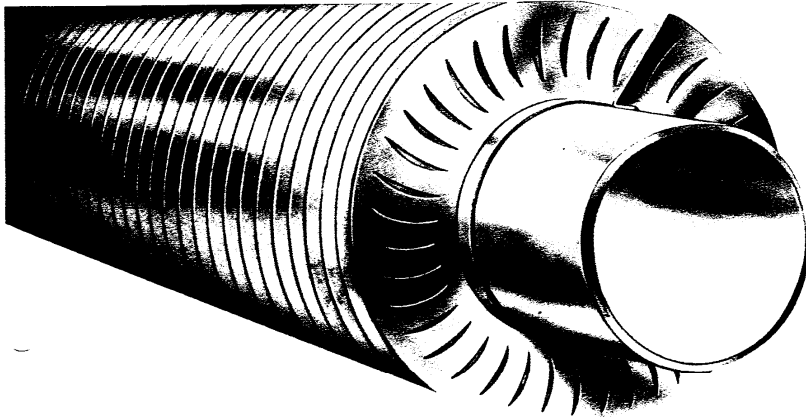


The ACE "HPF"

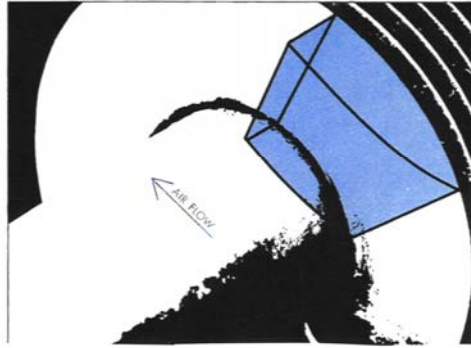
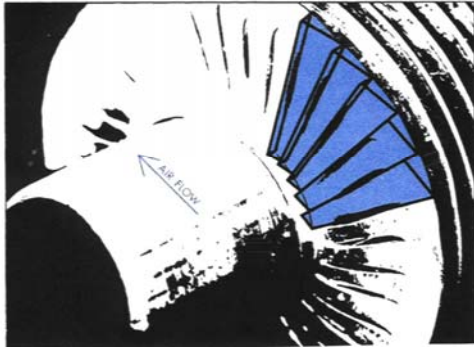


Air Cooled Exchangers

Air Cooled Exchangers HIGH PERFORMANCE FIN (HPF) offers up to 40% greater heat transfer than the conventional plain fin. A spiral, shoulder-type fin with radial openings resembling the spokes of a wheel, HPF achieves superiority over the plain fin by substantially reducing required heat transfer surface while simultaneously incorporating the strength and non-clogging characteristics of a smooth fin.

How HPF works: When fluid passes over a surface, a stagnant layer or **film** builds up to reduce thermal conduction. Similarly, air passing over a plain or smooth fin forms an air film that reduces the rate of heat transfer to the atmosphere. **HPF's** interrupted surface, with its radial openings, prevents this film of air from reaching its maximum thickness and thus increases the outside film coefficient. At the same time, **HPF does not** increase the turbulence of air passing over the fins, and the result is an increase in overall heat transfer rate **without** an increase in static pressure or fan horsepower.

HPF's inherent advantages: The use of **HPF** can result in a reduction in size and heat transfer surface requirement for a specific cooling duty. Comparably sized exchangers using **HPF** require less air, reducing power costs. Comprehensive and computerized ratings, together with **HPF** means that ACE will provide the best performance.



The basic design principal of the ACE HPF is consistent with established fluid flow characteristics and is indicated in the diagrams.

Comparison Example of Plain and HPF Fins:

Sample Cooler Requirement	
Duty	2,000,000 BTU/HR
Flow	400 GPM of Water
Temperature In	165° F
Temperature Out	155° F
Ambient Air Temperature	100°
1" OD Tubes with 5/8" high aluminum fins, 10 Fins/Inch	

The subsequent outside heat transfer coefficient for plain fins would be 200 BTU/HR - ft² °F with an overall coefficient of 155.

The HPF fin, however, would have an outside coefficient of 285. This is a 43% increase over the plain fin. The overall coefficient then would be 200 or a 29% increase over the plain fin.

In simple terms, the HPF finned exchanger would either transfer 29% more heat $2,000,000 \times 1.29 = 2,580,000$ BTU/HR, or would require a 29% smaller cooler to do the required 2,000,000 BTU/HR job, therefore, reducing the overall cost of the cooler