

**HEAT TRANSFER AND FLUID FLOW CHARACTERISTICS OF SURFACE-MOUNTED
CIRCULAR CYLINDERS HAVING INLINE AND STAGGERED ARRANGEMENTS**

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ABSTRACT Heat transfer and fluid flow characteristics over three rows of circular cylinders mounted on a flat plate have been studied numerically using commercial software ANSYS Fluent 15.0. Present three-dimensional investigations aim to bring out the effect of aspect ratio (AR) of surface-mounted circular cylinders on heat transfer enhancement and fluid flow characteristics. Both inline and staggered arrangements of cylinders have been considered for fixed value of Reynolds number (Re) equal to 2000. Flow field and heat transfer characteristics are studied using streamline plots and temperature contours in various planes. Enhancement in heat transfer is quantified in terms of span-averaged and overall Nusselt number (Nu). Variations of perimeter-averaged Nu along height of a cylinder and of height-averaged Nu around the cylinders have been presented.