



BEARING, STEEL BACKED, Cu-Pb, PLATED

WSS-M8A7-C

1. SCOPE

The material defined by this specification is a plated copper-lead alloy bearing metal on a steel backing.

2. APPLICATION

This specification was released originally for material used as an insert type connecting rod or main bearing.

3. REQUIREMENTS

3.0 STANDARD REQUIREMENTS FOR PRODUCTION MATERIALS

Material suppliers and part producers must conform to the Company's Standard Requirements For Production Materials (WSS-M99P1111-A).

3.4 COMPOSITION

This material shall consist of a steel back bonded to a copper-lead alloy over which an electroplated barrier layer and a lead base overlay are applied. The proportions of the copper-lead alloy and electroplated coatings to the steel back will be indicated on the part drawing, however, they will total approximately 15 - 20% of the overall thickness. The steel back shall be protected from corrosion by a flash electroplated coating or an oil-based preservative coating.

3.4.1 Backing

SAE J403 1008 through SAE J403 1020 hot or cold rolled steel.

Rockwell B hardness on finished part:

Rod and Main Bearings, min	70
Flange Bearings, min	55

3.4.2 Lining Alloy

Lead	21.0 - 27.0
Tin	0.15 - 1.50
Iron, max	0.35
Total Other Elements, max	0.45
Copper	Remainder

3.5 PLATED OVERLAY

The finished copper-lead journal bearing surface shall be electroplated with a lead-tin alloy overlay to a thickness of 0.008 - 0.030 mm to obtain the final wall thickness.

Date	Action	Revisions
2003 10 10	Revised	Para 3.0 inserted; para 3.1, 3.2, 3.3, 3.9, 3.10 and 4 deleted
2000 05 26	Activated	Replaces ESE-M8A7-A



3.5.1 Overlay Composition (SAE J460 192)

Tin	8.0 - 12.0
Copper	1.0 - 4.0
Lead	Balance

3.5.2 Plating Process

It is not intended to limit in any way the procedure of plating. Any process resulting in a satisfactory adherent coating meeting the requirement of this specification will be approved.

3.6 CORROSION PROTECTION

The steel backing of the bearing shall be protected against corrosion by the application of a dry-to-touch Rust Preventative coating per a Ford approved specification, and by approval of Ford Materials Engineering.

3.7 LEAD-TIN MIGRATION PREVENTION

A continuous electroplated flash nickel coating (0.00064 mm thick min) is required between the Cu-Pb alloy and the plated overlay.

3.8 QUALITY

The quality of the bearing material and steel backing shall be uniform and free from surface or internal defects detrimental to the performance of the bearing. The bearing metal shall be firmly and continuously bonded to the steel back. The various electro-plated layers (the nickel barrier, the lead-tin overlay and the backing corrosion protection flash coating) must be firmly and continuously bonded to the previously applied layer.