

Poing, August 2006

Which automobile manufacturer or system supplier doesn't want that?

Reliability and competence in the field of development and production of individual components, modules and system solutions from one supplier – and that from 3 business fields:

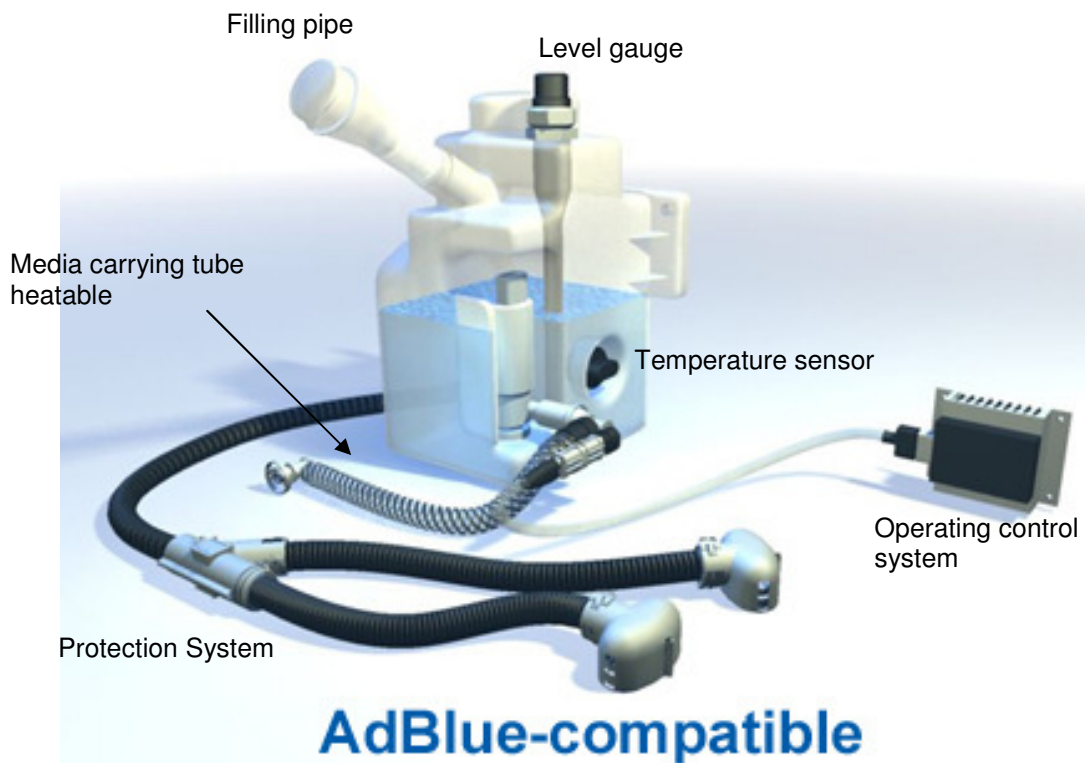
**Protection Systems**

**Air & Fluid Systems and**

**Mechatronic Systems**

This integrative range of services makes the Schlemmer GmbH worldwide unique. The manufacturer once again sets standards for innovative system solutions with the development of "intelligent systems".

Schlemmer shall present how the 3 business fields can interlock perfectly with complex innovative system solutions at this years IZB in Wolfsburg by showing the example of an "intelligent fluid system" (AdBlue compatible).



## **Filling tubes and pipes**

Filling tubes, especially for wiper water applications are mostly manufactured by blow moulding. Vital disadvantage for blow moulding are the high cost of tools and the discontinuing process. The extrusion process manufactures the filling tubes produced by Schlemmer. The necessary equipment (chain sets) compared to customary blow moulding provides a significant cost advantage. Extrusion, furthermore is a continuous process i.e. production takes place as an endless chain that is cut in-line by a cutting module.

It is extremely effective and cost-efficient to consider the extrusion process already during the conceptual phase. For this purpose Schlemmer provides the complete know-how, beginning at the conceptual phase thru 3-D designing and sampling up to drawing and first sampling according to OEM specifications.

Due to the limited space in the engine compartment of modern vehicles, also the geometric forms of filling tubes keeps getting more complicated. Thermoforming allows the exact adaptation of the extruded filling tube to the particular spacing of the engine compartment.

Furthermore adjustable and flexible filling tubes by the so-called accordion or concertina principle are also possible.

Accessories, i.e. seals, fastening parts or caps made in Schlemmer's own injection moulding production allow customer specific assemblies.

Final pressure and seal proof tests are a matter of course.

## **World novelty: Quick lock system for corrugated tubes**

The market for wiper water connection lines has directed itself to quick coupling systems. Customary available quick coupling systems although necessitate that the contact and seal of the coupling be the smooth end of a corrugated tube. The disadvantage is, only tube pieces that fit a particular vehicle can be installed. Various tools are generally necessary for the different length of tubes. That means additional expenses for stockholding and logistics as well as numerous article codes. So therefore short-termed and above all cost-neutral modifications of tube pieces is impossible.

A further irritating disadvantage is the complex assembly of the quick coupling. In order to guarantee the seal proof system, cold pressing must join the tube and coupling. Machine apparatus can only accomplish this within a safe line of process.

## **Schlemmer has therefore developed a world wide patented connection system that eliminates several disadvantages:**

The unique high tech solution by Schlemmer can - simply by hand - be attached directly to the profile of the corrugated tube. A bayonet lock provides a safe and secure sealing. This allows not only the processing of corrugated tubes as endless ware but also numerous possibilities of optimization and intelligent repair solutions for the automotive industry.

## **World novelty: Level gauge**

The patented level gauge measures – even in the complicated geometric form of a tank– continuously and precisely the fluid level based upon the principle of resonance measurements. The module set up allows customer specific adaptations.

## **Temperature sensor**

The Schlemmer temperature sensor continually measures the temperature of these liquids.

## **Media carrying tubes – that can also be heated**

Media carrying tubes convey wiper water, fuel, oil or air. Whatever the specification or application may be, they must, besides being waterproof also be designed for the high temperature in the engine compartments and resistant to certain chemicals.

The tube, if required can also be heated to keep liquids from freezing during low temperatures. They can be heated either by an electric heating system around the outer shield of the tube for aggressive media or by the cooling water system of the vehicle.

## **Electronic control system**

The electronic control system by Schlemmer regulates the power supply of the heating system provided by the generator or battery. It is equipped with a cooling element and is designed to be mounted to the chassis.

## **Protection Systems**

As manufacturer of reliable protection systems – same as for this heating system – Schlemmer has gained first class reputation during the last 50 years.

Our proven protection systems consisting of corrugated and smooth tubes, textile shields, manifolds, protective caps and cable ducts protect the complete on-board power supply against mechanical, thermal and chemical impacts.

## **We protect technology!**

### **Development service**

Our commitment for you. The performance requirements of the automobile manufacturers and system suppliers are processed from the development service during the conceptual phase with 3D designs, creating samples and specific test documentations up to the production and assembly of individual solutions.

## **We protect technology – Worldwide and customer oriented!**

## **Facts and figures about the Schlemmer Group**

Schlemmer is the worldwide competent and recognized manufacturer, supplier and development partner for the automotive industry in the fields of

Protection Systems (cable protection systems)

Air & Fluid Systems (media carrying systems) and

Mechatronic Systems (mechatronic & electronic).

What began 50 years ago in Bavaria has developed to a world wide distinguished enterprise. Schlemmer has a worldwide network of production plants, subsidiary companies branch offices and partnerships in 26 countries.

Schlemmer is located in Germany with its head office in Poing (near Munich) and a production plant in Haßfurt. Further production plants are located in Brazil, China, Italy, Korea, Romania, Morocco and Mexico.

### **Sales turnover**

2004: 91 Mio. EUR

2005: Approximately 100 Mio. EUR

### **Employees 2005:**

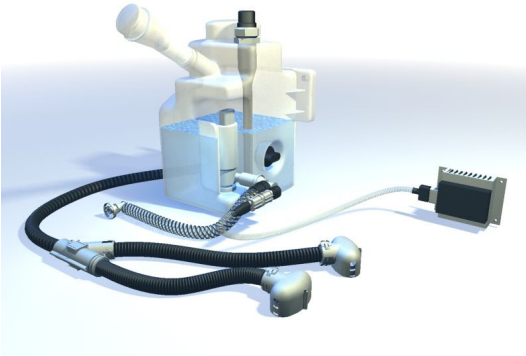
Approximately 500

# PRESS RELEASE

## Pictures for the press can be downloaded

Please refer to site: [http://www.schlemmer.com/Presse\\_Frame.html](http://www.schlemmer.com/Presse_Frame.html)

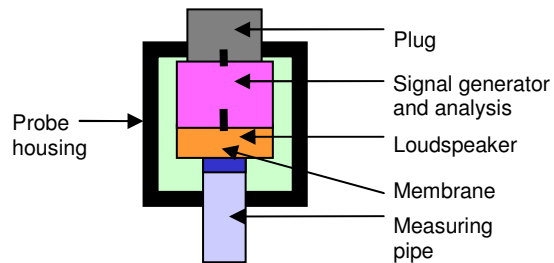
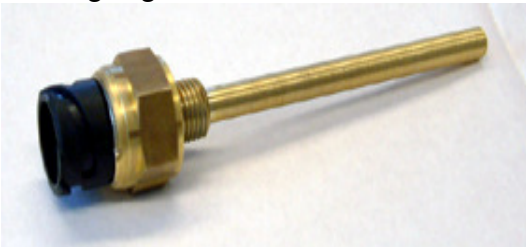
### Fluid system – A study



### Filling tubes and pipes



### Level gauge



### Quick lock system for corrugated tubes

