

Experimental Study of Fluid Flow and Heat Transfer Characteristics in the Square Channel with a Perforation Baffle

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ABSTRACT

This work performed a detailed measurement of heat transfer coefficients in a square channel with a step baffle and perforation baffle by using the transient liquid crystal method. The varied parameters were Reynolds number and the baffle height, different hole number. The results showed that the enhancements of local heat transfer appeared in the leading edge of the baffle due to the impinging effect. Proved that some high temperature often burns out the part, instead of be burnt out by the whole too high horizontal temperature by the experiment. Obstacle piece cliff side hot to strike effect is most easy to be it accumulates hotly to produce. Proposing boring a hole, the figure scatters evenly in a cliff side of obstacle, lengthen the life-span of the component. When gas crosses the more porous obstacle one, after the gas flows through many holes in a utensil to keep in touch again, will produce more turbulence it causes system to be hot to be relatively average to spread coefficient, favorable as to whole system.

Keywords : Transient liquid crystal method, perforation baffle, channel flow, step baffle, Reynolds number

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