

PACKAGE ID - 000649IBMPC01 SEARCH

KWIC TITLE - Single-Phase, Turbulent Heat-Transfer
Friction-Factor Data Base Flow Enhanced Tb

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LIMITATION CODE - UNL **AUDIENCE CODE** - UNL

COMPLETION DATE - 03/25/1994 **PUBLICATION DATE** - 12/01/1993

DESCRIPTION - Heat-exchanger designers need to know what type of performance improvement can be obtained before they will consider enhanced tubes. In particular, they need access to the heat-transfer coefficients and friction-factor values of enhanced tube types that are commercially available. To compile these data from the numerous publications and reports in the open literature is a formidable task that can discourage the designer from using them. A computer program that contains a comprehensive data base with a search feature would be a handy tool for the designer to obtain an estimate of the performance improvement that can be obtained with a particular enhanced tube geometry. In addition, it would be a valuable tool for researchers who are developing and/or validating new prediction methods. This computer program can be used to obtain friction-factor and/or heat-transfer data for a broad range of internally enhanced tube geometries with forced-convective turbulent flow. The program has search features; that is the user can select data for tubes with a particular enhancement geometry range or data obtained from a particular source or publication. The friction factor data base contains nearly 5,000 points and the heat-transfer data base contains more than 4,700 points. About 360 different tube geometries are included from the 36 different sources. Data for tubes with similar geometries and the same and/or different types can be easily extracted with the sort feature of this data base and compared. Users of the program are heat-exchanger designers, enhanced tubing suppliers, and research organizations or academia who are developing or validating prediction methods.

PACKAGE CONTENTS - Media Directory; Software Abstract; Computer Copy of Files and Program; 93-WA/HT-38; 93-WA/HT-39; Media Includes Source Code, Executable Modules;

SOURCE CODE INCLUDED? - No

MEDIA QUANTITY - 1 3.5 Diskette

METHOD OF SOLUTION - Not applicable

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COMPUTER - IBM PC

OPERATING SYSTEMS - MS-DOS

PROGRAMMING LANGUAGES - MS-FORTRAN 77

SOFTWARE LIMITATIONS - A thorough check of the data accuracy was not performed and data from some tube types such as longitudinally finned were not included.

SOURCE CODE AVAILABLE (Y/N) - N

UNIQUE FEATURES - This is not a simple data base because of the search feature that allows the user to obtain data based on a specified geometry range and/or from a particular data source.

HARDWARE REQS - PC computer

TIME REQUIREMENTS - About 20 seconds on 386 type machine.

REFERENCES - T.S. Ravigururajan and T.S. Rabas, An Overview of Single-Phase In-Tube Enhancements Part 1, Data-Base Development, 93-WA/HT-38, December 1993; T.S. Ravigururajan and T.J. Rabas, An Overview of Single-Phase In-Tube Enhancements Part 2, Comparisons of Data from Different Tube Types and Sources, 93-WA/HT-39, December 1993.

ABSTRACT STATUS - Submitted February 1994. Released screened March 2, 1994. Revision submitted March 25, 1994. Released AS-IS April 25, 1994.

SUBJECT CLASS CODE - H

KEYWORDS -

COMPUTER PROGRAM DOCUMENTATION
S CODES
FRICTION FACTOR
TUBES
HEAT TRANSFER
DATA BASE MANAGEMENT
TURBULENT FLOW

EDB SUBJECT CATEGORIES -
990200 420400

SPONSOR - DOE/CE

PACKAGE TYPE - AS - IS