

Pelapisan perunggu dengan krom untuk meningkatkan kekerasan permukaan

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Abstract

Alloys containing principally copper and tin are considered as bronzes. These materials possess desirable properties of strength, wear resistance, and salt water corrosion. Bronzes materials are widely used such as for gears, bearings and other machine parts. These component parts work with relative movement, pressure, and friction on the contact surfaces, for long time will cause surface wear. To improve wear resistance and hardness of the contact surfaces, it needed to be plating by an electroplating method. This study is to find out the influence of plating thickness to the hardness on electroplating bronzes by chromium. The specimen is hollow cylindrical form of bronze with inner diameter 10 mm, outer diameter 30 mm and height 10 mm. Treatment variables are plating time, with variation of 30, 50, 70, 90, and 110 minutes. The dependent variable in this study is surface hardness. Specimens are made 3 items for each observation, so the total specimens are 15 items. The electrolyte used in this study is mixed of CrO_3 (250 g/L), and H_2SO_4 (2.5 g/L), meanwhile electric current 50 Amperes and voltage 6 volts keep constantly during the process. The result can be concluded that there is a positive linear correlation between plating time with plating thickness, and plating thickness with surface hardness.

Keywords: electroplating, plating time, thickness, hardness
