

# Coolselector2

## Project information

Project name:  
 Comments:  
 Created by: Bojana Vezmar EKO ELEKTROFRIGO DOO  
 Coolselector2 version: 5.0.1. Database: 88  
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 Preferences used: My preferences

## Compressors 1

### Operating conditions

Refrigerant:	R407C		
Evaporating dew point temperature:	5.0 °C	Condensing dew point temperature:	45.0 °C
Evaporating pressure:	5.471 bar	Condensing pressure:	17.51 bar
Evaporating mid-point temperature:	2.8 °C	Subcooling:	2.0 K
Useful superheat:	8.0 K	Additional subcooling:	0 K
Additional superheat:	0 K	Total subcooling:	2.0 K
Return gas temperature:	13.0 °C	Liquid temperature:	38.1 °C
<b>Rating conditions:</b>	<i>Custom</i>		
<b>Required cooling capacity:</b>	<i>7.690 kW</i>		

### Selection: (HHP021T5), R407C. Discontinued model

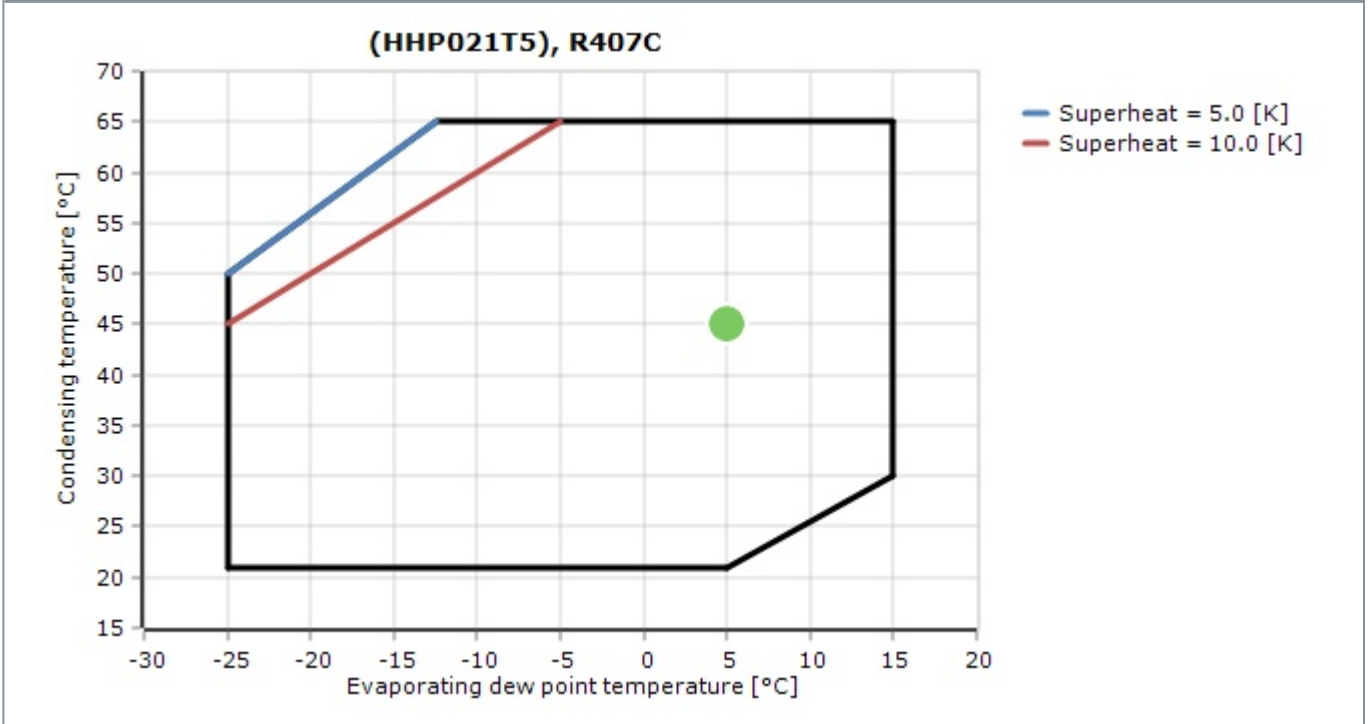
Model	(HHP021T5)
Technology	Scroll
Configuration	Single
Capacity control	Fixed speed
Refrigerant	R407C
Speed [rpm]	2900
Cooling [kW]	7.697
Heating [kW]	9.780
COP cooling [W/W]	3.70
COP heating [W/W]	4.70
Power [kW]	2.083
Current [A]	9.686
Frequency [Hz]	50
Power supply	220 - 240 V 1 ph
Mass flow [kg/h]	171.4

### Selected code number and spare parts

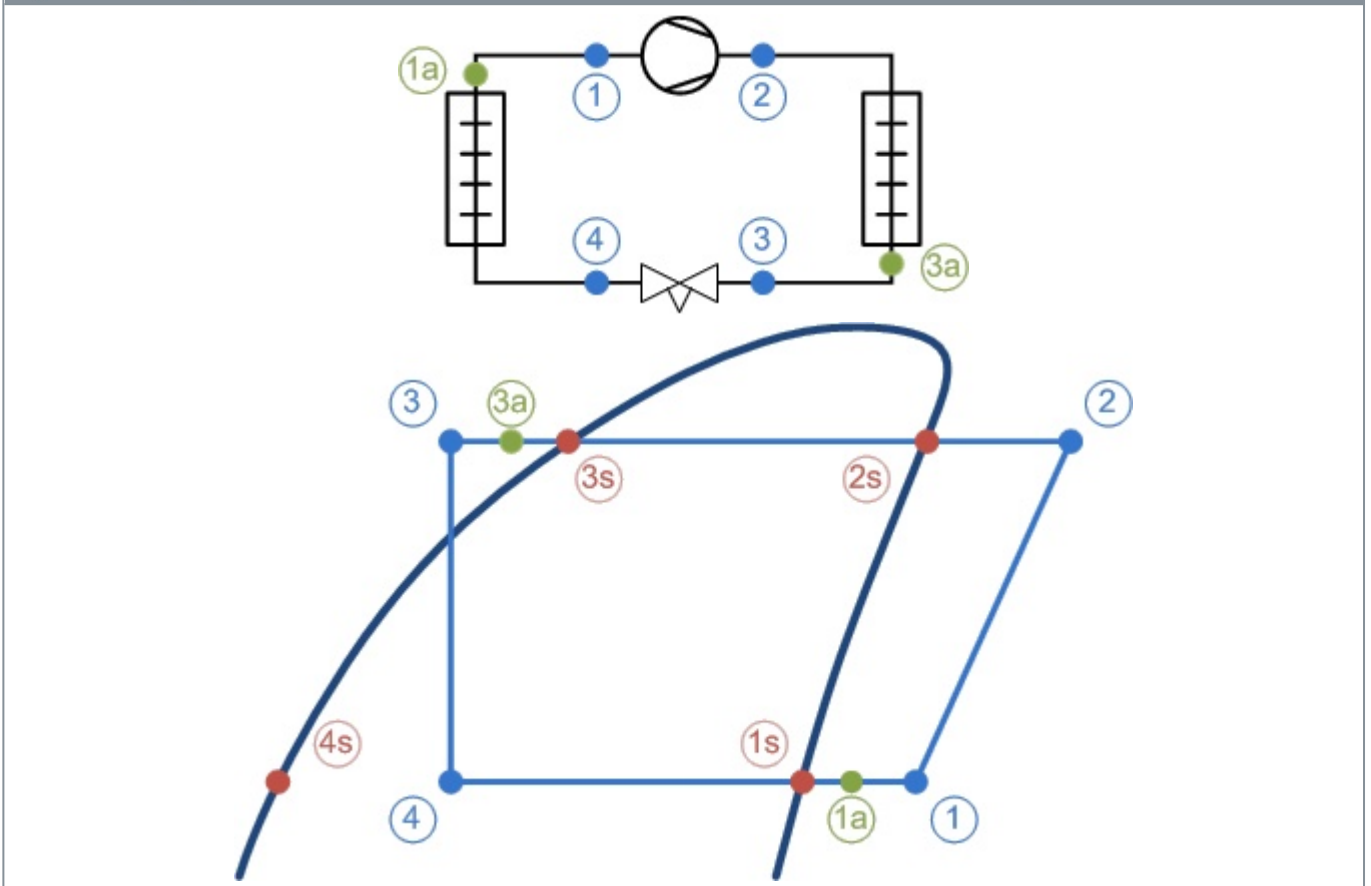
**Code number:** 121U9011. HHP021T5LP6. Min. order quantity: 12 pcs

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## Envelope



## System diagrams



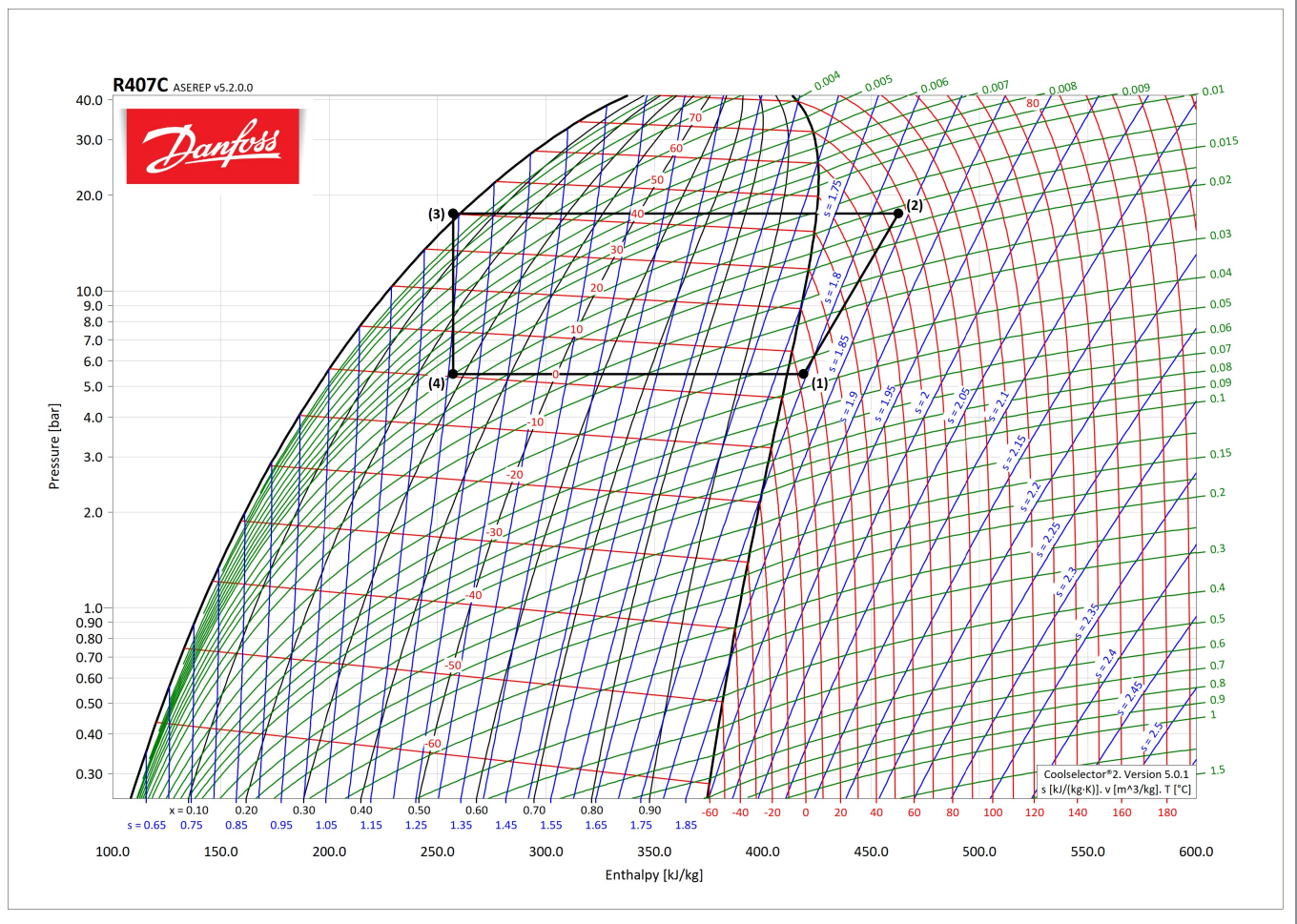
### Mass flows

Mass flow in evaporator: 171.3 kg/h      Mass flow in compressor: 171.3 kg/h

### State points

		Temperature	Pressure (a)	Density	Enthalpy	Entropy
Point	Description	[°C]	[bar]	[kg/m <sup>3</sup> ]	[kJ/kg]	[kJ/(kg·K)]
1	Compressor suction	13.0	5.471	22.3	418.8	1.795
2	Compressor discharge (estimated)	76.2	17.51	62.99	462.6	1.836
2s	Condensation dew point	45.0	17.51	78.76	424.7	1.723
3s	Condensation bubble point	40.1	17.51	1067	260.4	1.202
3a	Condenser out	38.1	17.51	1077	257.1	1.192
3	Including additional subcooling	38.1	17.51	1077	257.1	1.192
4	After expansion valve	0.6	5.471	80.49	257.1	1.208
4s	Evaporation bubble point	-1.1	5.471	1241	198.4	0.9945
1s	Evaporation dew point	5.0	5.471	23.32	411.2	1.768
1a	Evaporator out	13.0	5.471	22.3	418.8	1.795

## Detailed log(p)-h diagram



## Technical Data

Capacity control	Fixed speed
Economizer	No
Configuration code	Single
Swept volume [cm <sup>3</sup> ]	46 cm <sup>3</sup>
Motor protection	Internal overload protector
Refrigerant charge [kg] [Max]	3.63 kg
Number of starts per hour [Max]	12
Rotational speed at 50Hz [rpm]	2900 rpm
Brand technique	Scroll compressor
Colour	Black
Rotational speed at 60Hz [rpm]	0 rpm
IP protection class	IP22
Glass mounting	None
Gauge port LP	None
Gauge port HP	None
Oil equalization	None
Relief valve	Yes



Approval standard	CE;UL
Net weight	3.23 kg

## Dimensions

Length [mm]	239 mm
Drawing number	0XC6301B-2
Diameter [mm]	165 mm
Width [mm]	239 mm
Total height [mm]	413 mm
Suction connection height [mm]	250 mm
Discharge connection height [mm]	379 mm

## Electrical Specifications

Phase	1
Frequency [Hz]	50
Compressor power supply [V/Ph/Hz]	220-240/1/50
Low value of nominal voltage at 50Hz [V]	220 V
High value of nominal voltage at 50Hz [V]	240 V
Low value of nominal voltage at 60Hz [V]	0 V
High value of nominal voltage at 60Hz [V]	0 V
Low value of voltage range at 50Hz [V]	198 V
High value of voltage range at 50Hz [V]	264 V
Low value of voltage range at 60Hz [V]	0 V
High value of voltage range at 60Hz [V]	0 V
Main winding resistance for single-phase compressors [Ohm]	0.73 Ohm
Auxiliary winding resistance (start winding) for single-phase compressors [Ohm]	1.27 Ohm
MCC	24 A
RLA	17.1 A
LRA	69 A
Capacity of capacitor A	60 µF
Capacity of capacitor B	145-175 µF
Voltage of capacitor A [V]	370 V
Power connections	Spade

## Mechanical Connections

Connection type	Brazed
Suction connection pipe size [in]	3/4 in
Discharge connection size [in]	1/2 in
Suction connection size [in]	3/4 in
Fitting standard	ODF

## Oil Data

Oil reference	160HV
Oil type	PVE
Oil charge [L]	1.06 L
Viscosity [cP]	32 cP
Shipped oil	Initial oil charge

## Packaging

Packing quantity	12
Shipped instructions	Installation instructions
Shipped mounting	Mounting kit with grommets and sleeves

## Acoustic power

Sound 1	71 db(A)
Sound 2	63 db(A)

## Spare parts

Type	Description	Code number
Acoustic hood 1	Acoustic hood	120Z5083
Belt 01	Belt type crankcase heater, 40 W, 230 V, CE mark, UL	120Z0055
Capacitor A	Run capacitor 60 µF	120Z0050
Discharge gasket	Gasket, 1"	8156130
Discharge sleeve	Solder sleeve, P06 (1" rotolock, 1/2" ODF)	8153007
Discharge temperature protection	Discharge thermostat kit	7750009
Discharge valve	Rotolock valve, V06 (1" rotolock, 1/2" ODF)	8168031
Ebox	Terminal box	120Z5015
Ebox cover	IP54 upgrade kit	118U0056
Gasket set	Gasket set, 1", 1-1/4", 1-3/4", OSG gaskets black and white	8156009
Mounting kit 1	Mounting kit for one-scroll compressor, including 4 grommets, 4 sleeves, 4 bolts, 4 washers	120Z5064
Oil 1	PVE lubricant, 320HV (FVC68D), 1-litre can	120Z5034
Solder sleeve set	Solder sleeve adaptor set (1-1/4" rotolock, 3/4" ODF), (1" rotolock, 1/2" ODF)	120Z0126
Suction gasket	Gasket, 1-1/4"	8156131
Suction sleeve	Solder sleeve, P04 (1-1/4" rotolock, 3/4" ODF)	8153008
Suction valve	Rotolock valve, V04 (1-1/4" rotolock, 3/4" ODF)	8168029

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## Polynomials at standard condition. General information

Compressor performance data according to EN12900/ARI540

Superheat	10.0	K
Subcooling	2.8	K
Q	Cooling capacity	W
P	Power consumption	W
I	Current	A
Te	Evaporating temperature	°C
Tc	Condensing temperature	°C

Polynomial as function of Te and Tc:

$$Y = C0 + C1*Te + C2*Tc + C3*Te^2 + C4*Te*Tc + C5*Tc^2 + C6*Te^3 + C7*Tc*Te^2 + C8*Te*Tc^2 + C9*Tc^3$$

## Polynomials at standard condition

	Q [W]	P [W]	I [A]
C0	9037.15716906548	203.9859924	8.405150414
C1	311.773340899369	-41.2521019	-0.05243099853
C2	32.6251859689044	56.27640152	-0.1818529963
C3	4.39189325446994	-0.9509909749	-0.003614050103
C4	0.18849493166668	1.504259944	0.0009136800072
C5	-1.45323568124489	-0.624688983	0.005967979785
C6	0.0225452740883161	-0.003809459973	-2.579939974E-5
C7	-0.0180797718731012	0.01382859983	4.454639929E-5
C8	-0.0226427590534161	-0.007293120027	3.025059959E-5
C9	0.00899903961800889	0.006167020183	-3.102729897E-5

## Polynomials at selected condition. General information

Compressor performance data according to EN12900/ARI540

Superheat	8.0	K
Subcooling	2.0	K
Q	Cooling capacity	kW
P	Power consumption	kW
I	Current	A
M	Mass flow	kg/h
Te	Evaporating temperature	°C
Tc	Condensing temperature	°C

Polynomial as function of Te and Tc:

$$Y = C0 + C1*Te + C2*Tc + C3*Te^2 + C4*Te*Tc + C5*Tc^2 + C6*Te^3 + C7*Tc*Te^2 + C8*Te*Tc^2 + C9*Tc^3$$

## Polynomials at selected condition

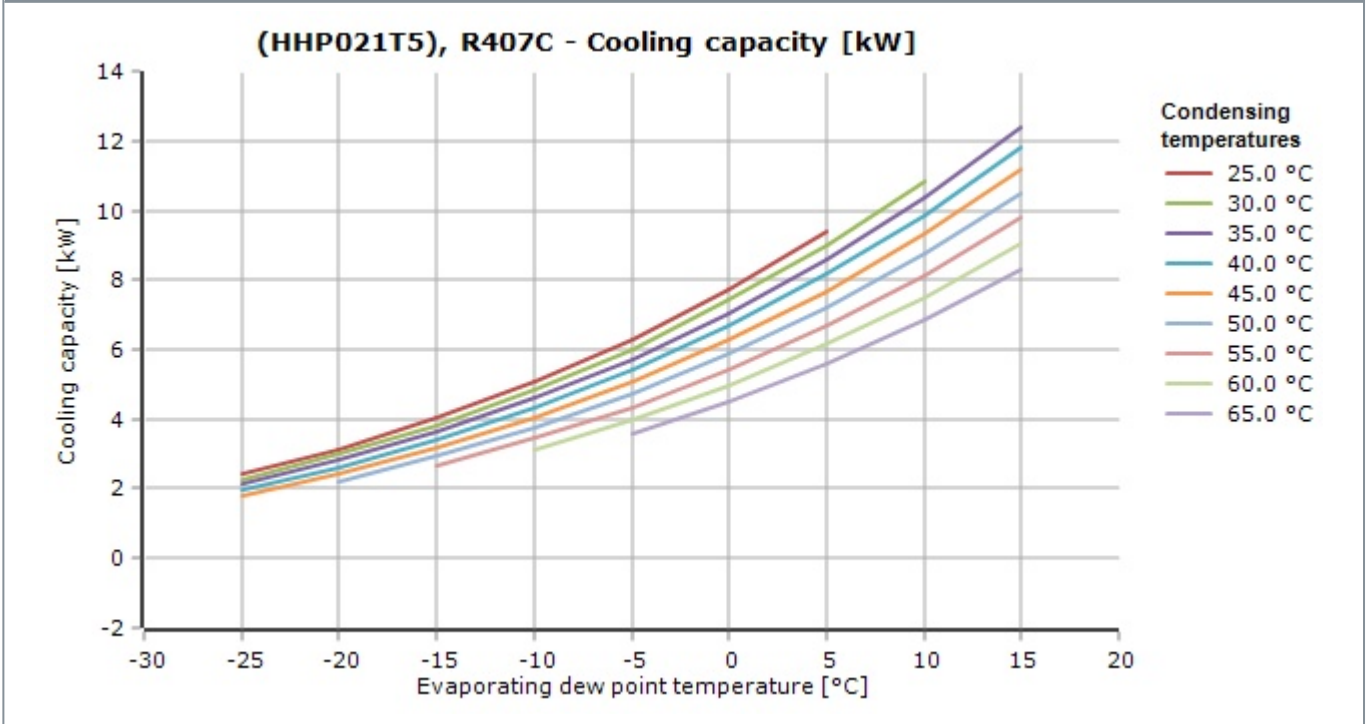
# Coolselector2

	Q [kW]	P [kW]	I [A]	M [kg/h]
C0	8.81287649903928	0.203985992400001	8.405150414	139.195569958419
C1	0.352595491960333	-0.0412521019	-0.05243099853	5.18049148864878
C2	-0.0244645725633231	0.0562764015199999	-0.1818529963	0.490134513149565
C3	0.00535104185459131	-0.000950990974899999	-0.003614050103	0.0735890199325972
C4	-0.00134442425675732	0.001504259944	0.000913680007199999	0.0140242060296986
C5	-0.000827663385208068	-0.000624688982999997	0.005967979785	-0.00950048724207794
C6	2.6404638979953E-5	-3.80945997299999E-6	-2.579939974E-5	0.000428767646679334
C7	-3.24902442997934E-5	1.382859983E-5	4.454639929E-5	-3.78782317819824E-5
C8	-1.54783300039384E-5	-7.29312002699999E-6	3.025059959E-5	-0.000184944703712134
C9	2.82019002014098E-6	6.16702018299998E-6	-3.102729897E-5	3.81504718719826E-6



# Coolselector2

## (HHP021T5), R407C - Cooling capacity [kW]

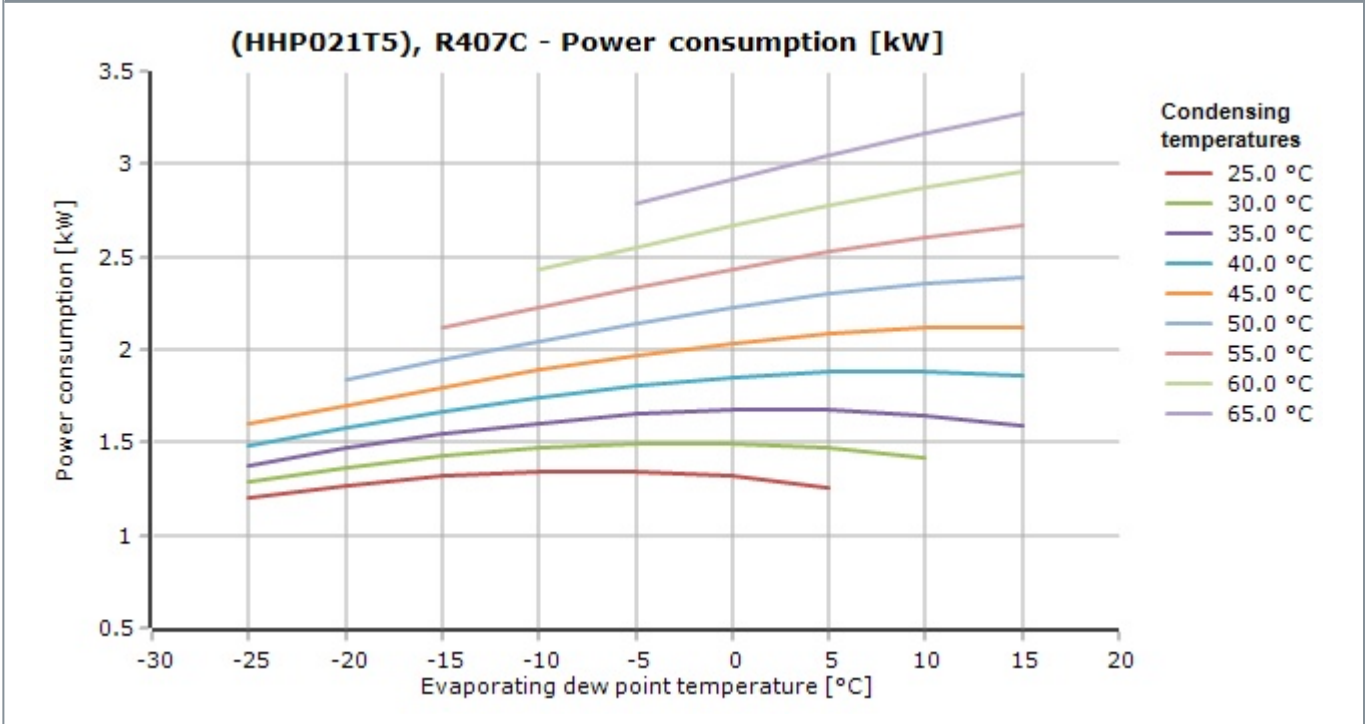


## (HHP021T5), R407C - Cooling capacity [kW]

Tc\Te dew	-25.0	-20.0	-15.0	-10.0	-5.0	0	5.0	10.0	15.0
25.0	2.419	3.146	4.021	5.063	6.292	7.728	9.391	-	-
30.0	2.274	2.983	3.831	4.838	6.025	7.410	9.014	10.86	-
35.0	2.120	2.806	3.624	4.593	5.733	7.064	8.605	10.38	12.40
40.0	1.959	2.619	3.402	4.329	5.418	6.690	8.165	9.863	11.80
45.0	1.793	2.422	3.167	4.048	5.083	6.293	7.697	9.316	11.17
50.0	-	2.219	2.922	3.752	4.729	5.873	7.203	8.739	10.50
55.0	-	-	2.668	3.444	4.359	5.433	6.685	8.134	9.801
60.0	-	-	-	3.126	3.975	4.975	6.144	7.503	9.072
65.0	-	-	-	-	3.579	4.501	5.584	6.848	8.314

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## (HHP021T5), R407C - Power consumption [kW]

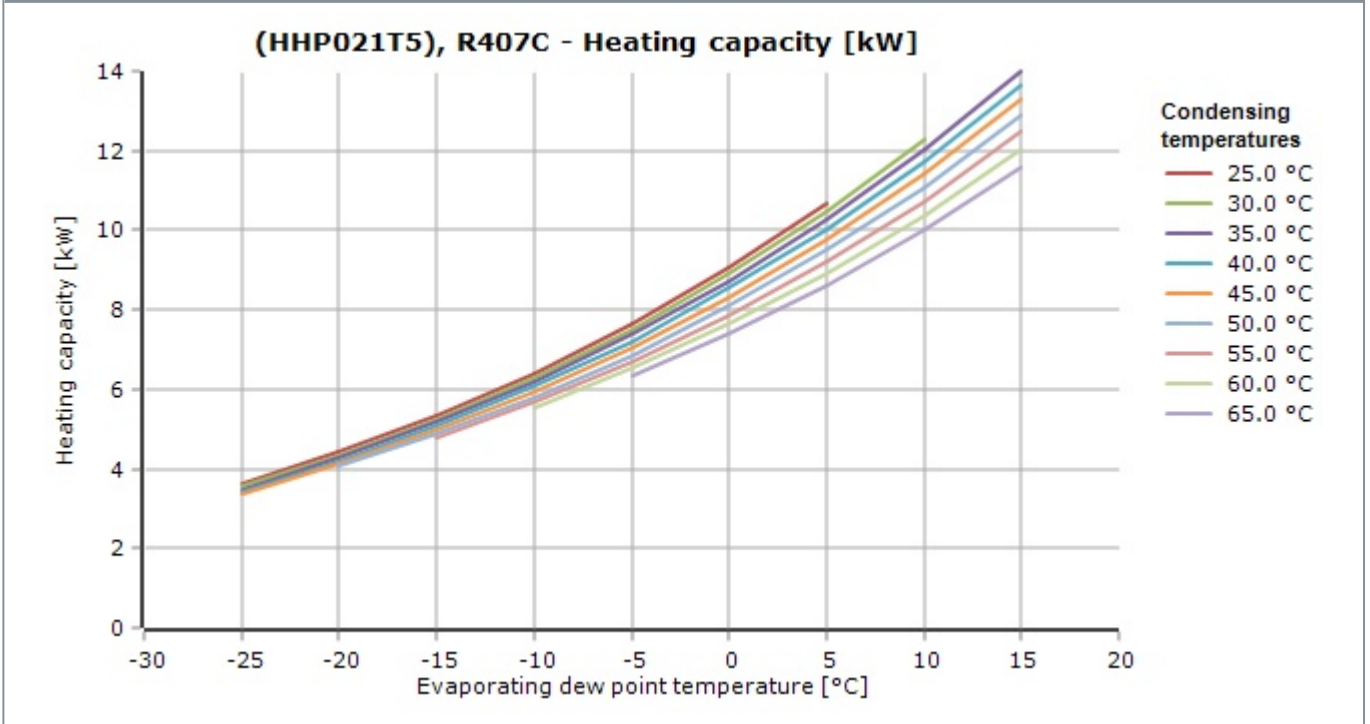


## (HHP021T5), R407C - Power consumption [kW]

Tc\Te dew	-25.0	-20.0	-15.0	-10.0	-5.0	0	5.0	10.0	15.0
25.0	1.203	1.269	1.317	1.342	1.343	1.317	1.260	-	-
30.0	1.288	1.366	1.429	1.474	1.497	1.497	1.469	1.412	-
35.0	1.379	1.467	1.544	1.605	1.649	1.673	1.673	1.647	1.592
40.0	1.480	1.577	1.665	1.742	1.805	1.850	1.876	1.879	1.857
45.0	1.596	1.699	1.797	1.888	1.967	2.033	2.083	2.113	2.122
50.0	-	1.839	1.945	2.048	2.142	2.227	2.299	2.354	2.392
55.0	-	-	2.114	2.226	2.334	2.436	2.527	2.607	2.671
60.0	-	-	-	2.428	2.547	2.664	2.774	2.875	2.965
65.0	-	-	-	-	2.787	2.916	3.043	3.164	3.277

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## (HHP021T5), R407C - Heating capacity [kW]

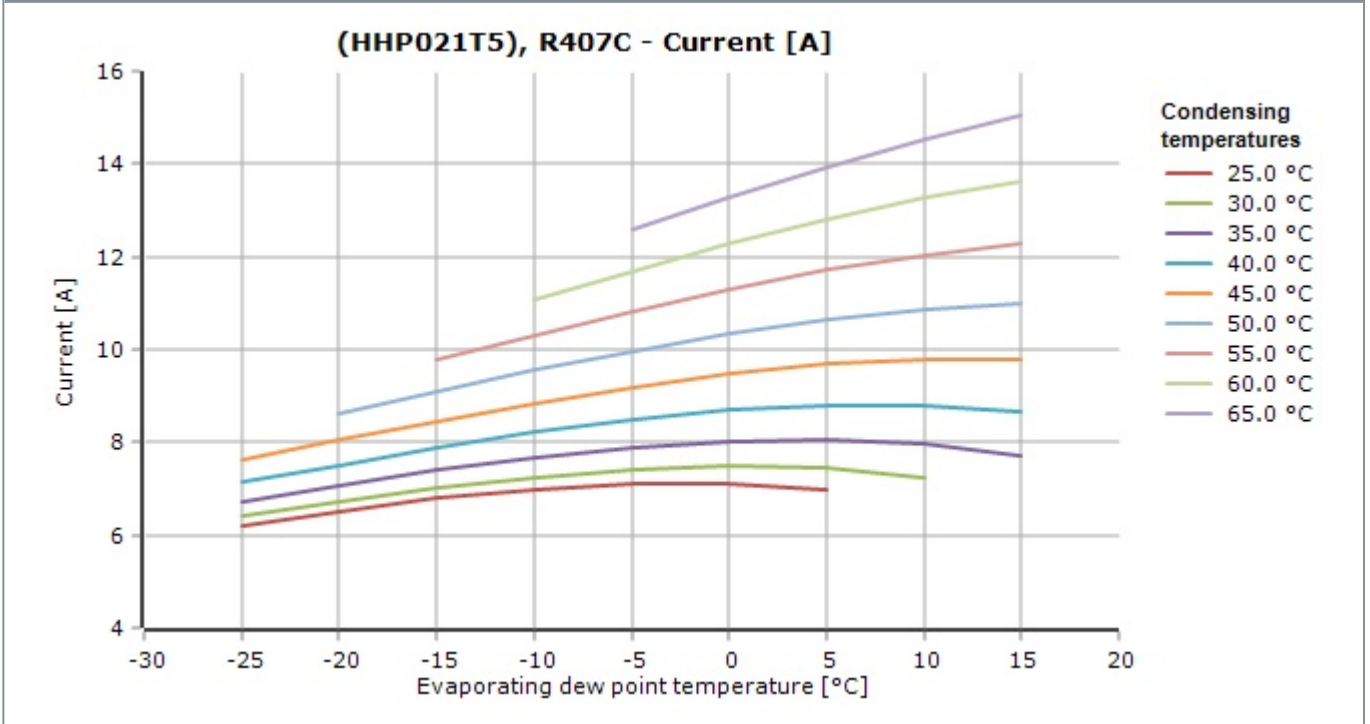


## (HHP021T5), R407C - Heating capacity [kW]

Tc\Te dew	-25.0	-20.0	-15.0	-10.0	-5.0	0	5.0	10.0	15.0
25.0	3.622	4.415	5.337	6.405	7.635	9.045	10.65	-	-
30.0	3.563	4.349	5.260	6.312	7.522	8.907	10.48	12.27	-
35.0	3.499	4.274	5.168	6.198	7.382	8.736	10.28	12.02	13.99
40.0	3.439	4.195	5.067	6.070	7.223	8.541	10.04	11.74	13.66
45.0	3.388	4.121	4.965	5.935	7.050	8.326	9.780	11.43	13.29
50.0	-	4.058	4.868	5.800	6.872	8.100	9.502	11.09	12.89
55.0	-	-	4.782	5.671	6.694	7.869	9.212	10.74	12.47
60.0	-	-	-	5.554	6.523	7.639	8.918	10.38	12.04
65.0	-	-	-	-	6.366	7.417	8.627	10.01	11.59

# Coolselector2

## (HHP021T5), R407C - Current [A]



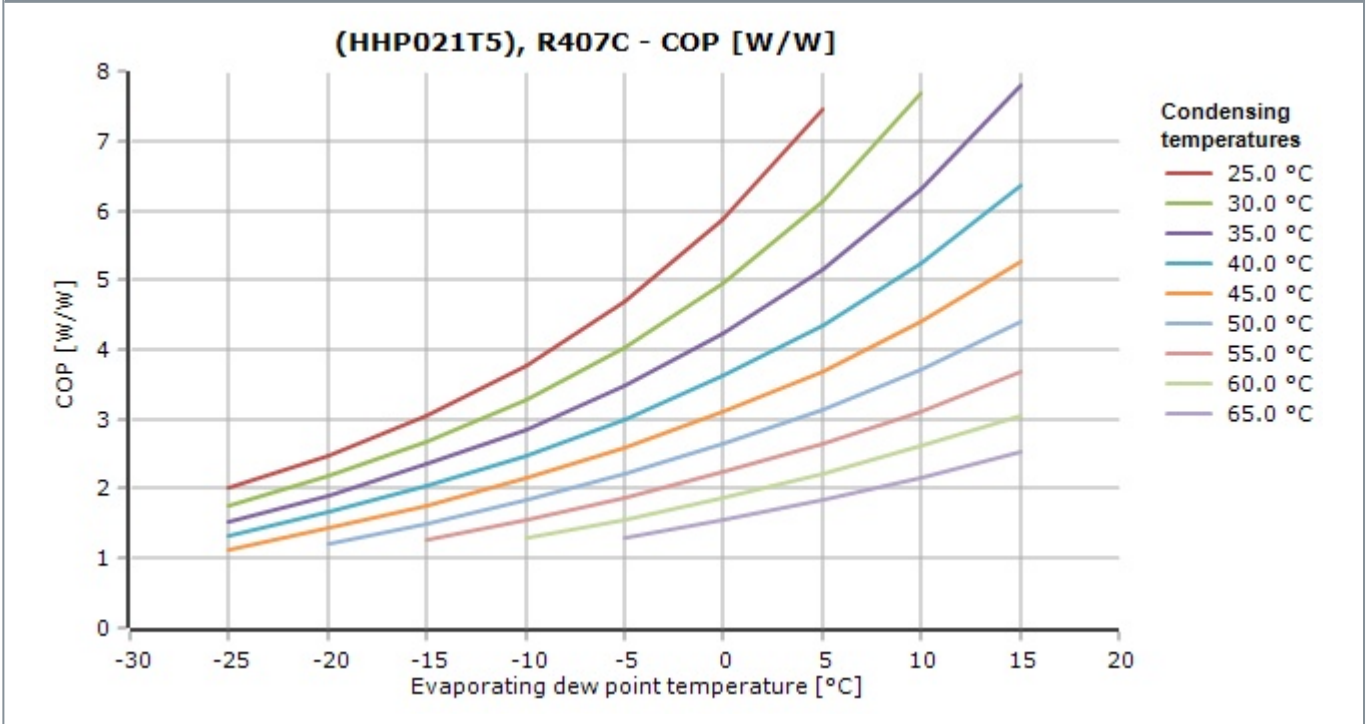
## (HHP021T5), R407C - Current [A]

Tc\Te dew	-25.0	-20.0	-15.0	-10.0	-5.0	0	5.0	10.0	15.0
25.0	6.211	6.524	6.789	6.987	7.098	7.104	6.985	-	-
30.0	6.407	6.734	7.025	7.259	7.418	7.483	7.434	7.251	-
35.0	6.724	7.073	7.396	7.675	7.890	8.021	8.049	7.956	7.720
40.0	7.139	7.517	7.881	8.211	8.489	8.694	8.808	8.810	8.682
45.0	7.628	8.043	8.455	8.845	9.193	9.480	9.686	9.792	9.779
50.0	-	8.628	9.096	9.552	9.978	10.35	10.66	10.88	10.99
55.0	-	-	9.779	10.31	10.82	11.29	11.71	12.05	12.29
60.0	-	-	-	11.10	11.70	12.28	12.81	13.27	13.65
65.0	-	-	-	-	12.59	13.28	13.93	14.53	15.05



# Coolselector2

## (HHP021T5), R407C - COP [W/W]

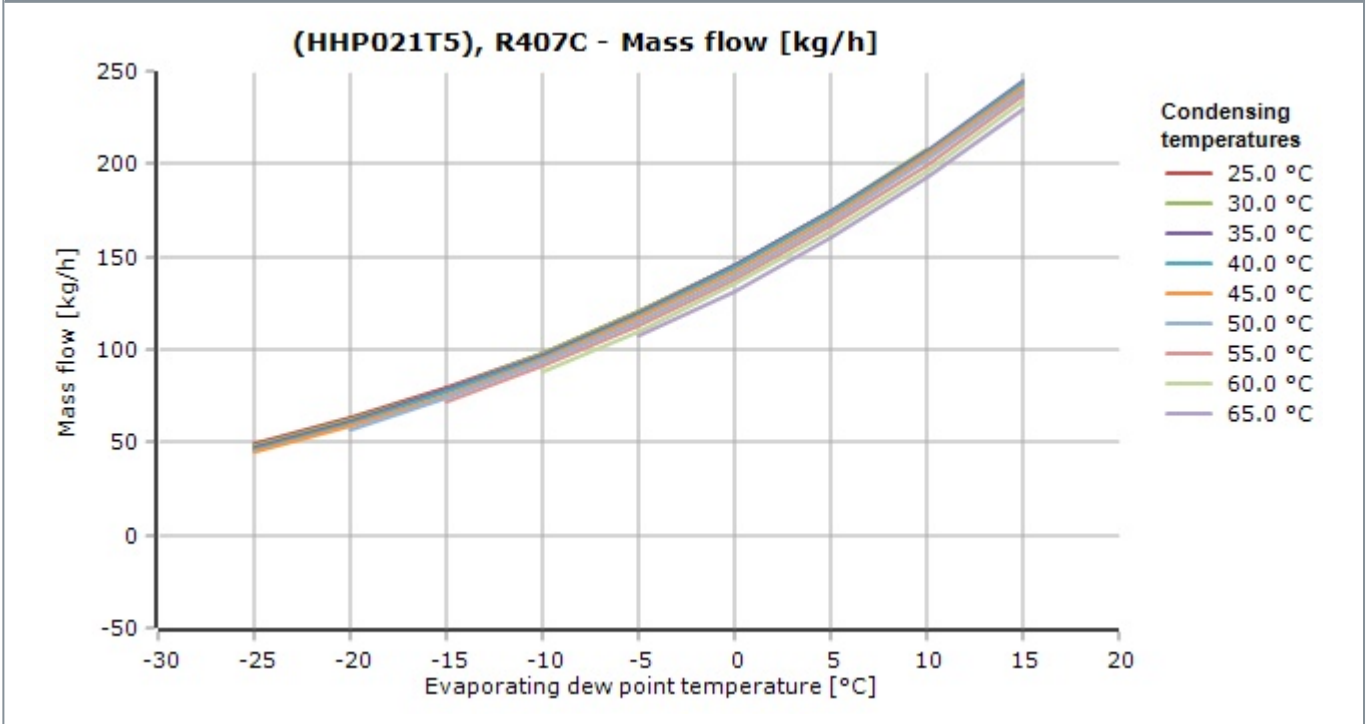


## (HHP021T5), R407C - COP [W/W]

Tc\Te dew	-25.0	-20.0	-15.0	-10.0	-5.0	0	5.0	10.0	15.0
25.0	2.01	2.48	3.05	3.77	4.68	5.87	7.45	-	-
30.0	1.77	2.18	2.68	3.28	4.02	4.95	6.13	7.69	-
35.0	1.54	1.91	2.35	2.86	3.48	4.22	5.14	6.30	7.79
40.0	1.32	1.66	2.04	2.48	3.00	3.62	4.35	5.25	6.36
45.0	1.12	1.43	1.76	2.14	2.58	3.10	3.70	4.41	5.26
50.0	-	1.21	1.50	1.83	2.21	2.64	3.13	3.71	4.39
55.0	-	-	1.26	1.55	1.87	2.23	2.65	3.12	3.67
60.0	-	-	-	1.29	1.56	1.87	2.21	2.61	3.06
65.0	-	-	-	-	1.28	1.54	1.83	2.16	2.54

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## (HHP021T5), R407C - Mass flow [kg/h]



## (HHP021T5), R407C - Mass flow [kg/h]

Tc\Te dew	-25.0	-20.0	-15.0	-10.0	-5.0	0	5.0	10.0	15.0
25.0	49.16	62.90	79.13	98.15	120.2	145.6	174.6	-	-
30.0	48.32	62.31	78.72	97.87	120.0	145.5	174.6	207.5	-
35.0	47.25	61.44	77.98	97.21	119.4	144.9	174.0	207.0	244.1
40.0	45.95	60.29	76.92	96.19	118.4	143.9	173.0	205.9	243.1
45.0	44.45	58.89	75.55	94.79	117.0	142.4	171.4	204.3	241.5
50.0	-	57.24	73.87	93.04	115.1	140.4	169.3	202.2	239.3
55.0	-	-	71.91	90.93	112.8	138.0	166.8	199.5	236.6
60.0	-	-	-	88.49	110.2	135.1	163.7	196.3	233.3
65.0	-	-	-	-	107.1	131.8	160.2	192.7	229.6