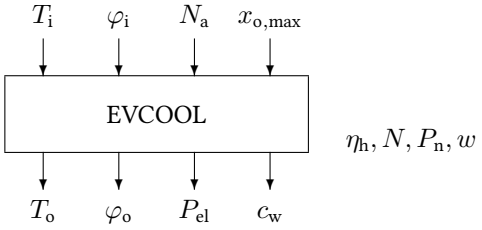
Block EVCOOL

The EVCOOL block simulates an evaporative cooler (humidifier).





Name	EVCOOL
Function	st0006
Inputs	4
Outputs	4
Parameters	4
Strings	0
Group	S

Inputs

1 Inlet temperature T_i / °C
2 Relative humidity φ_i
3 Number of active stages N_a
4 Maximum absolute humidity $x_\mathrm{o,max}$ / g kg^{-1}

Outputs

1 Outlet temperature T_o /°C
2 Relative outlet humidity φ_o
3 Electricity consumption P_el / W
4 Water consumption c_w/ g kg^{-1}

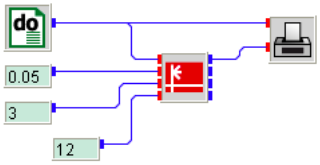
Parameters

1 Humidification efficiency η_h
2 Number of stages N
3 Nominal electricity consumption P_n / W
4 Water consumption factor w

Strings

None

evcool.vseit



An three-stage evaporative cooler with a humidification efficiency of 0.9 and a nominal electricity consumption of 50 W is simulated by the EVCOOL block. The water consumption factor is set to 1.3.

The inlet temperature is varied by a DO block between 20 and 100 °C in steps of 1 °C. The outlet temperature is plotted as a function of the inlet by a PLOT block.

The other inputs of the EVCOOL block are defined through CONST blocks to a relative humidity of the inlet air of 50 percent. The number of active stages is set to 3, the maximum absolute humidity is restricted to 12 kg water per kg air.

