# ASSIGNMENT

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17/eng05/004

Mechanical engineering

Fluid mechanics

1. Given µ= 0.9/m^2, /m^3, , =0.01m
   1. From continuity equation

q = A.u

where

Because Re < 2000, the flow is laminar

1. Given , G = 0.85, 850kg/m^3,

, D = 65mm = 0.065m , L = 95m

Rate of flow, Q = A.u

Where

×3.319×10^-3=0.0115m^3/s

* 1. Centre line velocity =

But,

* 1. Total frictional drag, fD

Where

* 1. Power required to maintain flow

×3.474

5.7Watts

* 1. Velocity gradient at the pipe wall
  2. Velocity and shear stress 60mm from wall

m=0.06m

0.065-r65-r

005

The shear stress can be found as;