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NOMENCLATURE

A	cross section, m^2
C_F	drag factor coefficient
c_p	specific heat, J kg^{-1} K^{-1}
d	tube diameter, m
d_f	fiber diameter, m
d_p	pore diameter, m
f	friction factor
h	heat transfer coefficient, W m^{-2} K^{-1}
h_{sf}	interfacial heat transfer coefficient, W m^{-2} K^{-1}
H	half pitch, m
H_{tot}	heat exchanger height, m
j	Colburn factor
k	thermal conductivity, W m^{-1} K^{-1}
K	porous permeability, m^2
L	thickness of porous media, m
$\dot{m}$	mass flow rate, kg s^{-1}
p	static pressure, Pa
Pr	Prandtl number
PPI	number of pores per inch
$\dot{Q}$	thermal power, W
r	radius tube, m
Re	Reynolds number
s	curvilinear abscissa, m
T	Temperature, K
t	thickness of metal foam, m
u	x-velocity, m s^{-1}
u_0	inlet air velocity, m s^{-1}
v	y-velocity, m s^{-1}
x	Cartesian axis direction, m
y	Cartesian axis direction, m

Greek symbols

α_{sf}	specific surface area density, m^{-1}
Δ	difference
ε	porosity
μ	dynamic viscosity, kg m^{-1} s^{-1}
ρ	density, kg m^{-3}

Subscripts

0	inlet condition
$clean$	system without foam
d	tube diameter
d_f	fiber diameter
f	fluid phase of metal foam
mf	metal foam
pf	partially filled
s	solid phase of metal foam
tf	totally filled
w	wall