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New Water Tube and Fire Tube Boiler Combined as Tube inside Tube Heat Exchanger

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ABSTRACT: *Instead of Hot Tube and Cold tube Boilers and heat exchangers New Tube inside another Tube is the assembly to be fabricated in such a way that inside the inner tube and outside the outer tube hot fluid is allowed to pass through and between the inner tube and outer tube cold fluid is made to pass through, with the result more effective heat transfer can be achieved. This way any heat exchangers can be designed.*

INTRODUCTION

Effective higher heat transferand compact heat exchangerare the aim of this work. In a thermal power plant, where burning of fossil fuels in a boiler for heating water to convert into steam which in turn is expanded in a steam turbine resulting in rotation of the turbine shaft. The rotating turbine shaft is coupled with an alternator shaft to produce electricity.

1.2 New Design of Heat Exchanger:

Compact and quick heat transfer is possible by this new design concept with one tube into another tube having outside the outer tube and inside the inner tube carrying the hot fluid and by circulating cold fluidoutside the inner tube and inside the outer tube.

1.3 Increased Surface Area of Heat Transfer:

Heat Transfer is fundamentally a surface phenomenon. Increased surface area of heat transfer by changing the existing design of both mere tube or plate heat exchangers into hot fluidand cold fluid tube combinedso that the aim of increased heat transfer can be achieved,

1.4 Radiators Redesigned:

Automobiles have radiators for removal of excess heat from the Engine or Electric Motor these radiators can be redesigned into tube inside another tube so heat transfer is increased and resulting in compact and effective heat transfer equipment.

1.5 Redesign of Condensers and Evaporators:

Condensers and evaporators used in Air conditioners in domestic and large scalecooling of office rooms and halls can be now replaced by tube inside another tube heat exchangers for higher heat transfer rate and more efficient thermal energy transfer.

CONCLUSION

(a) Where ever heat transfer is needed this concept of tube inside another tube can be applied.
(b) Rectangular, Triangular, Circular or any other cross section pipe into another pipe can be adapted for more efficient heat transfer.
(c) End cover like fluid supply and collecting chambers for hot fluid tubes and cold fluid tube can be made separately at both the ends of the tubes.

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