



# Special Customer *information*

SCHAEFFLER GROUP  
INDUSTRIAL



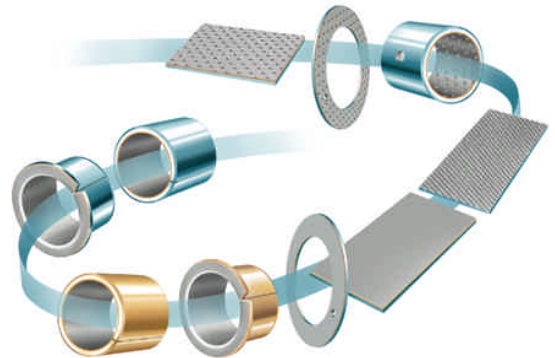
FAG

March 2010

## INA plain bearings: New metal-polymer composite bearing

Schaeffler Group Industrial has brought a new metal-polymer composite bearing onto the market under its INA brand.

It replaces the Permaglide® metal-polymer composite plain bearings in standard dimensions which have been used until now.



### The new metal-polymer composite bearings

- Are a cost-effective alternative for applications with minimum available space and a comparatively high sliding speed as well as minimum friction.
- Are available as bushes, flanged bushes, thrust washers and strips.
- Have excellent material formability, which also enables customer-specific components to be designed for different rotary, swivel and linear motions.

### Material characteristics of the bearings

- Load carrying capacity: Up to 250 N/mm<sup>2</sup> for static loads
- Can be used in media
- Suitable for relatively high sliding speeds
- Low coefficient of friction
- High moisture resistance – can also be used in water
- Maintenance-free and low-maintenance versions available
- Also available with bronze backing for increased anti-corrosion protection

## Features:

- All standard materials for the new INA plain bearings are lead-free and, therefore, environmentally friendly (In accordance with EU Directives 2000/53/EG for End of Life Vehicles and 2002/95/EG for Waste Electrical and Electronic Equipment).
- The new INA plain bearing has a new material compound which is why it can be used reliably in versatile applications.
- The new INA plain bearing is particularly effective in oscillating applications and achieves a higher rating life than existing bearing materials (see Figure 1: First benchmark tests). Previous data applies for all further characteristics and performance data.

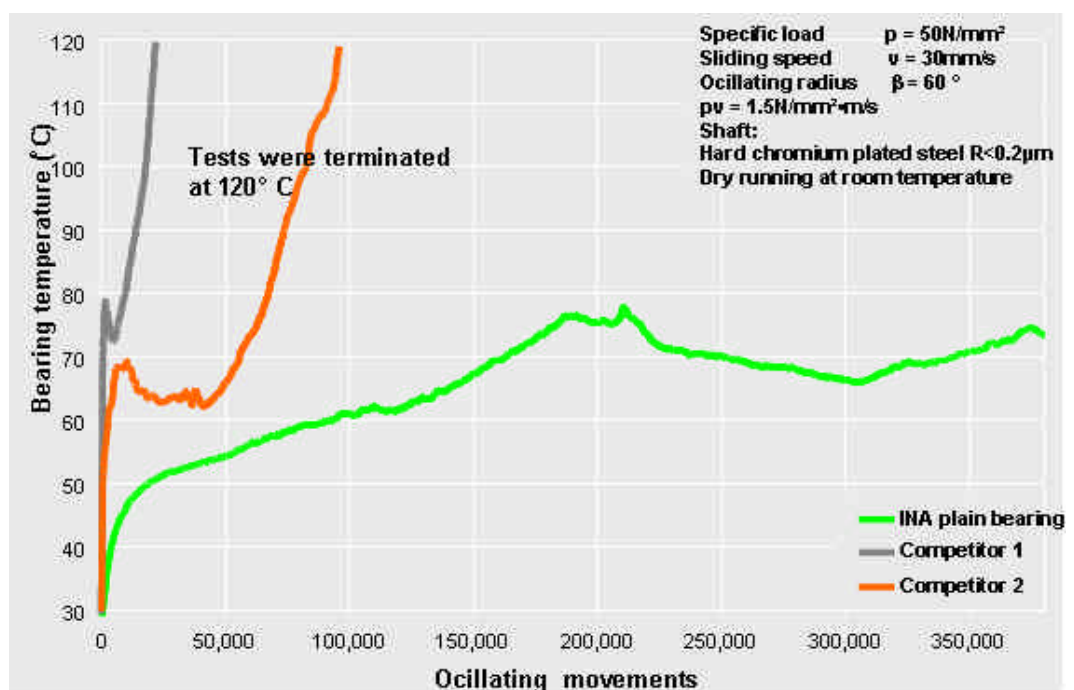


Figure 1: First benchmark tests

- The new product family of INA plain bearings, type: Metal-polymer composite bearings include sliding layers made from three different materials with the designations E40, E50 and E60:

### **E40 sliding layer (standard product):**

Is maintenance-free, i.e. there is no lubrication requirement over the entire operating life. The sliding layer used is based on polytetrafluoroethylene (PTFE) and different chemically inert additives.

### **E50 sliding layer (standard product):**

Is low in maintenance, initial lubrication is required at the start of operation. The sliding layer comprises mainly polyoxymethylene (POM), a material which is characterized by low friction values as well as chemical and thermal stability.

**E60 sliding layer (special product):**

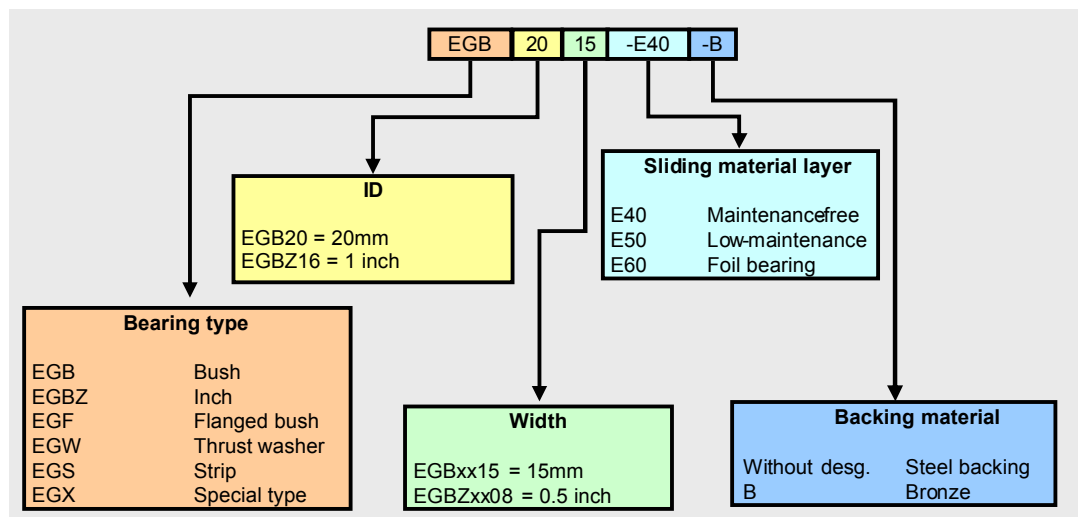
A maintenance-free foil bearing based on a lattice structure in which a sliding layer comprising PTFE and additives is rolled and sintered. The structure functions both as a backing and a sliding layer. There is a sliding layer containing PTFE on both sides of the foil so that the sliding motion can take place on the inside and the outside of bushes. A further advantage of this material is that it can be easily molded.

**The new material designation**

▪ **Designation changes**

Permaglide® Old desg.	INA metal-polymer composite bearings New desg.	Information
<b>Form</b>		
PAP	→ EGB	Standard bush, metric
PAPZ	→ EGBZ	Standard bush, inch
PAF	→ EGF	Standard bush with flange
PAW	→ EGW	Standard thrust washer
PAS	→ EGS	Standard strip
PAX	→ EGX	Special part, different forms
<b>Material</b>		
P14 (P10)	→ E40	Standard material, maintenance-free, lead-free
P20	→ E50	Standard material, low-maintenance, lead-free
P11	→ E40-B E60	Standard material E40 with bronze backing Special product, maintenance-free foil bearing

▪ **Designation system**



**Please not the following:**

- The conversion to the new metal-polymer composite bearings will take place successively, depending on the existing stock of the individual types.
- The complete conversion will be concluded by the end of 2011
- The first samples of the new E40 material will be available from May 2010
- A new brochure about the new material will be issued from May 2010

Please do not hesitate to contact the Schaeffler Sales team should you have any queries.

**Masthead:** This information is a publication of Schaeffler Technologies GmbH & Co. KG, Herzogenaurach.