

**HEAT TRANSFER AND FLOW FRICTION CORRELATIONS FOR  
STANDARD PLATE FIN HEAT EXCHANGER SURFACES IN NUCLEAR  
POWER APPLICATIONS**

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**ABSTRACT**

Compact heat exchangers tend to replace other types due to high area-to-volume ratio, reliability and low cost of operation and maintenance, especially in nuclear applications, such as GCRs and AGCRs. Exchanger compactness requires high values of the heat transfer coefficients, especially if fluids are gases. Various types of heat exchange surfaces for gas type heat exchangers were designed by manufacturers. Complex geometry of such surfaces required to enhance the heat transfer rates require experimental data for developing heat transfer correlations. Tabulated heat transfer data available in literature together with geometric elements were used in order to develop heat transfer and flow friction correlations for several widely-used heat transfer surface types. Such correlations are an essential instrument in exchanger design and rating procedures as well as optimization. Colburn-Reynolds and friction factor-Reynolds correlation were developed and the goodness of fit was verified.

**Keywords:** Heat transfer correlation, Pressure drop correlation, Plate fin heat transfer surfaces

**MONITORING OF SECULAR CHANGES AND EVALUTION OF TRENDS IN  
COUNTRY AROUND VALLEY OF THE VLTAVA RIVER INFLUENCED BY  
THE NUCLEAR POWER PLANT TEMELIN**

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**ABSTRACT**

The study evaluates the development of individual municipalities, changes in socio-economic structures and territorial system of ecological stability in the emergency zone Nuclear Power Plant Temelin (Czech Republic). In the area of interest is considered to be the immediate surroundings of the dam Hnevkovice that serves the needs of process water for the plant. There is a village Buzkov, Dobrejovice, Hroznejovice, Jaroslavice, Jeznice, Kostelec, Litoradlice, Ponesice, Porezany, Purkarec a Tritim. The study also addresses the development of the population, age structure and employment in the years 1982-2013, and other factors specific developmental territory. The work also includes the coefficient of ecological stability of the area before and after construction of water works Hnevkovice.

**Keywords:** ecological stability, landscape water regime, radiation zone, socio-economic function

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