensioned POLY V® belt. It generates substantial cost savings by eliminating tensioning systems, while remaining maintenance-free. The product offering is complemented by a range of linear tensioners. They deliver constant belt tension with asymmetric hydraulic damping for very high shock absorption in severe applications.

### Hutchinson FTS

The Hutchinson group's Fluid Transfer Systems business studies, designs, and manufactures liquid- or fuel-transfer systems for motor vehicles, featuring several multi-material hose-assembly solutions



*Air duct hose assembly, Hutchinson FTS*

dedicated to diesel engines such as air, cooling, and fuel systems and common rail return lines. It also produces diesel particulate filters (DPF). It specializes in working with various materials such as elastomers, plastomers, and metals, and has developed a range of quick connectors for each of its fluid-transfer systems. Its line of "Autoclip" connectors work for all hose systems for quick and easy assembly.



*Facility in Lyon, France, IFP*

### IFP

As an international research and training center, IFP is developing the transport energies of the 21<sup>st</sup> century. The Powertrain Engineering business unit develops technologies to cut the emissions and energy consumption of automobiles, commercial vehicles, and trucks. IFP is highly involved in

advanced diesel technologies, including: pollutant emissions reduction at the combustion chamber outlet for light and heavy-duty applications: development, in collaboration with a European truck and engine manufacturer, of an HCCI combustion chamber able to reduce the NOx emissions by more than 90%; diesel exhaust emissions aftertreatment: validation of a low cost DPF for a Tier 2 supplier, development of SCR and 4-way catalysts strategies; diesel fuel consumption reduction: collaborative research on strong downsized concepts and very high-injection pressures (36,000 psi or 2,500 bars) with major OEMs; and improvement of low compression ratio diesel engine cold start (-22 °F or -30 °C): development of specific understanding of tools and dedicated engine management solutions.

### **MMT (Moving Magnet Technologies)**

Moving Magnet Technologies (MMT) is an applied R&D company specialized in the development of magnetic circuits for Hall-effect position sensors, electric motors (BLDC, stepper) and direct-drive actuators (rotary or linear). The company's expertise in electromagnetism is shown by a team of experts that can develop custom solutions protected by intellectual property, currently owning more than 200 international patents for its innovative technologies. MMT grants its customers the rights to produce through patent and know-how license agreements. One example of the company's expertise is its development of brushless DC rotary actuators that have been designed to provide an efficient, contactless, rotary motion on a limited stroke. A large variety of designs is available, based on the use of ring-, disc-, or even tile-shaped permanent magnets.



*Brushless DC rotary actuator, MMT*



*3.5 L V6 automobile engine, MMT MoteurTest*

### **MTT MoteurTest**

MTT MoteurTest is a test bench facility, home to more than ten separate benches for heavy engines. Attuned with changing manufacturer requirements and increasingly stringent emissions regulations, the MTT facility is equipped with benches specifically designed for endurance tests and technical studies on

engines, endurance tests for precise parts, and can accommodate fuel consumption and combustion analysis tests for both diesel and gasoline engines.

### **Silfax**

Machine manufacturer Silfax introduces its fully electric CNC tube-bender, the SE 9127, designed specifically for large-diameter tubes

and pipes. The bender works on nine electrical axes and is capable of bending pipes up to 127 mm in diameter. The SE 9127 is accurate in linear positioning to 0.05 mm and 0.05 degrees during bending. The robust design is especially useful in bending difficult materials on tight bend radii and demanding part geometries such as those in truck exhaust systems. This machine is the first of its type to offer an automated tool changeover system that can reduce overall tooling cost and minimize setup and change over time. It is easily programmed using the industry standard XYZ, LRA, and YBC formats utilizing the available S-tube interface. The SE 9127 is controlled by industry-proven Siemens 840C software to allow total flexibility in programming the most demanding tube- and pipe-bending applications.



*SE 9127 tube-bender, Silfax*



*Oil and fuel filters, SOGEFI*

### **SOGEFI Filter Division**

Combining its famous chevron "zig-zag" pleating technology with innovative multi-layered, glass-free, and high-efficiency filter materials, the SOGEFI Filter Division develops and produces compact and efficient long-life diesel fuel filters for vehicle manufacturers and producers of high-pressure common rail fuel-injection system. These filters are designed according to strict demands and can

include functions such as fuel-heating, temperature, plugging, and water sensors, pressure-regulation valves, priming pump, and even a fuel line low-pressure pump. To integrate all these functions into compact and price-competitive products, SOGEFI uses plastic-injection-molded housings and components, but can also produce metallic filters if specific crash-resistance is required. SOGEFI is able to supply diesel fuel filters fully compatible with bio-diesel and ULSD fuel blends available in the European and U.S. markets. The company has also developed a new filtration design to reach more than 95% water separation efficiency even with emulsified water in low IFT biodiesel fuels. The company is also active in the field of soot and blow-by-gas filtration.

### **Total Lubricants**

Total Lubricants provides a full range of automotive fluids for all industrial fields. The line of Rubia motor oils are designed to meet the requirements of 2007 engines equipped with after-treatment systems, such as low-sulfur, low-emission diesel engines. They are adapted to heavy-duty

vehicles such as trucks, off-highway diesel equipment, farm tractors, or light trucks with turbo- or non-turbo-charged diesel engines. Its high-performance makes it suitable to use in diesel engines for entire fleets and insures safer and longer drain intervals. Rubia oils show a significant increase in wear protection, piston deposit control, and oil consumption compared to API CI-4 oils. They also have exceptional anti-wear and anti-corrosion properties and outstanding soot-handling and oxidation controls. These oils can provide up to 40% life increase in post particulate filters.



*Rubia 15W40 motor oil, Total Lubricants*



*Frictionless braking system, Valeo/Telma*

### **Valeo Telma Electrical Systems**

The Valeo/Telma, or VSC (Valeo Speed Controller), division designs and manufactures frictionless braking systems using electromagnetic technology that eliminates the drawbacks of auxiliary braking systems. Available as a new-vehicle mount or an aftermarket retrofit, these systems operate independently of engine and transmission, reducing wear and tear, and provide the highest commercially available levels of braking horsepower without putting

loads on the engine, which is essential for current and future requirements when considering the new Environment Protection Agency emissions regulations. The brake systems also decrease stopping distances by nearly 30%, which help to meet current and future Federal Motor Vehicle Safety Standards braking requirements. Additionally, because the Telma system activates electronically within 120 milliseconds and prior to the vehicle's friction brakes, the friction brakes stay cooler and life of the brake lining is extended exponentially. Telma has a wide range of applications designed for small and large commercial vehicles including buses, emergency vehicles, freight trucks, and waste vehicles.

For more information, please contact:

### **FRENCH ECONOMIC MISSION IN CHICAGO**

Georges Ucko  
 Automotive Specialist  
 Deputy Trade Commissioner  
 205 North Michigan Avenue, Suite 3730  
 Chicago, IL 60601  
 Tel: (312) 327-5247  
 E-mail: [georges.ucko@missioneco.org](mailto:georges.ucko@missioneco.org)