

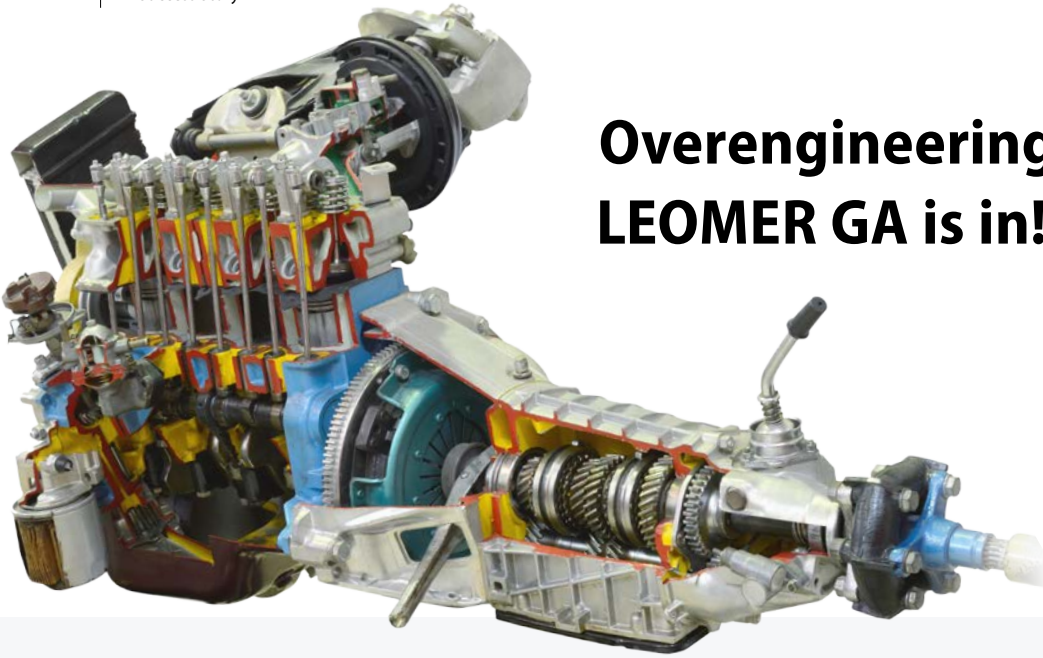
# Success Story

Overengineering is out – LEOMER GA is in!



**The Quality Connection**

**LEONI**



## Overengineering is out – LEOMER GA is in!

### The customers

An innovate company that operates globally, whose activity is focussed on the development of customised cable harness and connector solutions. The second project partner is one of the leading suppliers of automotive brake, chassis as well as safety systems and system solutions for powertrains and engine management.

Together with LEONI, three expert partners have joined in a project for Europe's largest carmaker.

### The application

The stipulated special cable is to be deployed in a transmission cable harness along the engine block. The latter encapsulates the valve gear, control system, ignition and fuel injection so that the pistons within the cylinders of the block can move up and down. Two factors are very important in this respect: oil to lubricate the pistons because the movement generates a lot of friction and water for cooling because of the increased temperatures caused by the frictional forces and the combustion within the engine compartment. Via the driveline, this energy is ultimately transferred to the wheels and sets the vehicle in motion.

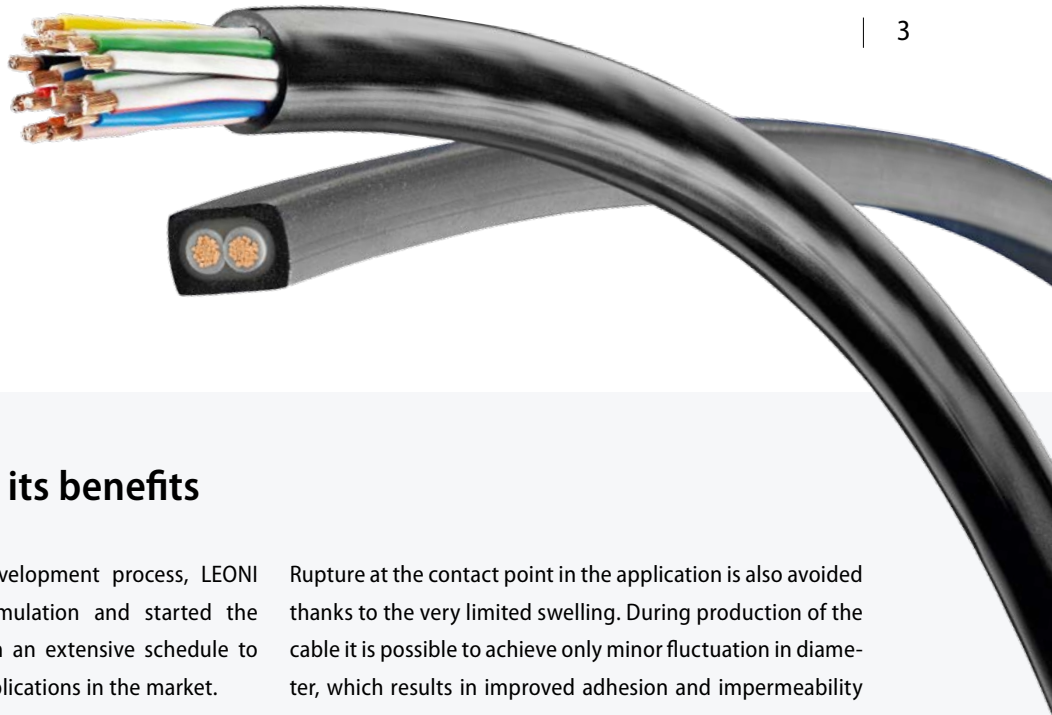
### The requirements & trials

More than just standard! Given the position within the transmission, the challenge consists of the cable having to withstand permanent immersion in oil and fluid as well as exposure to very high temperatures.

LEONI already had ideas on ways to meet this requirement and these were thereupon put into practice. The Company's materials development department tested materials for improved chemical resistance and launched trials with new formulations. This involved testing various polymers for their basic properties concerning resistance to mechanical strains, aggressive media and temperature.

Swelling (<10% change in the outer diameter through fluid absorption) was indentified as the principal test feature under permanent immersion in oil. The cable was immersed in the fluid at temperatures of up to 160°C for the purpose of analysis.

The test plan furthermore included ISO test methods (such as IRM 902 or 903, Dexron III...) and qualification of the transmission oils that are carried as standard by any service station (e.g. Shell Helix engine oil and BOT transmission oil).



## LEONI's solution & its benefits

At the end of the material development process, LEONI prepared a polymer-based formulation and started the product development work with an extensive schedule to validate it for a wide range of applications in the market.

This culminated in the dedicated LEOMER GA solution. This jacket insulation boasts very high resistance to aggressive media and is ideally suited for deployment around the engine block.

LEOMER GA withstands such major mechanical strains as abrasion and flex, and it also boasts long-term thermal resistance at a constant operating temperature of +150°C.

Rupture at the contact point in the application is also avoided thanks to the very limited swelling. During production of the cable it is possible to achieve only minor fluctuation in diameter, which results in improved adhesion and impermeability of the extrusion coating.

LEOMER GA can replace costly jacket materials like AEM (ethylene acrylate) and irradiation crosslinked compounds. For the customer this means that LEOMER GA makes a convincing case also in terms of cost.

## The cable

With its LEONI Adascar Sensor and LEONI Adascar Power cables that have a LEOMER GA jacket compound, LEONI offers a customised solution rather than cable off the shelf. Always with the focus on "overengineering is out, LEOMER GA is in".



[Success story](#)  
[online](#)

## LEOMER® – It's all in the mix

LEONI carries its insulation materials for cable production under the brand name of LEOMER. With more than 50 of its own formulations developed in-house, LEONI ensures the best possible fulfilment of the requirements that arise from these special applications. The in-house manufacture of these insulation materials and the close collaboration between production and materials development guarantee a consistently high standard of quality.

The 'LEOMER' name is composed of the terms 'LEONI' and 'polymer', and represents the diversity of the materials used at LEONI.



[More about](#)  
[LEOMER®](#)



Find out more:

## **Business Unit Automotive Special Cables**

[www.leoni-automotive-cables.com](http://www.leoni-automotive-cables.com)

### **LEONI Kabel GmbH**

Business Unit  
Automotive Special Cables  
Stieberstraße 5  
91154 Roth  
Germany  
Phone +49 9171 804-2378  
Fax +49 9171 804-2421  
E-mail [cable-info@leoni.com](mailto:cable-info@leoni.com)

### **Your contact person**

Markus Heipel  
*Product Manager*  
Phone +49 9171 804-2383  
Fax +49 9171 804-2421  
E-mail [markus.heipel@leoni.com](mailto:markus.heipel@leoni.com)