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NOMENCLATURE

B	magnetic field induction, T
C	specific heat, J. kg ⁻¹ . K ⁻¹
E	electric field intensity, V. m ⁻¹
H	magnetic field intensity, A. m ⁻¹
k	thermal conductivity, W. m ⁻¹ . K ⁻¹
m	fluid flow rate, kg. s ⁻¹
M	magnetization, A. m ⁻¹
p	pressure, Pa
P	polarization, C.m ⁻²
Q	thermal power, W
S	entropy, J. K ⁻¹
T	temperature, K
U	longitudinal velocity, m.s ⁻¹
V	orthogonal velocity, m.s ⁻¹
W	work, J
X	longitudinal spatial coordinate, m
y	orthogonal spatial coordinate, m

Greek symbols

δ	thermal penetration depth, mm
Δ	finite difference
η	isentropic efficiency
μ	dynamic viscosity, kg. m ⁻¹ .s ⁻¹
ν	cinematic viscosity, m ² . s ⁻¹
ρ	density, kg. m ⁻³
τ	period of each phase cycle, s

Subscripts

ad	adiabatic
B	breakdown
C	Cold
CF	cold fluid flow
D	depolarization/demagnetization phase
E	constant electric field
El	electronic
F	fluid
FHWM	full half width modulation
H	hot
HF	hot fluid flow
M	magnetization phase
M	magnetic
max	maximum
P	polarization phase
ref	refrigerant
rej	rejected
S	constant entropy
s	solid
T	constant temperature
w	water