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NOMENCLATURE

A_t	Total area of the collector (m²)
C_b	Bond conductance of the material (W/m.K)
C_p	specific heat capacity of fluid (J/Kg K)
Cc	Collector bank length (m)
D	Outside tube diameter (m)
F	Fin efficiency
F'	Efficiency factor of the solar collector
F_R	Collector heat removal factor
G_T	Solar incident radiation (W/m^2)
h_i	convective heat transfer coefficient inside the tubes (W/m^2.K)
h_w	Convective heat transfer coefficient due to wind (W/m².K)
k	Thermal conductivity of the insulation (W/m.K)
k_{abs}	Thermal conductivity of the absorber material (W/m.k)
L	Distance between the absorber and the cover (m)
L_c	Width of the collector (m)
L_g	Thickness of the glass cover (m)
$\dot{m}$	Mass flowrate of the working fluid (kg/s)
N	Number of glass covers
NT	Number of collector tubes
P_c	Collector perimeter (m)
Q_u	Useful energy gain (W)
T_a	Ambient temperature (K)
T_m	Average fluid temperature inside the collector (K)
T_p	Average temperature of the absorber plate (K)
T_o	Outlet fluid temperature (K)
U_b	Bottom heat loss coefficient (W/m²K)
U_L	Collector overall heat loss coefficient (W/m^2.K)
U_e	Edge heat loss coefficient (W/m²K)
U_t	Top heat loss coefficient (W/m² K)
V_w	Average wind speed (m/s)
W	Distance between tubes (m)

Greek symbols

α	Absorber plate absorptance
β	Inclination of the solar collector (°);
δ	Thickness of the absorber (m)
δ_1	Edge insulation thickness (m)
δ_2	Back insulation thickness (m)
δ_c	Thickness of the collector (m)
ε_g	Emittance of the glass
ε_p	Emittance of the plate
η_0	Optical efficiency
η_i	Instantaneous efficiency
τ	Transmittance of the glass cover