

# Darcy friction factor = f

@wikipedia

Quantitative dimensionless measure  $f$  of the friction forces between fluid pipe flow and inner pipe walls based on Darcy–Weisbach equation.

It depends on Reynolds number  $Re$  and inner pipe walls roughness  $\epsilon$  (see Fig. 1):  $f = f(Re, \epsilon)$ .

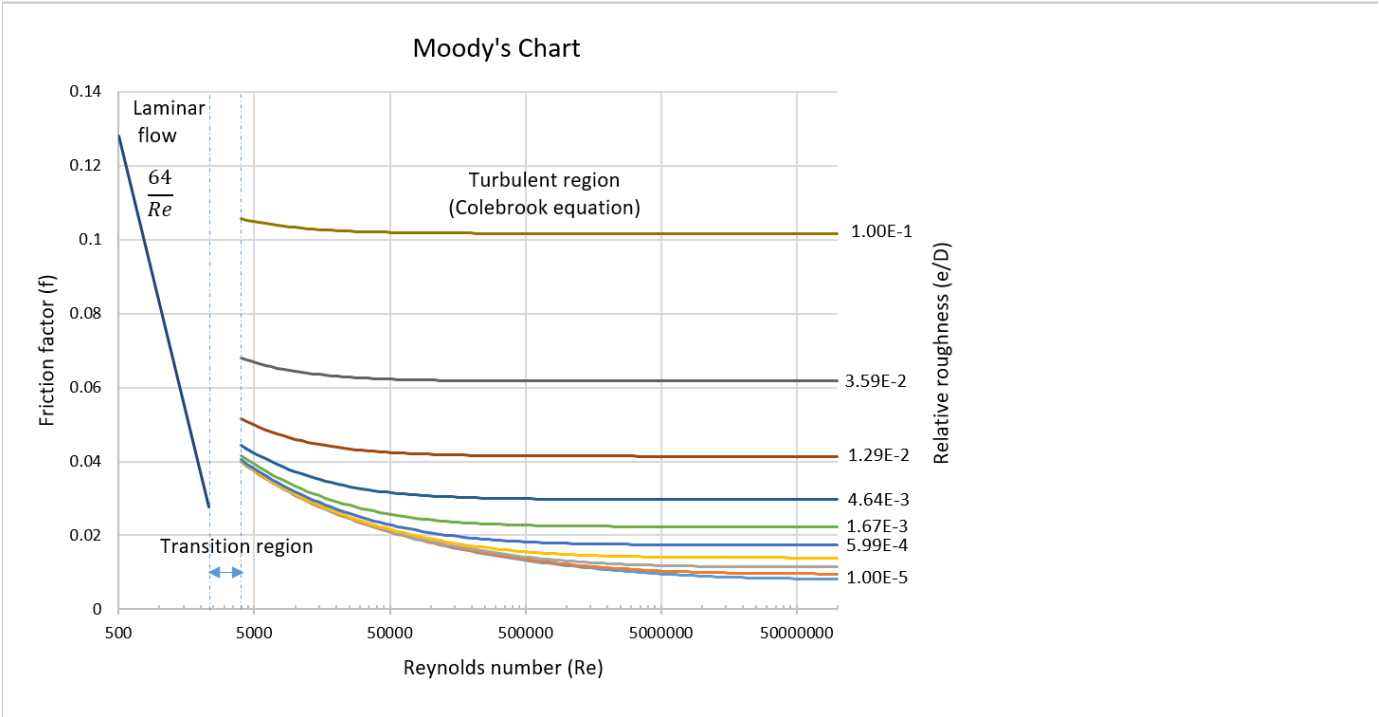


Fig. 1. Schematic chart showing how Darcy friction factor depends on Reynolds number  $Re$  and roughness  $\epsilon$  (following

In engineering practice one can use either Moody Chart or Darcy friction factor @model to estimate the actual value of Darcy friction factor.

Darcy friction factor  $f$  takes only positive values  $f > 0$  but has singularity at zero flow velocity:  $Re \rightarrow 0 \Rightarrow f \rightarrow \infty$  which may cause computational challenges.

Using Reduced Friction Factor  $\Phi = f \cdot Re/64$  instead can help in computations as it stays finite for all finite values of Reynolds number  $Re$ .

## See also

Physics / Fluid Dynamics / Pipe Flow Dynamics / Darcy–Weisbach equation

[ Darcy friction factor Single-phase @model ] [ Reynolds Number for Multiphase Flow @model ]

[ Moody Chart ] [ Reduced Friction Factor () ]

