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Recent developments in abrasive waterjet cutting of materials

Manufacturing industry is becoming ever more time cognizant with respect to the worldwide economy. Abrasive Waterjet Cutting (AWJC) process is superior to many other cutting techniques in processing variety of materials and has found wide applications in manufacturing industries. This is one of the unconventional methods used to cut difficult to cut materials. In certain materials this method has proved to give better results compared to the conventional methods. There are several associated parameters in this process, among which water pressure, abrasive flow rate, jet traverse rate and standoff distance are of great importance but accurately controllable. This project is conducted to investigate the effects of these variable parameters on depth of cut and surface roughness of various materials. As a result of this study, it is observed that these operational parameters have direct effect on depth of cut and surface roughness. It is experimentally demonstrated that if the cutting parameters are selected properly, AWJC can increase depth of cut and reduce surface roughness. It has been found that to achieve an overall cutting performance, high water pressure, more mass flow rate, less traverse speed and low standoff distance should be selected.

Biography

Chithirai Pon Selvan has obtained his Bachelors in Production Engineering, Masters in Computer Aided Design and PhD in Mechanical Engineering. He has over 20 years of experience in teaching, educational assessment, classroom management and student relations. He has published 100+ research articles in international journals and conferences. He is in the Editorial Board of more than 50 international journals. His research interests are in the areas of machine design, optimization techniques and manufacturing practices, particularly non-traditional manufacturing methods. He is well-known Researcher in the field of Abrasive Waterjet Cutting Technology and has evaluated several PhD theses in Mechanical Engineering from various universities.

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