

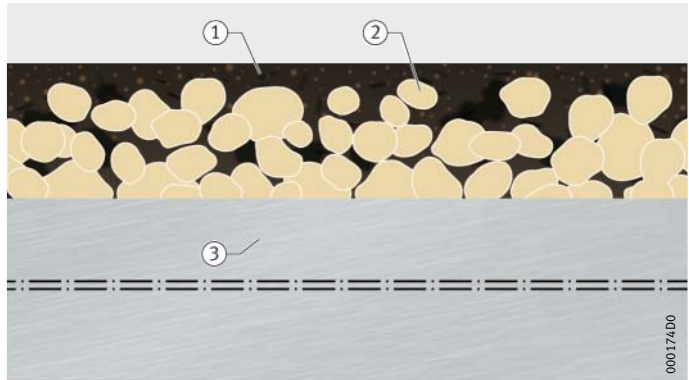
# Maintenance-free plain bearing material E420-S

E420-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 E420-S

## Alloy steel backing

| Chemical element | Maximum proportion of mass<br>$w_{\max}$<br>% | Hardness<br>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<br>w<br>% |                  | Layer thickness<br>mm |                  |
|--------------------------------------|------------------------------|------------------|-----------------------|------------------|
|                                      | Sliding layer                | Running-in layer | Sliding layer         | Running-in layer |
| Molybdenum disulphide $\text{MoS}_2$ | –                            | 8                | 0,2 – 0,35            | 0,01 – 0,05      |
| Polytetrafluoroethylene PTFE         | –                            | 86               |                       |                  |
| Fillers                              | max. 0,5                     | 6                |                       |                  |
| Tin Sn                               | 10 – 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  $-200\text{ °C}$  to  $+280\text{ °C}$ .

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