



# METALS PRO CLIMATE

We provide technical answers to ecological challenges.

Dr. Norbert Gaag, Division Manager Business Development



## Modern brass materials as key components in new fuel-efficient engines

Valve guides, synchronizer rings and bearings made of special brass are part and parcel of today's engines. The downsizing strategies of almost all the automobile manufacturers towards increased fuel efficiency bring standard special brasses to their limits.

Due to intensive contacts to the automobile industry, our materials research succeeded in developing new brass alloys that already fulfil all the requirements of the downsizing strategy towards reducing CO<sub>2</sub>.

The following properties of these new brass alloys should be noted in particular:

1. These special brasses have a better resistance to softening up to temperatures of 400 °C (today's materials are getting soft at about 300 °C).
2. Wear resistance, with or without lubrication, is much higher in comparison to other materials. In the case of lubricating film breakage or lubrication malfunction, good dry running properties are crucial prerequisites for a modern engine material.
3. The tooling of these materials (turning, drilling, milling, etc.) is easier than that of other substances, as they provide optimal chip breakage thanks to their microstructure – and this without the standard chip breaker, lead. Small, intermetallic compounds are responsible for short breaking chips.

These alloys already meet the future requirements of the End-of-Life-time Vehicles Regulation. The automobile industry has therefore the option to produce smaller, fuel saving engines with CO<sub>2</sub> reduced emissions by using modern brass alloys.

## Gallery



Synchronizer rings



Products

New alloys as the prerequisite for smaller, fuel-saving engines with reduced CO<sub>2</sub>-emissions.

**Potential for Savings:  
more than  
10 % CO<sub>2</sub>**

## DIEHL Metall

Company

**Address**

Diehl Metall Stiftung & Co. KG  
Heinrich-Diehl-Str. 9  
90552 Röthenbach

**Contact**

Dr. Claus Heubeck  
Manager Environment and Energy  
Tel.: +49 911 5704-405  
Fax: +49 911 5704-387  
E-Mail: [claus.heubeck@diehl.com](mailto:claus.heubeck@diehl.com)

The Initiative

Metals pro Climate is an initiative which presents and highlights the achievements and potential of the NF metals industry.

**Contact**

Melanie Dillenberg  
Tel.: +49 30 726207-102  
Fax: +49 30 726207-198  
Email: [dillenberg@metalsproclimate.com](mailto:dillenberg@metalsproclimate.com)