



LEAD-FREE.
TEMPERATURE-RESISTANT.
FATIGUE-RESISTANT.

LEAD-FREE AND CO₂-REDUCED: THE DRIVE TECHNOLOGY OF TOMORROW.

TITELTHEMA

Führende KfZ-Marken setzen auf restlos bleifreie Fahrzeuge!

Nichteisenmetalle werden vor allem im Fahrzeugbau immer wichtiger. Schon seit geraumer Zeit fahren wir bleifrei Auto. Verbleites Benzin darf seit knapp einem Jahrzehnt in Europa nicht mehr verkauft werden. Heute sorgen umweltverträglichere Ersatzstoffe für eine Verbesserung der Klopfestigkeit von Benzin, die früher durch organische Bleiverbindungen erzielt wurde.

Allerdings stimmt es nicht, dass unsere Autos völlig bleifrei fahren. Die Autobatterie beispielsweise ist weiterhin der „gute alte“

Und auch die Materialien, aus denen ein Auto gebaut wird, enthalten Blei, erläutert Helmut Antrekowitsch, Professor für Nichteisenmetalle

In den letzten Jahren wird sogar verwendet als früher, D

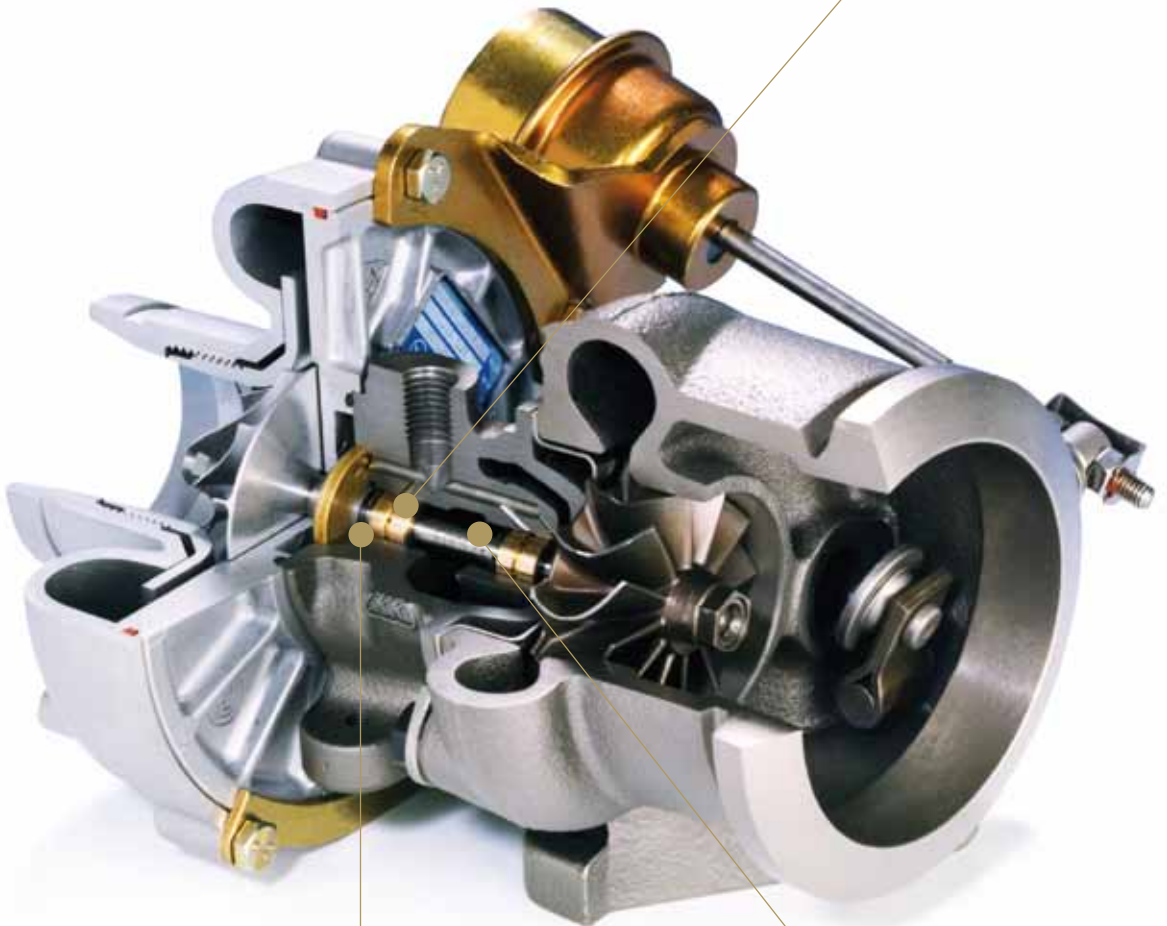
A new material. For bearings for future generations of drive systems.

Lead is no longer necessary – with ECOSLIDE® from Wieland. On the one hand, advanced machining technologies make it possible to dispense with lead as a chip breaker. On the other hand, ECOSLIDE® is not only lead-free but also offers further improvements – ready to meet the requirements of the next revision of the End-of-Life Vehicles Directive expected to become effective by 2011.

Typical applications for ECOSLIDE®

- Specific slide bearing applications
- Valve guides
- Synchroniser rings
- Turbocharger bushings

ECOSLIDE® results in lower stress relaxation of the bearings



ECOSLIDE® bearings resist higher bearing temperatures due to their higher temperature strength.

ECOSLIDE® optimises the sliding properties due to its reduced susceptibility to adhesion.

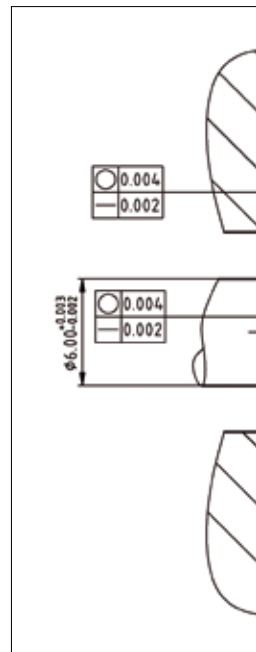
ECOSLIDE®: SPECIFIED BY FIRST-TIER SUPPLIERS.

The future of the slide bearing. For advanced drive systems.

Vehicle manufacturers define the properties required of the components. First-tier suppliers decide which materials have to be used to meet their requirements. And the requirements are clear: higher performance – which means more heat, more friction and higher stress.

Know-how and ECOSLIDE® from Wieland to meet higher temperature and pressure requirements.

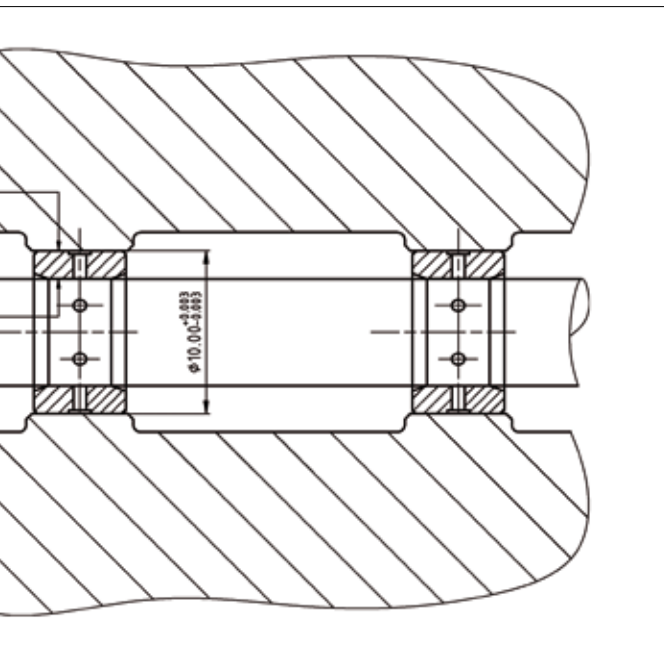
Materials have to be more efficient to meet these requirements cost-effectively. ECOSLIDE® from Wieland not only has the properties required but it is also lead-free. The new alloy is suitable for any component because it can be both hot and cold worked and exhibits good machinability. This allows greater freedom in terms of product design. ECOSLIDE® is characterised by high resistance to stress relaxation ensuring an absolutely tight and permanent press fit of the bearing in the housing. Even when exposed to aggressive gases, e.g. as generated during combustion, ECOSLIDE® remains unchanged. These outstanding properties result in longer life and extended maintenance intervals.



HOT WORKING, COLD WORKING, MACHINING, VERSATILE IN PROCESSING.

Versatile: hot and cold working as well as machining

Bearings made of lead-free material become more and more standard not only for vehicle parts. Modern machining shops meet new requirements with state-of-the-art machining technology using their expertise in processing future-oriented materials. ECOSLIDE® from Wieland is today's answer to tomorrow's lead-free bearing technology.



Assembly drawing

The properties of ECOSLIDE®

- Lead-free material
- High temperature resistance
- High resistance to stress relaxation
- Good sliding properties
- Machinability
- Suitability for forging, extruding, drawing
- Corrosion resistance
- Good straightness

ECOSLIDE®: BRASS WITH THE STRENGTH OF STEEL.

Optimum combination: ECOSLIDE® is both heat- and fatigue-resistant.

ECOSLIDE® is versatile: it can be both hot and cold worked as well as machined. This modern, lead-free alloy exhibits better processing properties than conventional materials. Drawn high-quality ECOSLIDE® rods run smoothly during machining as a result of their good straightness. Although ECOSLIDE® contains no lead it has good machining properties due to its microstructure. This ensures

higher process stability and consequently higher productivity. ECOSLIDE® is also suitable for hot forging. It exhibits very good hot forming properties at 700 °C.



Drawn ECOSLIDE® rods

Comparison of properties:

	CW713R*	ECOSLIDE®
Machinability	good	satisfactory
Cold working properties	poor	good
Hot working properties	very good	very good
Sliding properties	good	good
Thermal conductivity	good	good
Temperature resistance	poor	good
Resistance to stress relaxation	poor	good
Rod straightness	satisfactory	good
Hardness HB	170	210
Alloy value [%]	100	110

*CuZn37Mn3Al2PbSi

ECOSLIDE®: DEVELOPED FOR HIGHER TEMPERATURES.

ECOSLIDE®: developed and tested for use at high temperatures.

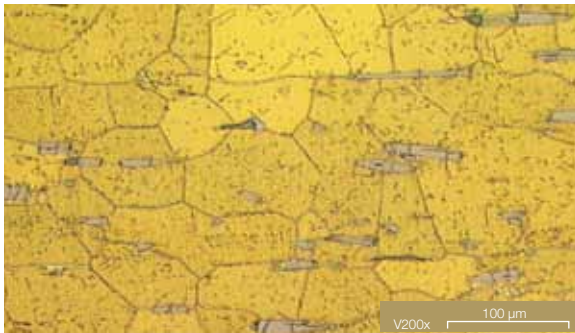
ECOSLIDE® exhibits a much higher temperature strength and resistance to stress relaxation than the standard material CW713R. As a result, it is more reliable and can be used at higher temperatures. These advantages, in combination with the complete absence of lead, make ECOSLIDE® the ideal material for bearings of the future. ECOSLIDE® bearings

have a longer life and resist higher temperatures. For more information please contact us.

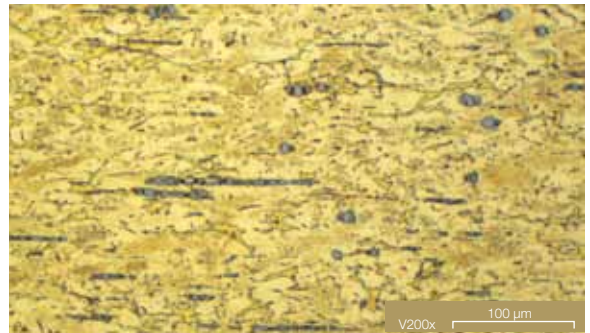
Sliding properties:

Like CW713R, ECOSLIDE® contains manganese silicides to ensure good sliding properties.

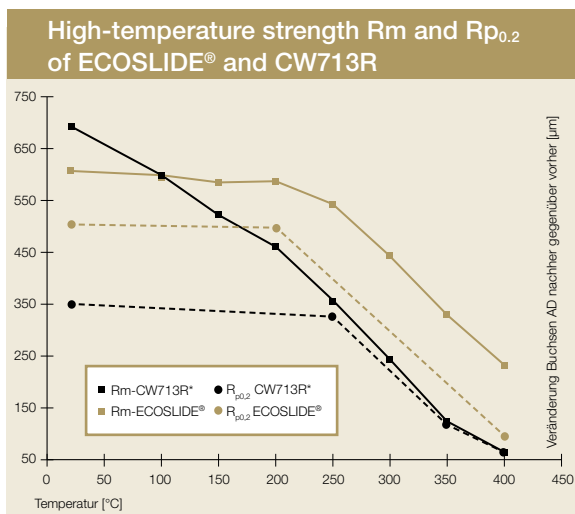
Comparatively unbeatable.



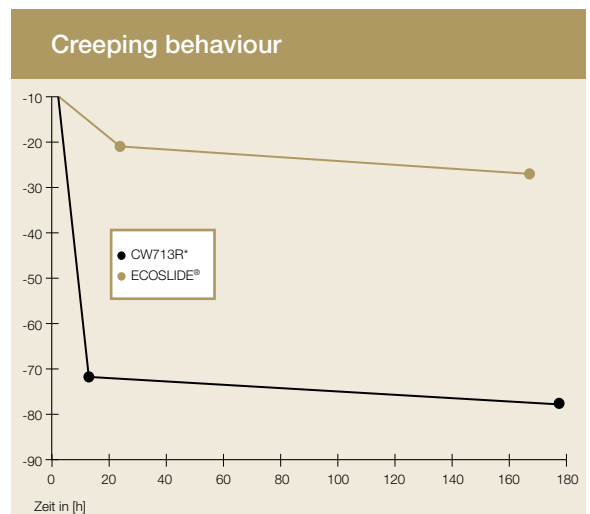
Microstructure of CW713R*



Microstructure of ECOSLIDE®



High-temperature strength of ECOSLIDE® and CW713R*



Reduction of interference of ECOSLIDE® and CW713R*

Wieland

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