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## Natural Convective Heat Transfer From Horizontal Heated Plate Facing Upward In Vertical Channel –A Review

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### Abstract

Natural convection heat transfer flow with internal object in vertical channel is encountered in several applications such as heat exchangers, nuclear reactor fuel elements, heat dissipation in electronic circuits, refrigerators and dry cooling towers. The present paper deals with study of natural convection heat transfer data available from different literature for horizontal heated plate facing upward and also study about the heat source placed in vertical channel is discussed. The numerical, analytical and experimental works were extensively done in many heat transfer paper in horizontal plate facing upward. A number of researchers have developed correlation for Nusselt number in terms of Rayleigh number or Modified Rayleigh number are presented.

**Keywords:** Natural Convection, Heat Transfer, Horizontal Heated Plate, Heat Transfer Correlations.

### Introduction

Natural convection heat transfer occurs in many engineering applications such as electronic equipment's cooling, electric transformer-cooling, chimney and furnaces, cooling the reactor core and carry out heat generated by nuclear fission, solar collectors and geophysical flows. In these equipment's, the source of heating, in general is either due to volumetric heat generation or due to surface heat fluxes. For instance, electronic equipment generates heat, which can be expressed in terms of volumetric heat generation. Volumetric heat generation in nuclear fuel rods is due to nuclear reaction. The performance of thermal energy conversion devices depends on the energy exchange that takes place through various heat and fluid flow processes prevailing in these devices. Therefore, research on flow and heat transfer through

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