

Also, since the flow velocity at a point between two stream lines ψ_2 and ψ_1 is $U_{1,2} = \frac{\dot{\Psi}}{\dot{\Psi}'} = \frac{\dot{\Psi}}{\psi_2 - \psi_1}$ and, in uniform free flow, $\psi = U_\infty y$, the free-stream velocity can be measured as the flow velocity at the entrance to the system about the centerline.