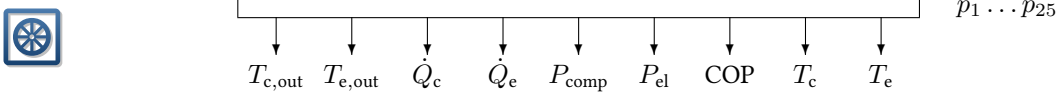
Block HPPOLY

The HPPOLY block simulates a compression heat pump by using the polynomial functions that describe the compressor performance according to EN12900.



Name	HPPOLY
Function	se0035
Inputs	4
Outputs	9
Parameters	25
Strings	0
Group	S

Inputs

1	Fluid inlet temperature at condenser side $T_{c,in}$ / °C
2	Fluid mass flow rate in the condenser $\dot{m}_c$ / kg s^{-1}
3	Fluid inlet temperature at evaporator side $T_{c,in}$ / °C
4	Fluid mass flow rate in the evaporator $\dot{m}_e$ / kg s^{-1}

Parameters

1	Number of compressors N_c
2	Specific heat capacity of fluid at evaporator side $c_{p,e}$ / kJ kg^{-1} K^{-1}
3	Specific heat capacity of fluid at condenser side $c_{p,c}$ / kJ kg^{-1} K^{-1}
4	UA value of HX at evaporator side UA_e / kW K^{-1}
5	UA value of HX at condenser side UA_c / kW K^{-1}
6	Polynomial coefficient for cooling capacity c_1
7	Polynomial coefficient for cooling capacity c_2
8	Polynomial coefficient for cooling capacity c_3
9	Polynomial coefficient for cooling capacity c_4
10	Polynomial coefficient for cooling capacity c_5
11	Polynomial coefficient for cooling capacity c_6
12	Polynomial coefficient for cooling capacity c_7

13	Polynomial coefficient for cooling capacity c_8
14	Polynomial coefficient for cooling capacity c_9
15	Polynomial coefficient for cooling capacity c_{10}
16	Polynomial coefficient for electricity consumption d_1
17	Polynomial coefficient for electricity consumption d_2
18	Polynomial coefficient for electricity consumption d_3
19	Polynomial coefficient for electricity consumption d_4
20	Polynomial coefficient for electricity consumption d_5
21	Polynomial coefficient for electricity consumption d_6
22	Polynomial coefficient for electricity consumption d_7
23	Polynomial coefficient for electricity consumption d_8
24	Polynomial coefficient for electricity consumption d_9
25	Polynomial coefficient for electricity consumption d_{10}

Outputs

1	Outlet fluid temperature at condenser side $T_{\mathrm{c,out}}$ / °C
2	Outlet fluid temperature at evaporator side $T_{\mathrm{e,out}}$ / °C
3	Power dissipated at condenser $\dot{Q}_{\mathrm{c}}$ / kW
4	Power absorbed at evaporator $\dot{Q}_{\mathrm{e}}$ / kW
5	Electrical power consumed by the compressor P_{el} / kW
6	COP of the heat pump in heating mode $\mathrm{COP_h}$
7	COP of the heat pump in cooling mode $\mathrm{COP_h}$
8	Condenser temperature T_{c} / °C
9	Evaporator temperature T_{e} / °C

Strings

None

Description hppoly.des