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## NOMENCLATURE

$A_{ch}$	Cross-sectional area of the desiccant channel
$U_{ch}$	Air flow speed inside channel
$U_f$	Air flow speed at the desiccant wheel face
$C_{b,m}$	Mean specific heat for desiccant bed (J/kg <sub>d</sub> . K)
$C_a$	Mean specific heat for moist air (J/kg <sub>a</sub> . K)
$D_H$	Hydraulic diameter (m)
$f_c$	Actual mass and heat transfer area / unit volume of the air gap (m <sup>-1</sup> )
$G_{ch}$	Superficial mass flux (kg/m <sup>2</sup> . s)
$h_w$	Heat of wetting (J/kg)
$i_a$	Specific enthalpy of the moist air (J/kg)
$i_d$	Specific enthalpy of the desiccant bed (J/kg)
$K_m$	Coefficient of mass transfer (kg . m <sup>2</sup> /s)
$L$	Passage length (m)
$\frac{\dot{m}_a}{m_a}$	Air mass flow rate per channel (kg/hr)
$q_z$	Specific energy transfer rate through the boundary (w/m <sup>3</sup> )
$T$	System equilibrium temperature (°K)
$t_w$	Wall temperature (°C)
$t$	Air temperature (°C)
$W$	Water content of desiccant (kg / kg)
$\frac{V_w}{V_s}$	Packing filling factor
	Relative humidity
$\rho_a$	Density of air (kg/m <sup>3</sup> )
$\rho_d$	Density of dry desiccant material (kg/m <sup>3</sup> )
	Time (sec.)

### **Subscript**

<i>a</i>	Air
<i>a, d</i>	Dry air
<i>d</i>	Desiccant
<i>d, d</i>	Dry desiccant
<i>d, w</i>	Wetted desiccant
<i>b</i>	Desiccant bed
<i>ch</i>	Air channel
<i>s</i>	Cross sectional area of the substrate carrying material
<i>w, l</i>	Water (liquid)
<i>w, v</i>	Water (vapor)