World Academy of Science, Engineering and Technology
International Journal of Civil and Architectural Engineering
Vol:9, No:06, 2015

Polishing Machine Based on High-Pressure Water Jet

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Abstract : The design of high pressure water jet based polishing equipment and its fabrication conducted in this study is reported herein, together with some preliminary test results for assessing its applicability for HMA surface polishing. This study also provides preliminary findings concerning the test variables, such as the rotational speed, the water jet pressure, the abrasive agent used, and the impact angel that were experimentally investigated in this study. The preliminary findings based on four trial tests (two on large slab specimens and two on small size gyratory compacted specimens), however, indicate that both friction and texture values tend to increase with the polishing durations for two combinations of pressure and rotation speed of the rotary deck. It seems that the more polishing action the specimen is subjected to; the aggregate edges are created such that the surface texture values are increased with the accompanied increase in friction values. It may be of interest (but which is outside the scope of this study) to investigate if the similar trend exist for HMA prepared with aggregate source that is sand and gravel.

Keywords : high-pressure, water jet, friction, texture, polishing, statistical analysis
Conference Title : ICBSE 2015 : International Conference on Building Science and Engineering
Conference Location : New York, United States
Conference Dates : June 04-05, 2015