Evaluation of Prediction Method for Pressure Drop and Condensation Heat Transfer Coefficient Inside Internally Helically-Grooved Horizontal Tubes

Norihiro Inoue and Masao Goto
Department of Electronics and Mechanical Engineering, Tokyo University of Marine Science and Technology, Tokyo, Japan

In this paper, we show methods for predicting the pressure drop of two-phase flow and condensation heat transfer coefficients, which were derived from measured friction factor data in single-phase flow experiments of fourteen kinds of internally helically-grooved tubes with 6.35 mm outer diameter. The results were evaluated by comparing the predicted values with experimental data measured by Haraguchi et al. (1994) for an internally helically-grooved tube and by Miyara et al. (2000) for an internally herringbone-grooved tube. The results indicate that the predicted values of pressure drop and condensation heat transfer coefficients agree with the measured data within ±30 % and that the proposed methods can produce accurate predictions for many kinds of internally grooved tubes.