



STATE POINTS					Additional information
STATE POINT	TEMPERATURE [°C]	PRESSURE [kPa]	ENTHALPY [kJ/kg]	DENSITY [kg/m ³]	
1	-1,6	405,1	476,4	8,7	Pressure ratio (p_2 / p_1) : 3,253
2	65,9	1317,9	577,2	24,1	
3	65,9	1302,8	577,6	23,8	T _{2,IS} : 45,4 [°C] T _{2,IS} is the temperature of the discharge gas assuming reversible and adiabatic compression
4	15,5	1302,8	140,8	506,6	
5	15,5	1302,8	140,8	506,6	T _{2,W} : 67,2 [°C] T _{2,W} is the temperature of the discharge gas assuming real and adiabatic compression
6	-4,8	411,6	140,8	-----	
7	-1,8	411,6	475,8	8,8	
8	-1,6	405,1	476,4	8,7	

Calculate	Print	Help	Cycle Spec.	Auxiliary	COP 3,238	COP* :3,244
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AUXILIARY

VOLUMETRIC EFFICIENCY

Volumetric efficiency η_{VOL} [-] $\eta_{VOL} : 0,800$ [-] $\dot{V}_S : 11,88$ [m³/h] $\dot{V}_D : 14,85$ [m³/h]
 \dot{V}_S can be chosen as input in the cycle specification window.

UTILIZATION OF DISCHARGE GAS SUPERHEAT FOR HEATING OF WATER

Temperature increase ΔT_{WATER} [K] $\Delta T_{WATER} : 1$ [K] $\dot{V}_{WATER} : 1,49$ [m³/h] $\dot{Q}_{DSH} : 1,716$ [kW]
 $T_{DL,OUT} : 65,9$ [°C] $T_C : 37,9$ [°C]

Water in the desuperheating heat exchanger can only be heated to discharge temperature $T_{DL,OUT}$.
 \dot{Q}_C in the main diagram window includes both the heat load for both desuperheating and condensing of the refrigerant.

ENERGY CONSUMPTION

Hours of operation [h] Energy consumption **25938** [kWh]

PIPE DIMENSIONS

PIPE SECTION	VELOCITY	PIPE DIAMETER (Internal)	Condition corresponds to
	[m/s]	[mm]	
Suction line	<input type="text" value="10,0"/>	20,5	State Point #1
Discharge line	<input type="text" value="13,0"/>	10,8	State Point #2
Liquid line	<input type="text" value="0,9"/>	8,9	State Point #5

COP 3,238
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CYCLE SPECIFICATION					
TEMPERATURE LEVELS		PRESSURE LOSSES		SUCTION GAS HEAT EXCHANGE	REFRIGERANT
T_E [°C]:	-4,8	ΔT_{SH} [K]:	3	No SGHX	R290
T_C [°C]:	37,9	ΔT_{SC} [K]:	22,4	0,20	
		Δp_{SL} [K]:	0,5		
		Δp_{DL} [K]:	0,5		
CYCLE CAPACITY					
Heating capacity \dot{Q}_C [kW]	12,5	\dot{Q}_E : 9,587 [kW]	\dot{Q}_C : 12,5 [kW]	\dot{m} : 0,02862 [kg/s]	\dot{V}_S : 11,88 [m ³ /h]
COMPRESSOR PERFORMANCE					
Isentropic efficiency η_{IS} [-]	0,55	η_{IS} : 0,550 [-]	\dot{W} : 2,961 [kW]		
COMPRESSOR HEAT LOSS					
Discharge temperature T_2 [°C]	65,9	f_Q : 2,6 [%]	T_2 : 65,9 [°C]	\dot{Q}_{LOSS} : 0,07661 [kW]	
SUCTION LINE					
Unuseful superheat $\Delta T_{SH,SL}$ [K]	0,2	\dot{Q}_{SL} : 18 [W]	T_8 : -1,6 [°C]	$\Delta T_{SH,SL}$: 0,2 [K]	

Calculate	Print	Help	Auxiliary	State Points	COP 3,238	COP* :3,244
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