

Maintenance-free plain bearing material E40-S

E40-S is the new sliding material of Schaeffler Group Industrial for maintenance-free metal/polymer composite plain bearings. The basis of the dry lubricant is polytetrafluoroethylene (PTFE) with embedded chemically non-reactive additives.

Structure

In the three-layered material, the alloy steel backing has a sintered porous tin/bronze sliding layer whose pores are filled with the dry lubricant of the running-in layer, *Figure 1* and tables.

- ① Running-in layer
- ② Sliding layer
- ③ Alloy steel backing

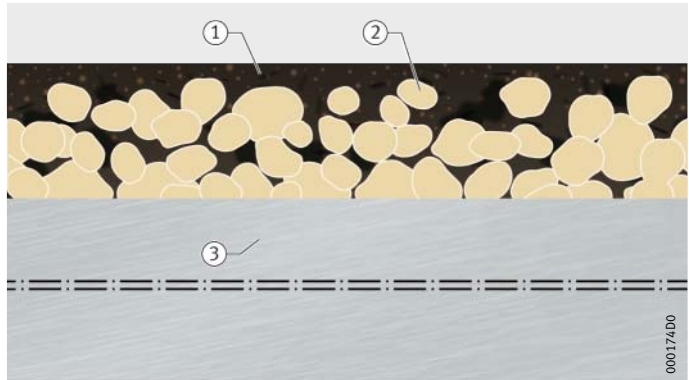


Figure 1
Maintenance-free plain bearing material E40-S

Alloy steel backing

| Chemical element | Maximum proportion of mass w_{\max} % | Hardness HB |
|------------------|---|----------------|
| Carbon C | 0,03 | ≅ 215 |
| Manganese Mn | 2 | |
| Phosphorus P | 0,045 | |
| Sulphur S | 0,03 | |
| Silicon Si | 1 | |
| Chromium Cr | 18,5 | |
| Nickel Ni | 13 | |
| Molybdenum Mo | 2 | |
| Iron Fe | Balance | |

Sliding and running-in layer

| Chemical element | Proportion of mass w % | | Layer thickness mm | |
|--------------------------------------|--------------------------------|------------------|-----------------------|------------------|
| | Sliding layer | Running-in layer | Sliding layer | Running-in layer |
| Molybdenum disulphide MoS_2 | – | max. 8 | 0,2 – 0,4 | 0,01 – 0,05 |
| Polytetrafluoroethylene PTFE | – | 80 – 86 | | |
| Fillers | max. 5,5 | max. 19 | | |
| Tin Sn | 7 – 12 | – | | |
| Copper Cu | Balance | – | | |

Application

The lead-free material conforms to the regulations for lead-free plain bearings. It is maintenance-free throughout its life and can be used in the temperature range from -200 °C to $+280\text{ °C}$.

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