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## NOMENCLATURE

A	surface area, m <sup>2</sup>
C <sub>min</sub>	minimum heat capacity flowrate, J/(s.K)
C <sub>p</sub>	stream heat capacity, J/(kg.K)

C <sub>r</sub>	heat capacity ratio
C	specific heat
d <sub>e</sub>	hydraulic diameter
E	effectiveness
F	stream flowrate, kg/hr
f	friction factor
k	thermal conductivity, J/(K.m.s)
$\dot{m}$	mass flux, kg/(hr.m <sup>2</sup> )
NTU	number of heat transfer unit, dimensionless
Nu	Nusselt number, dimensionless
Pr	Prandtl number, dimensionless
Q	heat duty, W
q”	heat flux, W/m <sup>2</sup>
R <sub>Total</sub>	total of heat transfer resistance, m <sup>2</sup> .K/W
R <sub>hot</sub>	resistance on hot side, m <sup>2</sup> .K/W
R <sub>f,hot</sub>	fouling resistance on hot side, m <sup>2</sup> .K/W
R <sub>wall</sub>	heat transfer resistance of wall, m <sup>2</sup> .K/W
R <sub>f,cold</sub>	fouling resistance on cold side, m <sup>2</sup> .K/W
R <sub>cold</sub>	resistance on cold side, m <sup>2</sup> .K/W
T <sub>lm</sub>	logarithmic-mean temperature difference (LMTD), K
t <sub>1</sub>	inlet temperature of hot stream, K
t <sub>2</sub>	outlet temperature of hot stream, K
t <sub>2</sub> ’	outlet temperature of cold stream, K
t <sub>1</sub> ’	inlet temperature of cold stream, K
$\left(\frac{t_1}{t_1'}\right)$	temperature ratio, dimensionless
U <sub>0</sub>	overall heat transfer, J/s.m <sup>2</sup> .K
u, v	velocity components along the x and y directions, respectively
x, y	Cartesian coordinates normal to and along the surface, respectively

## Greek symbols

$\alpha$	thermal diffusivity, m <sup>2</sup> /s
$\beta$	chevron angle, °
$\varepsilon$	emissivity
$\rho$	fluid density, kg/m <sup>3</sup>
$\theta$	regression parameter
$\mu_m$	fluid viscosity at bulk fluid temperature, cP
$\mu_w$	fluid viscosity at heat transfer boundary surface temperature, cP
$\Delta H_r$	standard enthalpy of reaction, J/mol
$\Delta P_{chm}$	mean channel pressure drop in plate heat exchanger, bar
$\Delta P_{port}$	pressure drop between inlet and outlet ports in plate heat exchanger, bar
$\Delta P_{ec}$	pressure drop due to expansion and contraction in enhanced-corrugation, bar
$\Delta P_{f,pipe}$	pressure drop due to friction in pipe connection, bar
$\Delta T$	change in temperature stream, K
$\Delta T_{min}$	minimum temperature approach, K
$\nabla T$	temperature gradient, K
$\lambda_{max}$	wavelength at maximal spectral emissive power of a black body, $\mu\text{m}$