Design Process Involved in Developing Mechanism of linear Motor Operated Multiple Spray Operations Spray Gun.

ABSTRACT

Normally spray operation has been carried out in various processes such as air spray, High volume low pressure spray, air less spray, air assisted air less spray, electrostatic spray, ultrasonic spray etc. To carry out the spray operation in different processes different types of spray guns are used. Sometimes different types of spray operations are needed to finish the task of a certain product. In that case two or more types of spray guns are use to fulfill the requirement which is costly. On the other hand in automatic spray application, pneumatic system is used to trigger the spray gun. But the main disadvantage of pneumatic system is to position the fluid flow control valve as desired. This system needs more control knobs and highly skilled operator to carry out the quality spray operation. By addressing this issue a spray gun is designed in such a way that it can be accumulated four types of spay processes such as air spray, High volume low pressure air spray, air less spray and air assisted air less spray and the triggering operation has been carried out by specially designed sensor less DC linear motor. CATIA software is used to design the total spray gun model. In the first phase all the component of the spray gun such as spray unit, spray unit holder and shaft assembly, air control unit, triggering lever, motor housing, motor, and cover plate have been designed and then assemble all components to get the total spray gun model in the second phase accordingly. This paper is focused on to discuss the complete design processes involved in developing this especially dedicated spray gun and its operating mechanism.

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