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ME (Paper ID: T4_P_ME_010)

EXPLORATION OF MACHINING PARAMETERS BY USING TAGUCHI TECHNIQUE ON MAAJDM

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Abstract - In this investigation non conventional machine is used to drill a ceramic composite work piEC with given input parameters abrasive particles (SiC) are combined with gas in a mixing chamber the size of the abrasive particles is 30µm and these particles are impinged targeted surface on the work piEC with high velocity. An experiment was carried out in accordance with Taguchi's design of experiments in order to determine the signal-to-noise ratio and prediction values of 27 experiments. Four input parameters were used to carry out the experiment on an abrasive air jet drilling machine. We ran one experiment for each orthogonal array combination, and using ANOVA we discovered that the process parameters have a significant influence on kerf. According to the ANOVA, the input parameter standoff distance has the greatest impact on the kerf, followed by air pressure, abrasive flow rate, and finally specimen type. In this work, the investigation brings as per L27 orthogonal array (OA) by varying Pressure, Standoff distance, Abrasive Flow Rate, and percentage of reinforcement into matrix material respectively.

ME (Paper ID: T4_P_ME_019)

Experimental investigation of Orientations effect on 70-watt LED under natural convection

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Abstract: The advancement in the electronic market and utilization of LED day by day is rapidly increasing. But the Performance of LED is critically affected by high temperatures. Cooling is the main challenge in front of a designer. In the indoor stadium, petrol pumps, like in various commercial applications, LEDs are mounted at different orientations. In this paper, the effect of the orientation of LED on its thermal resistance and cooling performance by natural convection is studied experimentally. LED are generally cooled by the passive cooling technique. i.e., heat sink is present for cooling of LED. Due to ease of manufacturing, rectangular fins are preferred in many heat sinks. As LEDs are mounted at various orientations, it will affect the airflow circulation, affecting the cooling of the LED heat sink. We observed that at 45° the thermal resistance offered by the same heat sink is less than the other. And at 180° thermal resistance of the heat sink is higher than in other orientations. From Its is observed that orientation affects the cooling performance of LED. Tilting arrangement is provided to experimental setup carried out experiments carried out at 0°,45°,90°, 135°,180°,225°,270°,315°.