

The Research on Remanufacturing Cleaning Mechanism

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Keywords: Cleaning, Salt bath, Remanufacturing, Removal mechanism

Abstract. Remanufactured parts need to be cleaned before testing and repairing. Molten salt cleaning become a new research focus in remanufacturing cleaning. This paper analyze and research the dirt removal mechanism. This paper analyzes the effect of different salt bath cleaning time and temperature, from the action of heat, comprising a plurality of aspects of surface tension, expansion coefficient and chemical analysis of the role removal mechanism. cleaning effect is researched controlling different conditions in experiments according to the removal mechanism. Experimental results show that the cleaning effect is more obvious, cleaning a relatively short time, ready to meet the requirements of remanufacturing blanks.

Introduction

Remanufacturing cleaning refers to the cleaning liquid by means of cleaning equipment parts acting on the surface of the waste, the use of mechanical, physical, chemical or electrochemical methods to remove scrap parts attached to the surface of the grease, rust, dirt, scale, coke and other contaminants, and used to achieve the surface cleanliness requirements of the process [1]. Remanufacturing cleaning is an important step in the process of mechanical products remanufacturing, is basic conditions for detected before machining the parts and repair, is the basis step of mechanical products remanufacturing [2].

Remanufacturing cleaning techniques include water jet cleaning technology, chemical cleaning technology, blasting / peening technology, dry ice cleaning technology, ultrasonic cleaning technology. Chemical cleaning agents rely on a lot of cleaning, a greater impact on the environment, and chemical cleaning belong to mostly immersion cleaning, more limited by the specific structure of parts. Blast cleaning technique is a physical cleaning method, there is no chemical reaction in the surface to be cleaned, no dirt, do not pollute the water or air [3], detergency, but the big disadvantage with noise.

Salt bath cleaning techniques depend on the molten salt as a cleaning medium, which combines with the cleaning power of physical and chemical cleaning method. Salt cleaning technology has a advantage of wide application temperature range, however the other cleaning techniques do not have this advantage.

Flow requirements for the part in cleaning process, molten salt having a very low viscosity values in the corresponding temperature range, and it has good fluidity. Because of the pipeline within a good liquidity, potassium nitrate, sodium nitrate and sodium nitrite mixture (HTS) in the nuclear industry, solar power and solar thermal storage and hydrogen industry as a heat transfer medium [4] has been a wide application.

Inorganic compounds melted to form fusant, the fusant is the high temperature plasma formed by the cations and anions. The nature of the molten salt: melting point, electrical conductivity, viscosity, surface tension, density. Binary Molten Salt (60% + 40% potassium nitrate, sodium nitrate) has high melting point, about 207 degrees Celsius; three elements molten salt (potassium nitrate 53% + 40% + 7% sodium nitrite sodium nitrate), melting point 142 Celsius, the boiling point of 500 degrees Celsius.