

Use of the Colebrook-White equation in pipe network analysis programs

University of New South Wales, Water Research Laboratory - Estimation of Pressure Drop in Pipe Systems

$$f = \frac{1.325}{\left[\ln \left(\frac{e}{3.7D} + \frac{5.74}{Re^{0.9}} \right) \right]^2}$$

where Re = Reynolds number
 V = velocity (m/s, ft/s)
 D = pipe diameter (m, ft)
 ν = kinematic viscosity (m²/s, ft²/s) (see Table 3-2)
 e/D = relative roughness
 e = pipe roughness (m, ft) (see Table 3-1)

Description: -

- Frictional resistance (Hydrodynamics)

Piping -- Hydrodynamics -- Mathematical models

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Notes: Bibliography: p. 11-12.

This edition was published in 1976



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Tags: #Friction #Factor #Calculation #using #Barr's #Equation

Dynamic simulation of gas pipeline networks with electrical analogy

It is possible to have more than one choke in a pipe if there are successive increases in flow area, but the first position at which choking occurs dictates the maximum flowrate possible. Transitions can be con-verging or diverging.

colebrook White major head losses coefficient in pipes

They concluded that the use of the Hazen-Williams equation can lead to serious practical and conceptual implications in otherwise straightforward computations. The second friction factor mentioned above by Fanning, f_F , is not as common in textbooks but used more commonly in the oilfield.

Accurate Explicit Equations for the Determination of Pipe Diameters

Total Pressure Sizing Method The total pressure sizing method is a variation of the static regain method.

Solving the Pipe Network Analysis Problem Using Optimization Techniques

Kron G 1965 Tensor analysis of networks. For a given pressure P_1 and P_2 , the flow rate decreases with increase in pipe length.

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Thus the Colebrook—White equation is, in effect, a mathematical representation of the Moody diagram. Shashi Menon, in , 2015 1.

Pipe Flow Design

Friction factor versus Reynolds number of 1-in. Fluids have a definite mass and volume at a given temperature and pressure.

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