

Pipe Flow Heat Transfer Coefficient @model

Mathematical model of [Heat Transfer Coefficient](#) between inner surface of the pipe and moving [fluid](#):

(1)
$$U = \frac{\lambda}{d} \text{Nu}$$

where

λ	thermal conductivity of flowing fluid
d	inner pipe diameter
Nu	dimensionless Nusselt number (Nu)

The [Nusselt number \(Nu\)](#) correlations are:

Stagnant fluid	Natural Convection	Forced Convection
OEIS sequence A282581		McAdams Unknown macro: 'single-cite'
(2) $\text{Nu} = 3.6568$	(3) $\text{Nu}_D = \left[0.825 + \frac{0.387 \text{Ra}_D^{1/6}}{\left[1 + (0.492/\text{Pr})^{9/16} \right]^{8/27}} \right]^2$	(4) $\text{Nu} = 0.023 \cdot \text{Re}_D^{0.8} \cdot \text{Pr}^{0.4} \cdot \left(\frac{\mu}{\mu_w} \right)^{0.14}$

See also

[Physics](#) / [Thermodynamics](#) / [Heat Transfer](#) / [Heat Transfer Coefficient \(HTC\)](#) / [Heat Transfer Coefficient \(HTC\) @model](#)

[[Thermal conductivity](#)] [[Nusselt number \(Nu\)](#)]

References

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