INSTITUT FÜR SOLARTECHNIK

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Python calculation for heat pump HP06L-K-BC

Parametric Heat Pump calculation

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2019/02/26 at: 11:07:44 h

Table 1: Fitted coefficients for the heat pump.

Coefficient	Description	
		$[kW]$
PQ_1	1^{st} *condenser polynomial coefficient*	5.7318e+00
PQ_2	2^{st} *condenser polynomial coefficient*	6.0957e+01
PQ_3	3^{st} *condenser polynomial coefficient*	2.8445e+01
PQ_4	4^{st} *condenser polynomial coefficient*	9.5982e+00
PQ_5	5^{st} *condenser polynomial coefficient*	5.1491e+01
PQ_6	6^{st} *condenser polynomial coefficient*	-1.5297e+02
$PCOP_1$	1^{st} *COP polynomial coefficient*	8.4084e+00
$PCOP_2$	2^{st} *COP polynomial coefficient*	7.1520e+01
$PCOP_3$	3^{st} *COP polynomial coefficient*	-3.6218e+01
$PCOP_4$	4^{st} *COP polynomial coefficient*	-2.6541e+02
$PCOP_5$	5^{st} *COP polynomial coefficient*	6.6681e+01
$PCOP_6$	6^{st} *COP polynomial coefficient*	1.9120e+01
$\dot{m}_{cond}$	1200.00 $[kg/h]$	
$\dot{m}_{evap}$	3000.00 $[kg/h]$	
COP_{nom} (B0W35)	4.00	
$Q_{c,nom}$ (B0W35)	6.40 kW	
COP_{nom} (B2W35)	4.28	
$Q_{c,nom}$ (B2W35)	6.81 kW	
COP_{nom} (B10W35)	5.44	
$Q_{c,nom}$ (B10W35)	8.48 kW	

Table 2: Predicting results of the heat pump.

$T_{evap,in}$ ^oC	$T_{evap,out}$ ^oC	$T_{cond,in}$ ^oC	$T_{cond,out}$ ^oC	COP [–]	Q_{cond} $[kW]$	Q_{evap} $[kW]$	W_{comp} $[kW]$	$\dot{m}_{cond}$ kg/h	$\dot{m}_{evap}$ kg/h	ΔT_{evap} K	ΔT_{cond} K
-7.00	-8.99	47.02	50.00	1.92	4.17	2.00	2.17	1200	3000	2.0	3.0
-7.00	-7.88	55.05	57.50	1.35	3.42	0.89	2.54	1200	3000	0.9	2.5
-7.00	-6.29	63.23	65.00	0.78	2.47	-0.71	3.19	1200	3000	-0.7	1.8
7.00	2.16	44.90	50.00	3.14	7.12	4.85	2.27	1200	3000	4.8	5.1
7.00	3.44	52.88	57.50	2.24	6.46	3.57	2.88	1200	3000	3.6	4.6
7.00	5.55	60.96	65.00	1.35	5.64	1.45	4.19	1200	3000	1.4	4.0

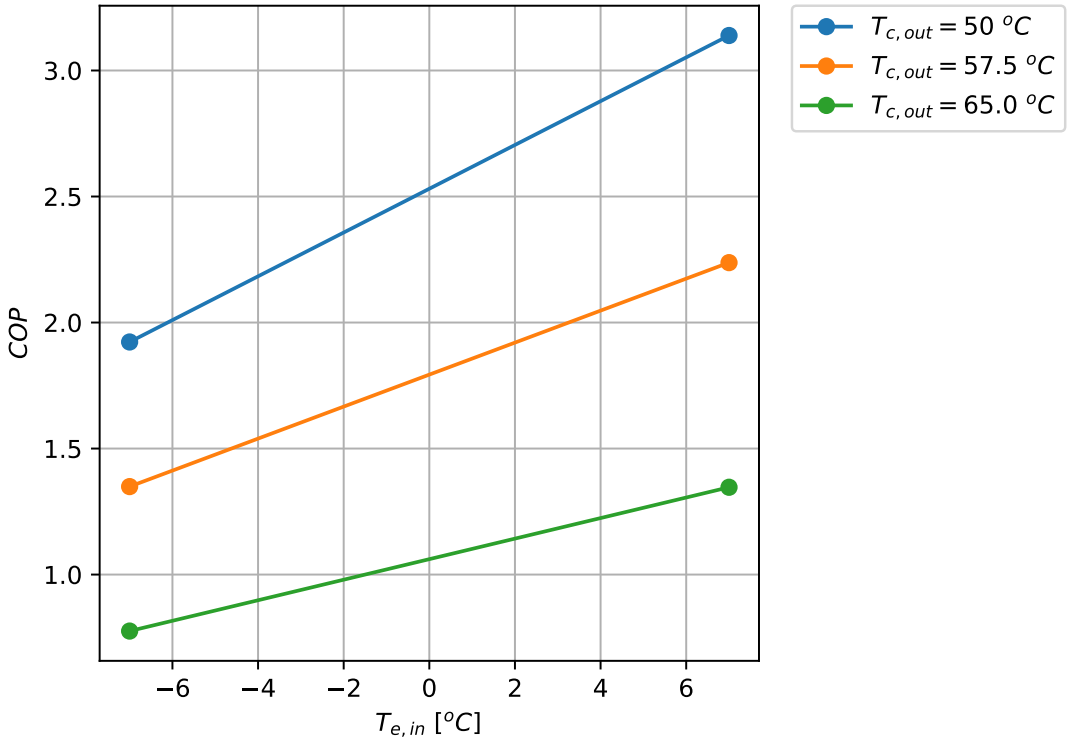

Figure 1: COP Results for the heat pump at the selected points

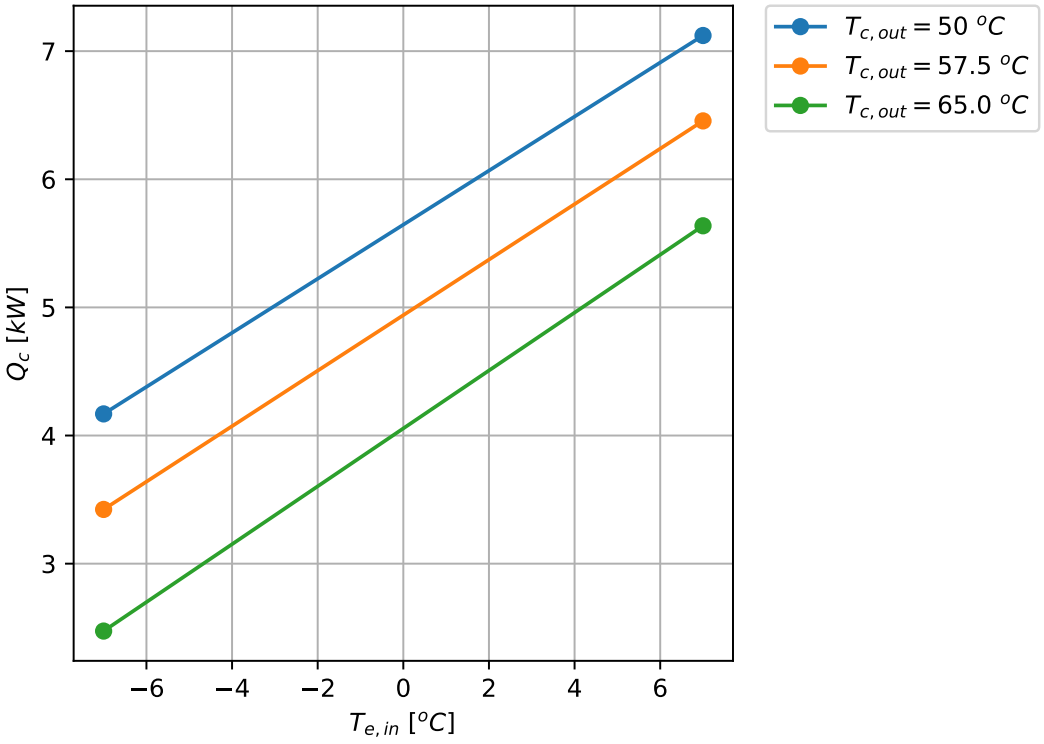

Figure 2: Q_c Results for the heat pump at the selected points