

Abstract Submitted
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Experimental Analysis of Entrance Effects in Low Reynolds Flow in Porous Media¹ BEN MUNRO, SID BECKER, University of Canterbury Department of Mechanical Engineering — The topic of this research concerns the experimentally observed influences of the developmental effects in a rigid porous media. A test rig has been constructed that accurately measures the pressure drop across the media and the corresponding average bulk flow velocity. The porous media has been developed using a 3D printer so that the pore geometries are uniform throughout the media. The fluid is a mixture of glycerol and water for which the viscosity is varied. Measurements of the global pressure drop versus bulk flow rate have been made over a range of Re in which the overall length of the porous media (in the direction of flow) has been varied. Because all tests have been conducted at low Re (and thus within the Darcy regime) comparisons of experimentally determined permeability between the overall media lengths provide insight into the non linear component of pressure drop that occur within the developing region.

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