

FINAL PROJECT REPORT
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CROSS FLOW HEAT EXCHANGER

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CHAPTER 1

1.1 GENERAL

Consumption of fuel energy sources is rapidly increasing; therefore, the efficient and rational use of these sources is considered an economical objective of extreme importance. In power engineering and in industry, the greater part of heat energy is transferred using various heat - exchange equipment. Generally, heat exchangers operate on the principles, "gas-gas," "vapor-liquid," "liquid-gas," or "liquid-liquid." Tubular heat exchangers, and other devices with heating surfaces made of tubes, are widely used. Therefore, there is a need to augment heat transfer processes and to increase the thermal efficiency of tubular heat exchangers. In the present book, the problems of heat transfer for tubes with external flow are discussed.

Intensity of heat transfer depends mainly on the type of thermal carrier. For example, for similar conditions and equal flow velocities, the heat transfer coefficient in a stream of water is one to two orders of magnitude higher than in an air stream, even though air is less aggressive chemically than water.