inertial forces = $\frac{\rho U^2}{X}$

viscous forces= $\frac{\mu U}{\delta^2}$

When the viscous forces act in the entire tube radius R, the ratio between the viscous and inertial forces is K. At this point length of the tube =L, or the entrance length.

$$K = \frac{\mu U}{R^2} \Big/ \frac{\rho U^2}{L}$$

The entrance length is then $$L = K\frac{\rho U R^2}{\mu} = K\,\mathrm{Re}R$$

The constant K is determined experimentally. For Re<10, K=R. For R<Re<2000 K≈0.1