



$\begin{array}{c} {\bf Python~calculation~for~heat~pump}\\ {\bf SIN-26TU} \end{array}$

Parametric Heat Pump calculation

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Table 1: Fitted coefficients for the heat pump.

Coefficient	Description	
		[kW]
PQ_1	1 st condenser polynomial coefficient	2.5644e+01
PQ_2	2^{st} condenser polynomial coefficient	3.0014e+02
PQ_3	3^{st} condenser polynomial coefficient	5.9163e+01
PQ_4	4^{st} condenser polynomial coefficient	-5.9720e+02
PQ_5	5^{st} condenser polynomial coefficient	5.1391e+02
PQ_6	6^{st} condenser polynomial coefficient	-2.9866e+02
$PCOP_1$	1 st COP polynomial coefficient	6.7660e+00
$PCOP_2$	2 st COP polynomial coefficient	7.0047e + 01
$PCOP_3$	3 st COP polynomial coefficient	-5.1288e+00
$PCOP_4$	4 st COP polynomial coefficient	-2.9395e+02
$PCOP_5$	5^{st} COP polynomial coefficient	1.0724e + 02
$PCOP_6$	6 st COP polynomial coefficient	-7.2713e+01
\dot{m}_{cond}	$4500.00 \ [kg/h]$	
\dot{m}_{evap}	4500.00 [kg/h]	
COP_{nom} (B0W35)	4.85	
$Q_{c,nom}$ (B0W35)	$26.63~\mathrm{kW}$	
COP_{nom} (B2W35)	5.09	
$Q_{c,nom}$ (B2W35)	$28.15~\mathrm{kW}$	
COP_{nom} (B10W35)	6.18	
$Q_{c,nom}$ (B10W35)	$34.70~\mathrm{kW}$	





Table 2: Predicting results of the heat pump.

°C °C °C °C [-] [kW] [kW] [kW] kg/h kg/h kg/h K K -7.00 -10.46 25.90 30.40 38.75 3.90 21.72 16.16 5.57 4500 4500 3.4 4.1 -7.00 -10.65 43.41 47.50 3.34 21.42 15.01 6.41 4500 4500 3.4 4.1 -7.00 -9.66 52.33 56.25 2.02 20.55 12.70 7.84 4500 4500 2.7 3.9 -7.00 -8.68 61.35 65.00 1.72 19.12 8.00 11.12 4500 4500 4500 450 450 45.0 -4.00 -7.78 3.42 38.75 4.17 23.71 18.02 5.69 4500 4500 3.8 4.5 -4.00 -6.73 61.06 65.00 1.71 20.55 25.70 22.21 13.99 8.22	$T_{evap,in}$	$T_{evap,out}$	$T_{cond,in}$	$T_{cond,out}$	COP	Q_{cond}	Q_{evap}	W_{comp}	\dot{m}_{cond}	\dot{m}_{evap}	ΔT_{evap}	ΔT_{cond}
-7.00 -10.39 34.60 38.75 3.90 21.72 16.16 5.57 4500 4500 3.4 4.1 -7.00 -9.66 52.33 56.25 2.62 20.55 12.70 7.84 4500 4500 2.7 3.9 -7.00 -8.68 61.35 65.00 1.72 19.12 8.00 11.12 4500 4500 3.7 3.7 -4.00 -7.78 34.22 38.75 4.17 23.71 18.02 5.09 4500 4500 3.9 4.5 -4.00 -7.78 34.22 38.75 4.17 23.71 18.02 5.09 4500 4500 3.5 4.4 -4.00 -6.93 52.01 56.25 2.70 22.21 13.99 8.22 4500 4500 2.9 4.2 -4.00 -5.79 61.06 65.00 1.71 20.5 8.54 12.11 4500 4500 4.2 4.9 -1.00					[-]							
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20.00 13.65 48.74 56.25 4.34 39.35 30.28 9.07 4500 4500 6.3 7.5												
20.00 10.20 00.00 00.00 2.02 00.00 22.07 10.99 4000 4000 4.8 7.0	20.00	15.25	58.00	65.00	2.62	36.65	22.67	13.99	4500	4500	4.8	7.0





$\rm Meier/SIN\text{-}26TU/SIN\text{-}26TU\text{-}Cop.pdf}$

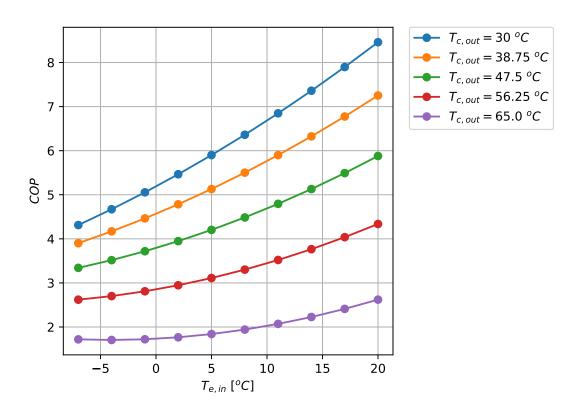


Figure 1: COP Results for the heat pump at the selected points





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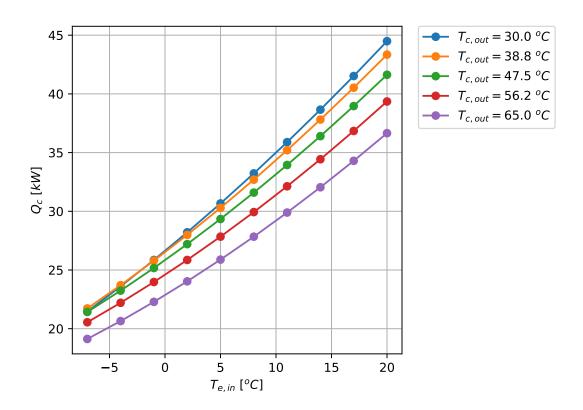


Figure 2: Q_c Results for the heat pump at the selected points