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Surface properties of pressure die cast(PDC) Al 7075 using laser texturing and electrodeposition Zinc-Nickel alloy coatings

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Abstract : Al 7075 pressure die cast parts are being used as aircraft materials because of its high density and tensile strength. However, the uncoated PDC Al 7075 is showing lack of mechanical properties such as hardness, wear and corrosion resistances. We have attempted to improve the wear resistance and corrosion resistance of pressure die cast Al 7075 alloys by combining laser texturing and Zn-Ni coatings. The surface roughness, micro hardness and wear resistance studies were evaluated and found that Zn-Ni alloy plating on PDC Al 7075 could significantly improve the said mechanical properties. The coatings are found to with stand 620 hrs in sea water without the formation of corrosion products on its surface.

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