LEWMAR®

ENGINEERING STANDARDS	DATE	STANDARDS NO.
	14 Apr 03	10

SPECIFICATION FOR ELECTROPLATING COATINGS OF NICKEL AND CHROMIUM

1 SCOPE

This standard specifies requirements for electroplated coatings of nickel plus chromium on copper alloys that are required for LEWMAR components.

2 TYPE OF COATING

2a The variations in the different coatings that can be obtained under the specification BS EN 12540: 2000 are numerous, so to avoid confusion and to satisfy all LEWMAR requirements these have been reduced to the one specification for coatings on copper alloys.

2b The chromium plate to be the **Hexavalent** chromium based plating formulation.

3 SERVICE CONDITION

The grading of the service condition number for LEWMAR components under BS EN 12540: 2000 will be number 4 "Exceptionally severe service outdoors in corrosive conditions".

4 SPECIFIC REQUIREMENTS

(a) Nickel coating will be as per BS EN 12540 : 2000 type d which states "for a double or triple layer nickel coating of which the bottom layer contains less than 0.005% sulphur and has a elongation greater than 8% when tested by the method given in Appendix C BS EN12540 :2000 and the top layer contains more than 0.04% sulphur; the thickness of the bottom layer in double layer coatings shall be not less than 60% of the total nickel thickness and in triple layer coatings shall not be less than 50% of the total nickel thickness, the thickness of the top layer in either case being not less than 20% of the total nickel thickness. If there are three layers, the intermediate layer shall contain more sulphur than the top layer and shall not exceed 10% of the total nickel thickness".

(b) Nickel coating will be 25 microns average thickness.

(c) Chromium coating will be as per BS EN12540 : 2000 type r (regular). And will have a **minimum** local thickness of 0.5 micron. (note 2)

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5 DESIGNATED THICKNESS

Components to be plated will therefore specify the following designation for coatings on copper alloys:- BS EN 12540 GRADE 4 Cu/Ni 30d Cr r.

6 SURFACE CONDITION PRIOR TO ELECTROPLATING

(a) Significant surfaces will be polished prior to electroplating.

(b) Improvement of rough, porous or pitted surfaces by a copper undercoat deposit of average thickness of 10 microns per coat, is permissible under this standard, to the approval of LEWMAR Quality Control. Refer to Note 3.

7 TEST AND INSPECTION PROCEDURES

Tests for thickness of plating will be carried out on a regular basis using a Fisher X-Ray XUVM. The tabulated results to be supplied to Lewmar by the plater.

NOTES

1) An allowance has been made in the design specification to accommodate the film thickness indicated. Therefore the dimensions shown on LEWMAR drawings are the machined sizes to be achieved.

2) LEWMAR's requirement for minimum chromium thickness will be 0.5 microns.

3) In general all casting work will be copper plated, polished, re-coppered and polished, with a final 3 minute flash copper coat to ensure good reactivation of the copper undercoat, immediately followed by nickel/chrome.