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LIST OF ILLUSTRATIONS

ABBREVIATIONS

Alphabetical

A	heat transfer area	m^2
BF	bypass factor	decimal
BAR	bypass air ratio	decimal
C	specific heat	kJ/kg-K
COP	coefficient of performance	decimal
CV	control volume	
D	diameter of tube	m
HPD	heat pump dryer	
H	enthalpy	kJ/kg
h	heat transfer coefficient	W/m^2 °C
h_{fg}	laten heat	kJ/kg
k_a	thermal conductivity of air	kW/m^2-K
k_c	thermal conductivity of copper	kW/m^2-K
L	length	m
LTS	loop thermosyphon	
LTHE	loop thermosyphon heat exchanger	
MER	moisture extraction rate	kg/h
M	moisture content	% dry-basis
m_d	airflow rate	kg/hr
m_p	dry mass of product	kg
m_t	total mass of product	kg
NTU	number transfer unit	
NCG	non-condensable gas	
P_c	compress power	kW
Q_{ac}	heat transfer rate at condenser air side	kW
Q_{ae}	heat transfer rate at evaporator air side	kW
Q_{rc}	heat transfer rate at condenser refrigerator side	kW
Q_{re}	heat transfer rate at condenser refrigerator side	kW
R	universal gas constant	kJ/mol-K

RAR	recirculation air ratio	decimal
Re	reynold number	
RH	relative humidity	%
SMER	specific moisture extraction rate	kg/kW-h
T	temperature	◦C or K
t	drying time	h
U	over all heat transfer coefficient	kW/m^2-K
W	humidity ratio	kg-water vapor/kg-dry air
Z	resistance	

Subscripts

a	air
abs	absolute
c	condenser
co	exit condenser
d	dry bone
di	in dryer
db	dry bulk and dry basis
eo	exit evaporator
eq	equilibrium
f	after and film
in	initial
o	outside
r	refrigerant
sat	saturation condition
v	vapor
w	water
wb	wet bulk and wet basis