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

Rating conditions: *Custom*

Required cooling capacity: *5.600 kW*

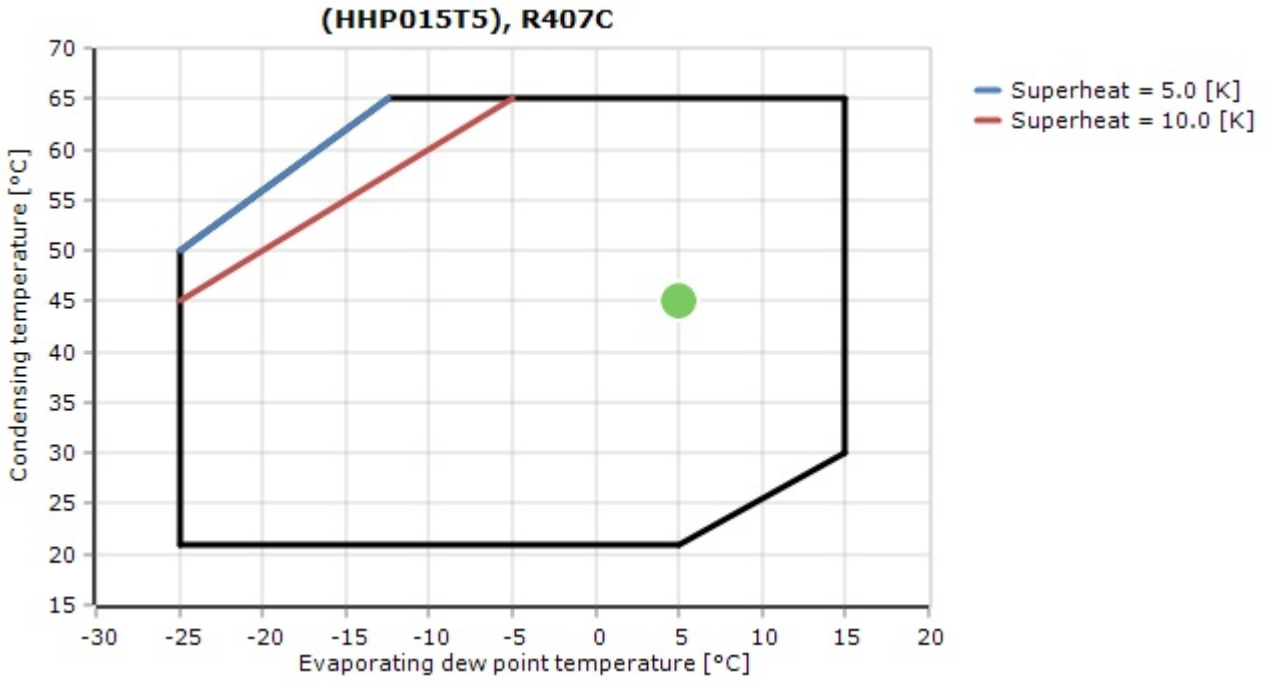
Selection: (HHP015T5), R407C. Discontinued model

Model	(HHP015T5)
Technology	Scroll
Configuration	Single
Capacity control	Fixed speed
Refrigerant	R407C
Speed [rpm]	2900
Cooling [kW]	5.549
Heating [kW]	7.130
COP cooling [W/W]	3.51
COP heating [W/W]	4.51
Power [kW]	1.580
Current [A]	7.584
Frequency [Hz]	50
Power supply	220 - 240 V 1 ph
Mass flow [kg/h]	123.6

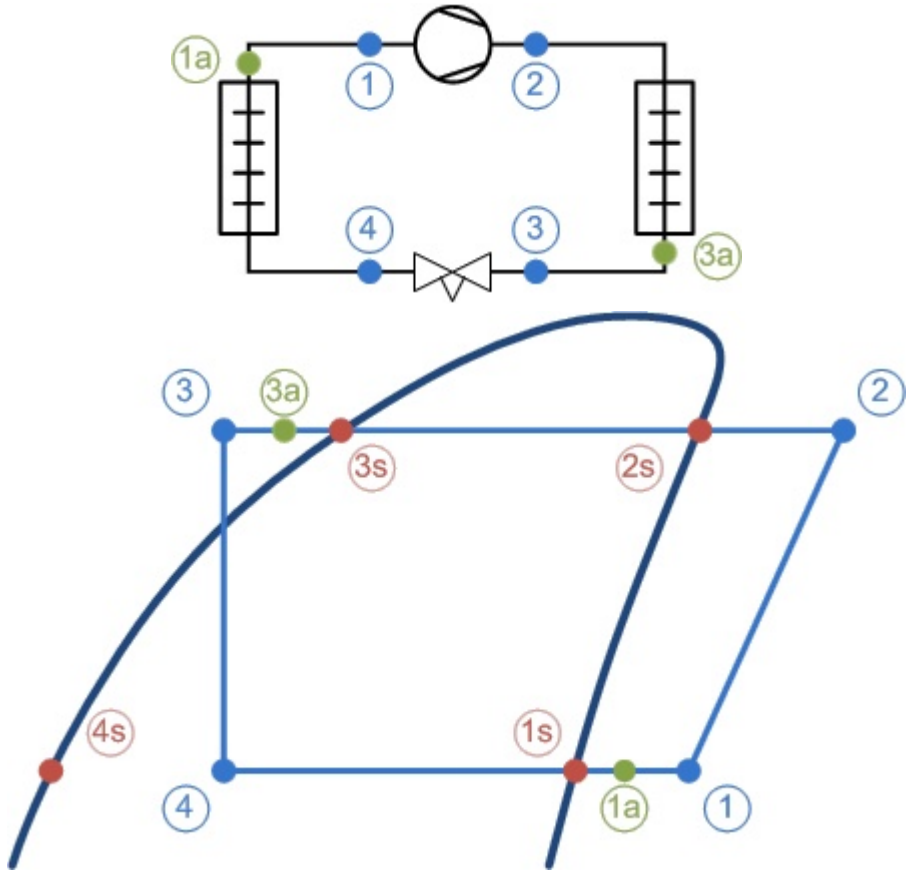
Selected code number and spare parts

Code number: *121U9003. HHP015T5LP6. Min. order quantity: 12 pcs*

Envelope



System diagrams



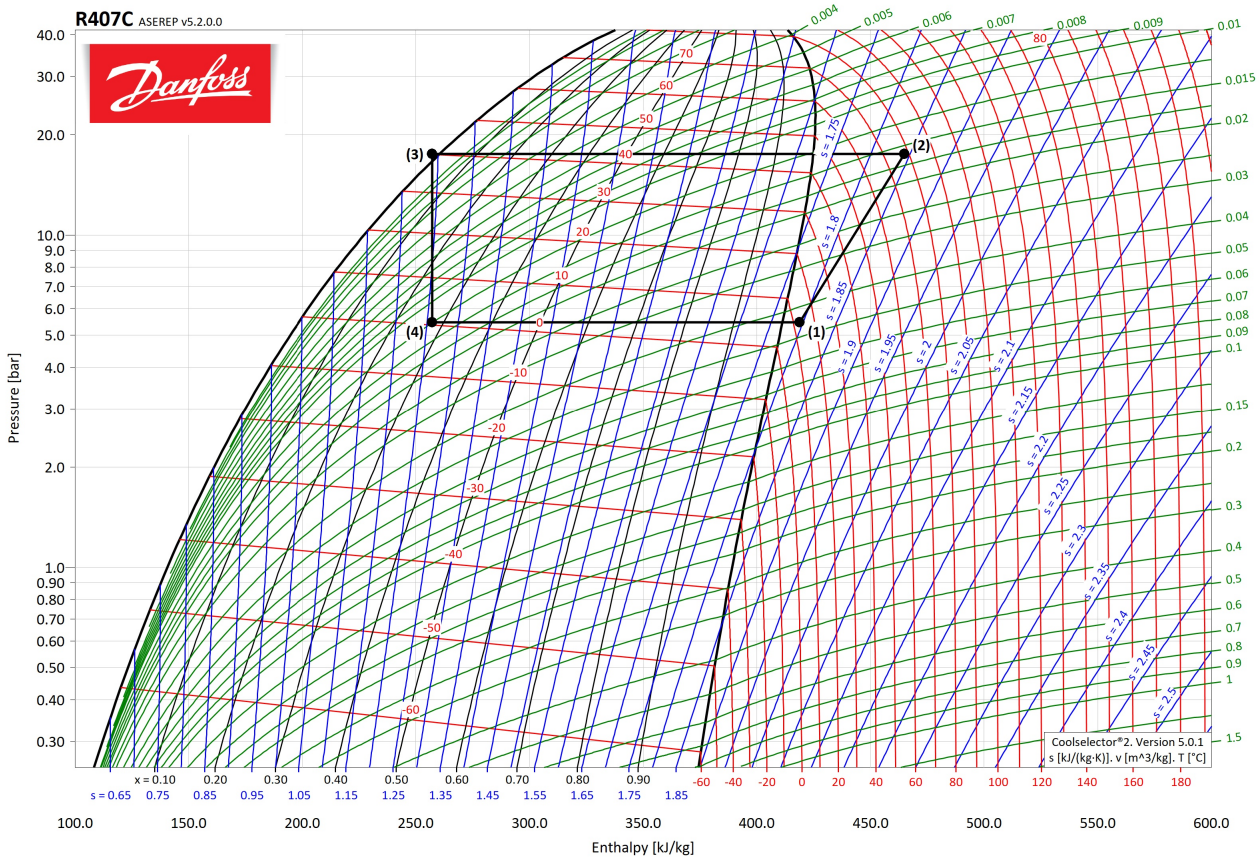
Mass flows

Mass flow in evaporator:	124.7 kg/h	Mass flow in compressor:	124.7 kg/h

State points

		Temperature	Pressure (a)	Density	Enthalpy	Entropy
Point	Description	[°C]	[bar]	[kg/m^3]	[kJ/kg]	[kJ/(kg·K)]
1	Compressor suction	13.0	5.471	22.3	418.8	1.795
2	Compressor discharge (estimated)	78.2	17.51	62.3	464.8	1.843
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 [cm3]	34 cm³
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	31.5 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]	1.02 Ohm
Auxiliary winding resistance (start winding) for single-phase compressors [Ohm]	1.6 Ohm
MCC	19 A
RLA	13.6 A
LRA	60 A
Capacity of capacitor A	40 µF
Capacity of capacitor B	145-175 µF
Voltage of capacitor A [V]	440 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	70 db(A)
Sound 2	62 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 440V, 40 µF	8173231
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

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	8020.71704351044	-803.643501281738	-1.71901983767748
C1	241.541538039494	3.47691986560822	-0.126896667620167
C2	-57.8432757418156	110.608692026138	0.465596887841821
C3	3.85573978557855	0.210627439320087	-0.00225459650944686
C4	0.129107626038194	-0.276776507198811	0.00572283898014575
C5	0.422092796171308	-2.05735540688038	-0.00956044754013419
C6	0.0505856419612169	0.00389967219438404	-1.98183810953196E-5
C7	-0.00631468278428726	-0.00745953105390072	3.61657033572556E-5
C8	-0.023822996663332	0.00641846971213818	-4.49754575020052E-5
C9	-0.00204105318782106	0.0170667562521994	8.26445809871075E-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

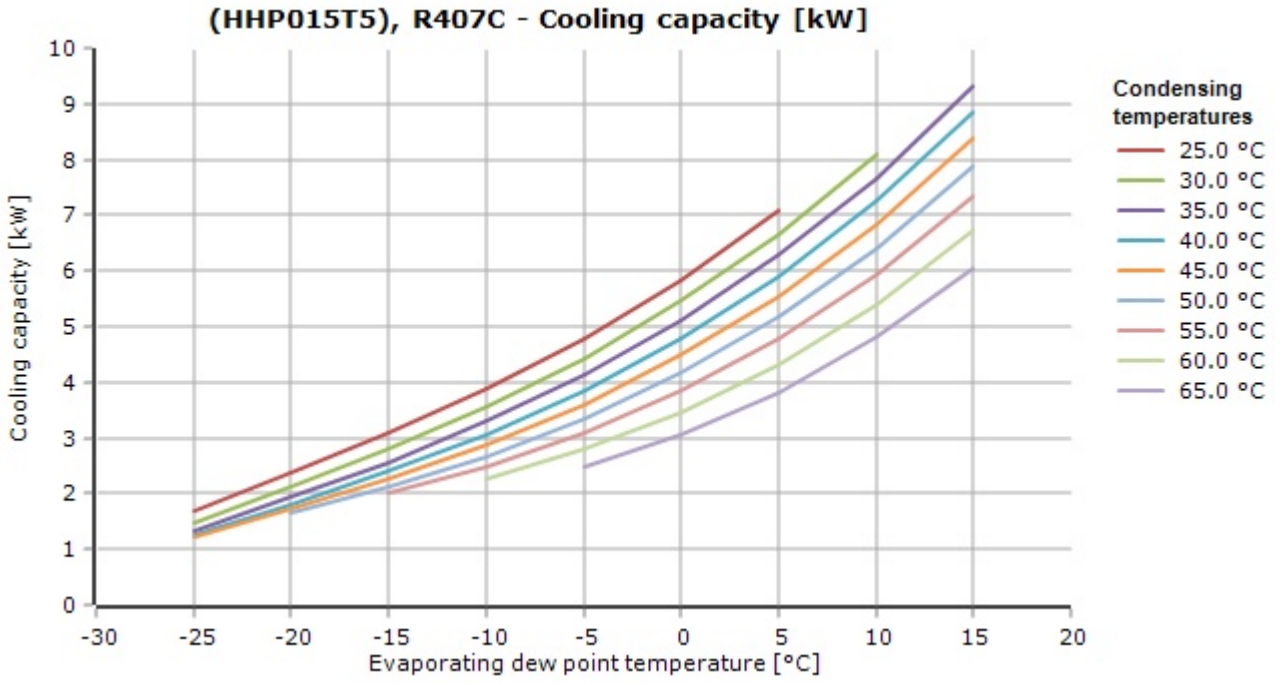
Polynomial as function of Te and Tc:

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

	Q [kW]	P [kW]	I [A]	M [kg/h]
C0	8.79637350720212	-0.803643501281738	-1.71901983767748	147.034742398942
C1	0.238151434637856	0.00347691986560822	-0.126896667620167	3.10528212855829
C2	-0.168182174078083	0.110608692026138	0.465596887841821	-2.55340277105057
C3	0.00365730574703491	0.000210627439320087	-0.00225459650944686	0.0439527615258811
C4	0.000363478392242309	-0.000276776507198811	0.00572283898014575	0.0507104701893446
C5	0.00246170467519071	-0.00205735540688038	-0.00956044754013419	0.0530969027593821
C6	4.64936818909369E-5	3.89967219438404E-6	-1.98183810953196E-5	0.000914951304967267
C7	4.05963605173075E-7	-7.45953105390072E-6	3.61657033572556E-5	0.000617449909557992
C8	-3.00737309396786E-5	6.41846971213818E-6	-4.49754575020052E-5	-0.000660062527762021
C9	-1.8979087620843E-5	1.70667562521994E-5	8.26445809871075E-5	-0.000419307086340181

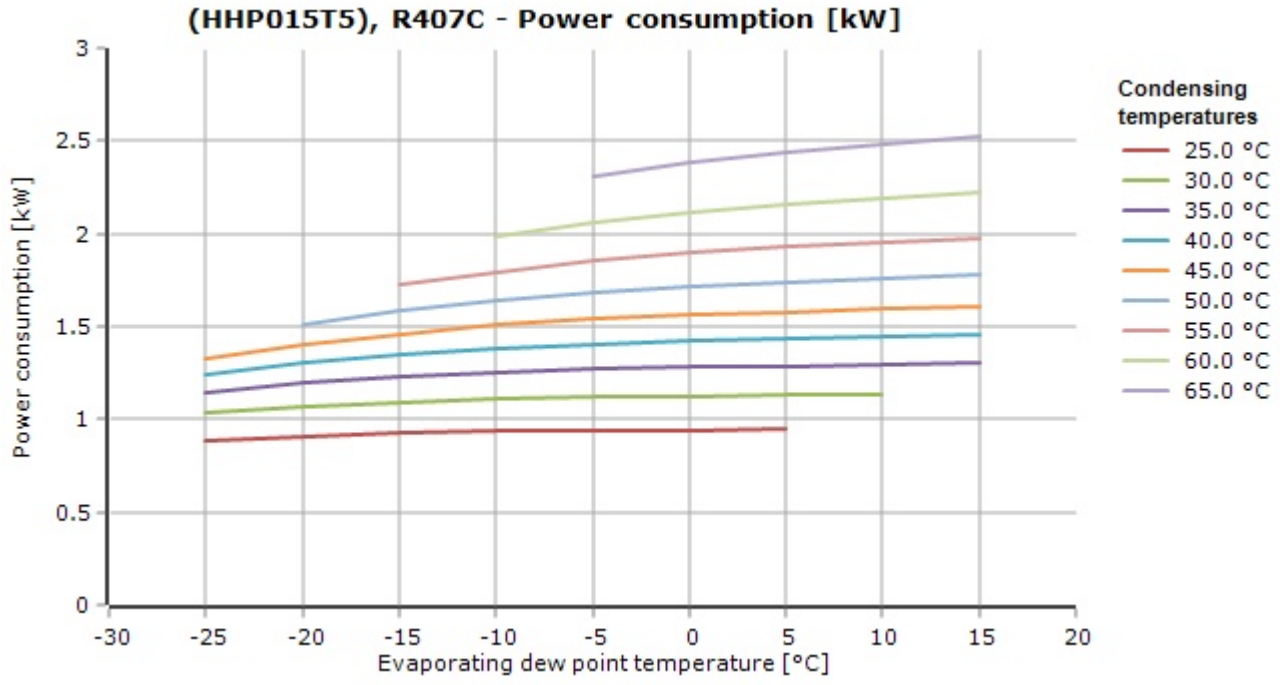
(HHP015T5), R407C - Cooling capacity [kW]



(HHP015T5), 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	1.688	2.360	3.076	3.870	4.778	5.834	7.073	-	-
30.0	1.471	2.110	2.793	3.555	4.430	5.454	6.661	8.087	-
35.0	1.329	1.928	2.571	3.292	4.128	5.112	6.279	7.666	9.306
40.0	1.249	1.799	2.394	3.068	3.856	4.793	5.914	7.253	8.846
45.0	1.215	1.710	2.250	2.869	3.602	4.484	5.549	6.834	8.372
50.0	-	1.645	2.122	2.679	3.350	4.169	5.173	6.395	7.871
55.0	-	-	1.998	2.485	3.086	3.835	4.769	5.921	7.327
60.0	-	-	-	2.272	2.796	3.468	4.325	5.400	6.728
65.0	-	-	-	-	2.466	3.054	3.825	4.815	6.058

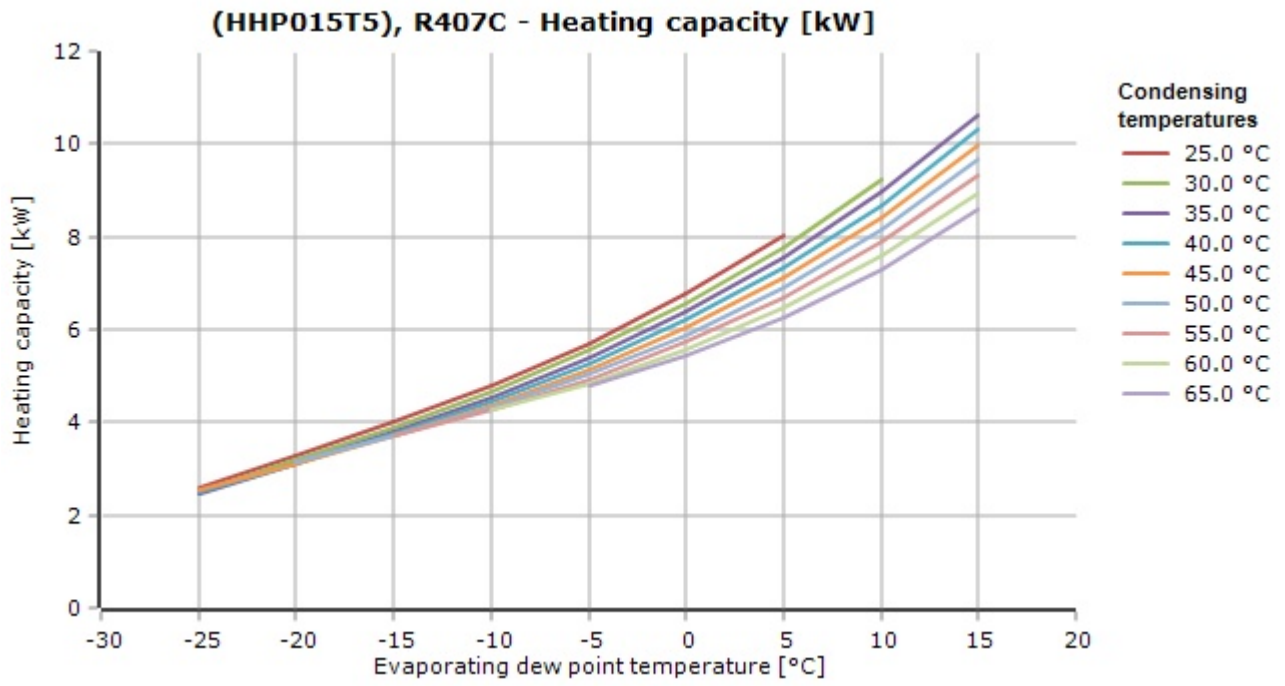
(HHP015T5), R407C - Power consumption [kW]



(HHP015T5), 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	0.882	0.910	0.926	0.935	0.940	0.942	0.946	-	-
30.0	1.031	1.068	1.093	1.109	1.118	1.124	1.129	1.136	-
35.0	1.145	1.195	1.230	1.254	1.269	1.279	1.287	1.295	1.306
40.0	1.239	1.301	1.348	1.382	1.405	1.421	1.433	1.443	1.455
45.0	1.323	1.401	1.461	1.506	1.539	1.563	1.580	1.594	1.608
50.0	-	1.507	1.582	1.640	1.684	1.717	1.742	1.761	1.779
55.0	-	-	1.723	1.795	1.852	1.896	1.930	1.956	1.979
60.0	-	-	-	1.985	2.057	2.113	2.157	2.193	2.222
65.0	-	-	-	-	2.310	2.381	2.437	2.483	2.521

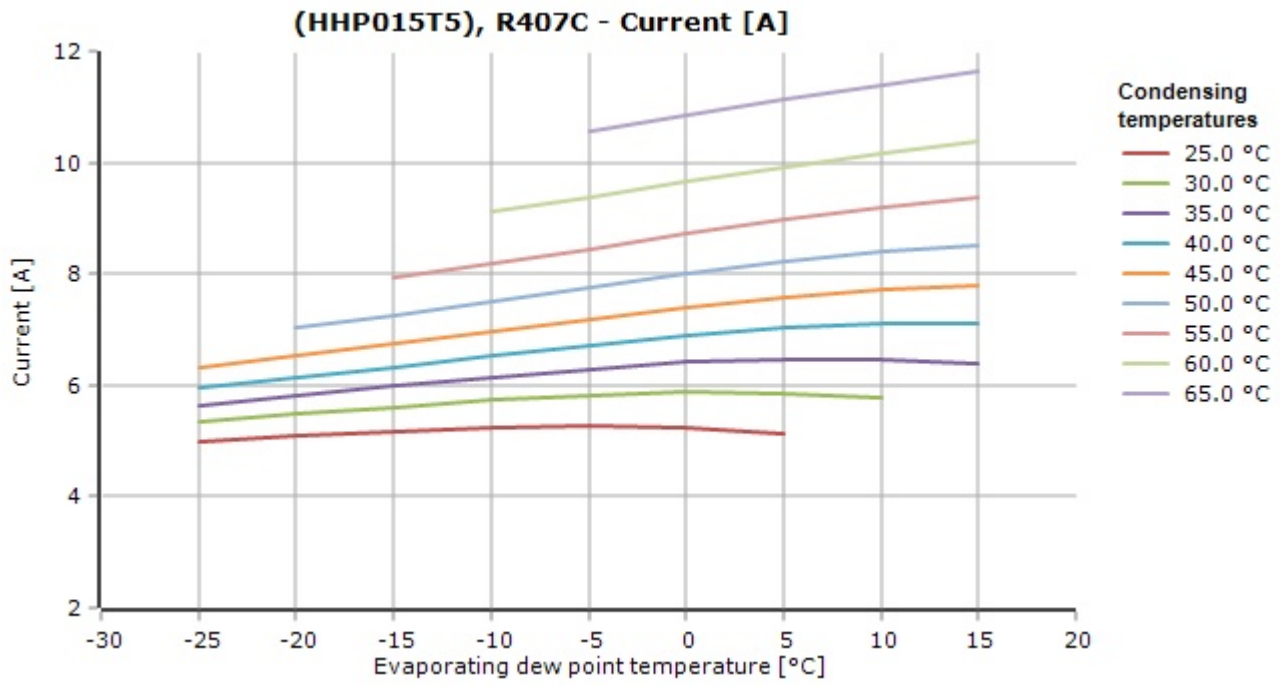
(HHP015T5), R407C - Heating capacity [kW]



(HHP015T5), 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	2.570	3.269	4.002	4.805	5.717	6.776	8.020	-	-
30.0	2.502	3.178	3.886	4.664	5.548	6.578	7.790	9.223	-
35.0	2.475	3.123	3.800	4.546	5.397	6.391	7.566	8.960	10.61
40.0	2.487	3.101	3.742	4.450	5.261	6.214	7.346	8.696	10.30
45.0	2.538	3.111	3.711	4.375	5.141	6.046	7.130	8.428	9.980
50.0	-	3.152	3.704	4.319	5.033	5.886	6.914	8.156	9.649
55.0	-	-	3.721	4.280	4.938	5.731	6.699	7.878	9.307
60.0	-	-	-	4.258	4.852	5.581	6.482	7.592	8.950
65.0	-	-	-	-	4.776	5.435	6.263	7.298	8.579

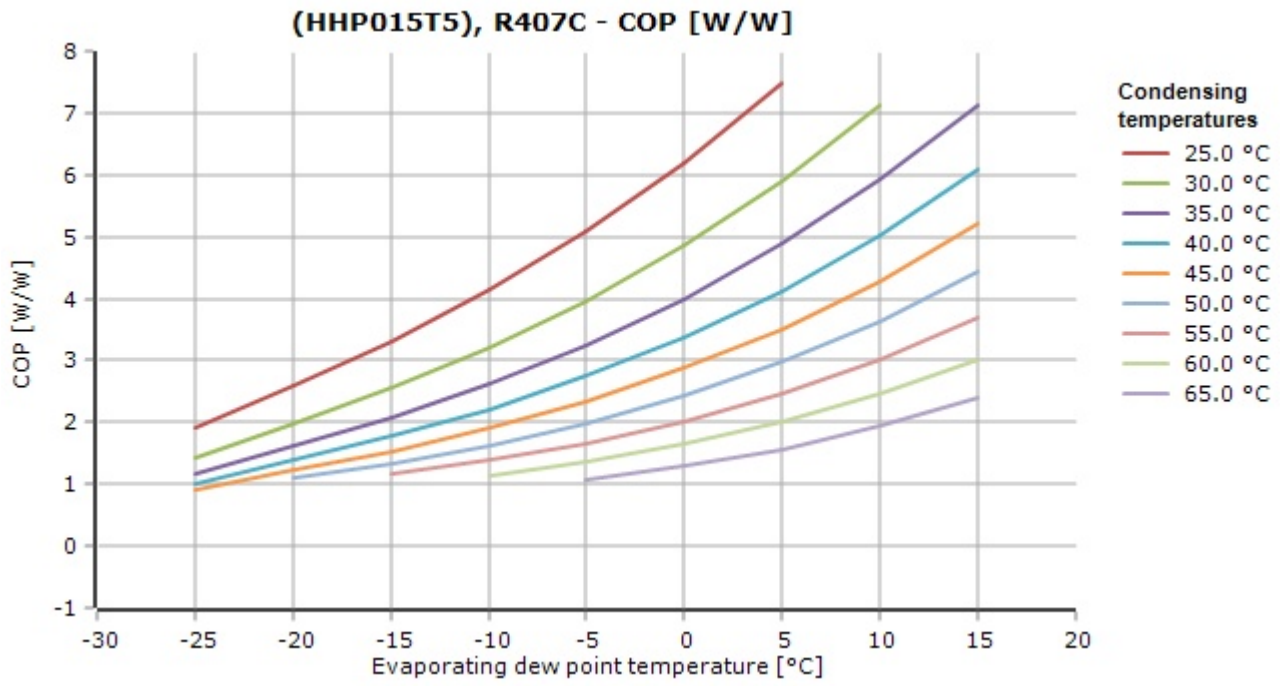
(HHP015T5), R407C - Current [A]



(HHP015T5), 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	5.001	5.094	5.179	5.241	5.265	5.237	5.141	-	-
30.0	5.347	5.480	5.615	5.736	5.828	5.876	5.866	5.782	-
35.0	5.643	5.806	5.979	6.147	6.295	6.409	6.473	6.473	6.394
40.0	5.951	6.132	6.332	6.536	6.729	6.897	7.025	7.097	7.100
45.0	6.333	6.520	6.736	6.965	7.193	7.404	7.584	7.717	7.789
50.0	-	7.034	7.255	7.497	7.748	7.990	8.211	8.394	8.525
55.0	-	-	7.948	8.194	8.455	8.718	8.968	9.190	9.369
60.0	-	-	-	9.116	9.378	9.650	9.919	10.17	10.38
65.0	-	-	-	-	10.58	10.85	11.12	11.39	11.63

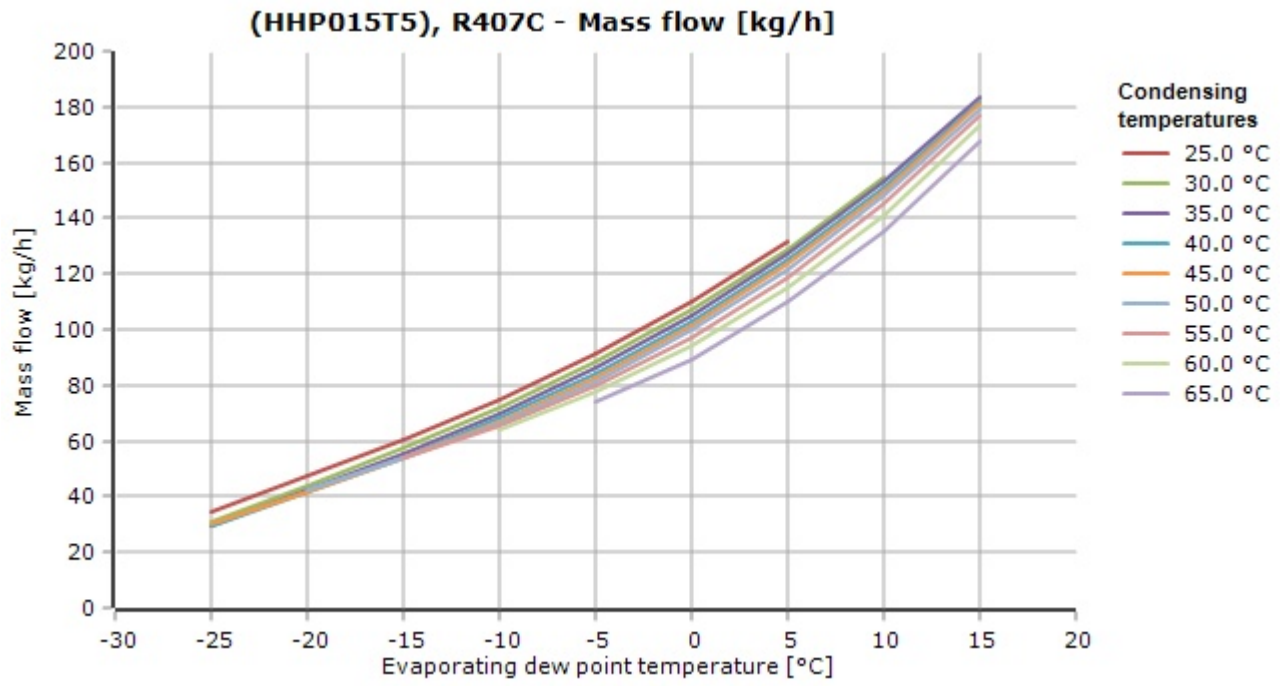
(HHP015T5), R407C - COP [W/W]



(HHP015T5), 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	1.91	2.60	3.32	4.14	5.08	6.19	7.47	-	-
30.0	1.43	1.98	2.55	3.21	3.96	4.85	5.90	7.12	-
35.0	1.16	1.61	2.09	2.63	3.25	4.00	4.88	5.92	7.13
40.0	1.01	1.38	1.78	2.22	2.74	3.37	4.13	5.03	6.08
45.0	0.92	1.22	1.54	1.91	2.34	2.87	3.51	4.29	5.21
50.0	-	1.09	1.34	1.63	1.99	2.43	2.97	3.63	4.42
55.0	-	-	1.16	1.38	1.67	2.02	2.47	3.03	3.70
60.0	-	-	-	1.14	1.36	1.64	2.00	2.46	3.03
65.0	-	-	-	-	1.07	1.28	1.57	1.94	2.40

(HHP015T5), R407C - Mass flow [kg/h]



(HHP015T5), 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	34.30	47.18	60.53	75.02	91.28	109.9	131.5	-	-
30.0	31.25	44.07	57.39	71.90	88.26	107.1	129.0	154.5	-
35.0	29.62	42.20	55.31	69.68	85.99	104.9	127.0	152.9	183.2
40.0	29.29	41.42	54.13	68.18	84.27	103.1	125.3	151.4	182.2
45.0	30.13	41.57	53.66	67.18	82.88	101.5	123.6	149.9	181.0
50.0	-	42.45	53.66	66.42	81.52	99.69	121.6	148.0	179.4
55.0	-	-	53.86	65.60	79.87	97.42	119.0	145.2	176.9
60.0	-	-	-	64.32	77.48	94.20	115.2	141.3	173.0
65.0	-	-	-	-	73.81	89.44	109.7	135.5	167.3