

Preface

A few years ago, I was doing research on thermal plumes emanating from vertical cylinders. In order to validate the numerical model, I wanted to compare the Nusselt number of the cylinder from the simulation to an experimental correlation. I thought finding an experimental Nusselt number correlation for natural convection from vertical cylinders would be a trivial task. Much to my surprise, after consulting many well-known heat transfer textbooks, I found out that this was not the case. Instead, the textbooks presented the criteria for treating the vertical cylinder as a vertical plate, which is valid in cases where the boundary-layer thickness is small compared to the diameter of the cylinder. Unfortunately, if one cannot make this assumption (as it was in my case), they are directed by the authors of the textbooks to some hard-to-find literature. Thus began my journey to search for and compile natural convection Nusselt number correlations from cylinders. This book attempts to be a single, updated source on the subject.

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