

Coolselector2

Project information

Project name:
 Comments:
 Created by: Vladimir Beljanski
 Coolselector2 version: 3.8.4. Database: 60.60.2.25.13.40
 Printed: 14. 05 .2022.
 Preferences used: All applications

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:	22.6 °C
Rating conditions:	<i>Custom</i>		
Required cooling capacity:	<i>8.000 kW</i>		

Selection: (HHP019T4), R407C. Discontinued model

Match percentage (85.3%) is lower than minimum (90%).

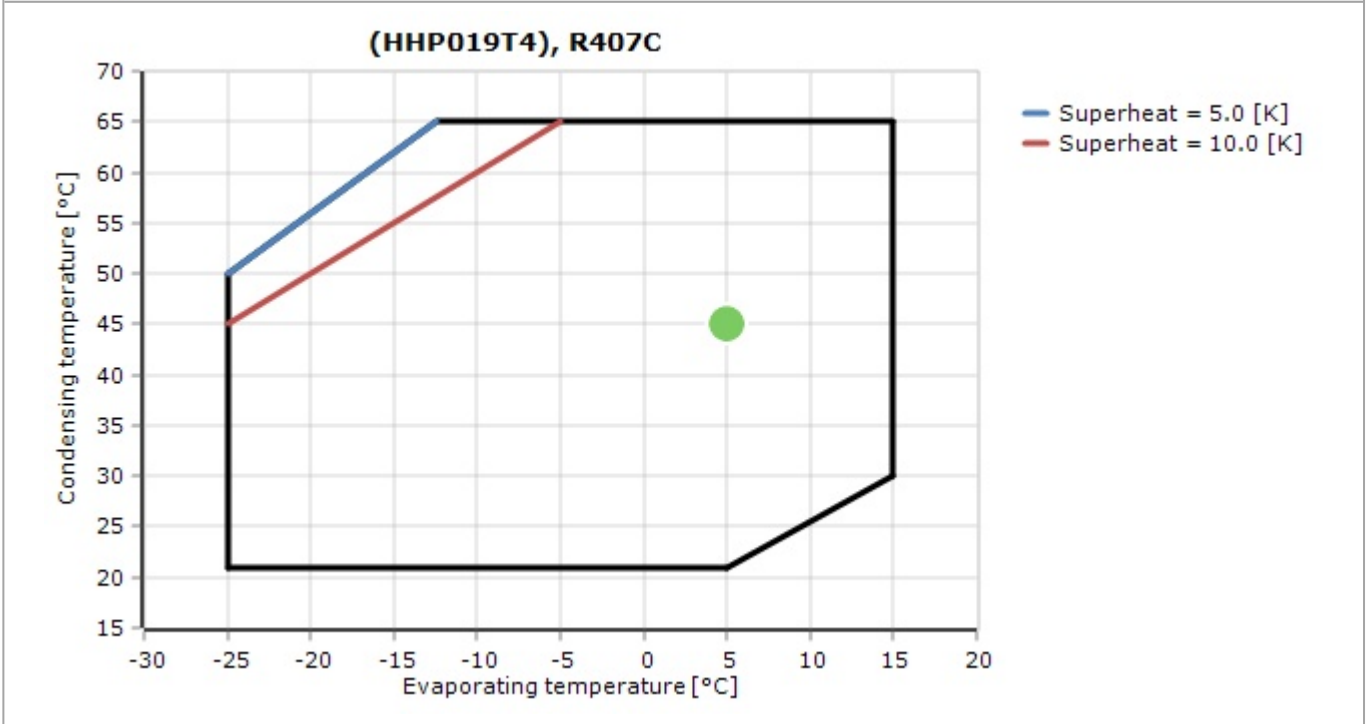
Model	(HHP019T4)
Technology	Scroll
Configuration	Single
Refrigerant	R407C
Capacity control	Fixed speed
Speed [rpm]	2900
Cooling [kW]	6.823
Heating [kW]	8.733
COP cooling [W/W]	3.57
COP heating [W/W]	4.57
Power [kW]	1.910
Current [A]	3.473
Frequency [Hz]	50
Power supply	380 - 400 V (415 V) 3 ph*
Mass flow [kg/h]	151.9

Selected code number and spare parts

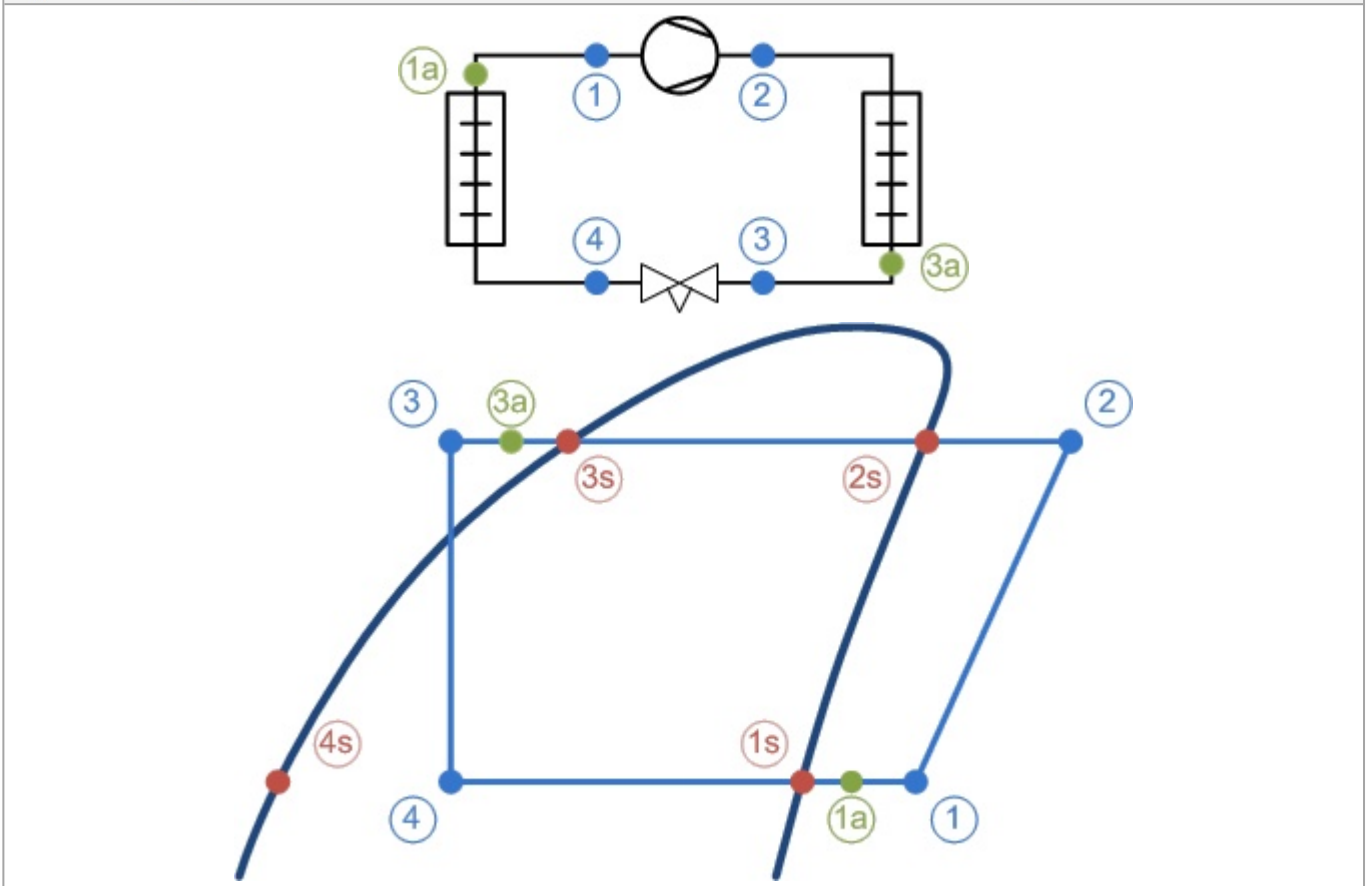
Code number: 121U9005. HHP019T4LP6. Min. order quantity: 12 pcs

Coolselector2

Envelope



System diagrams



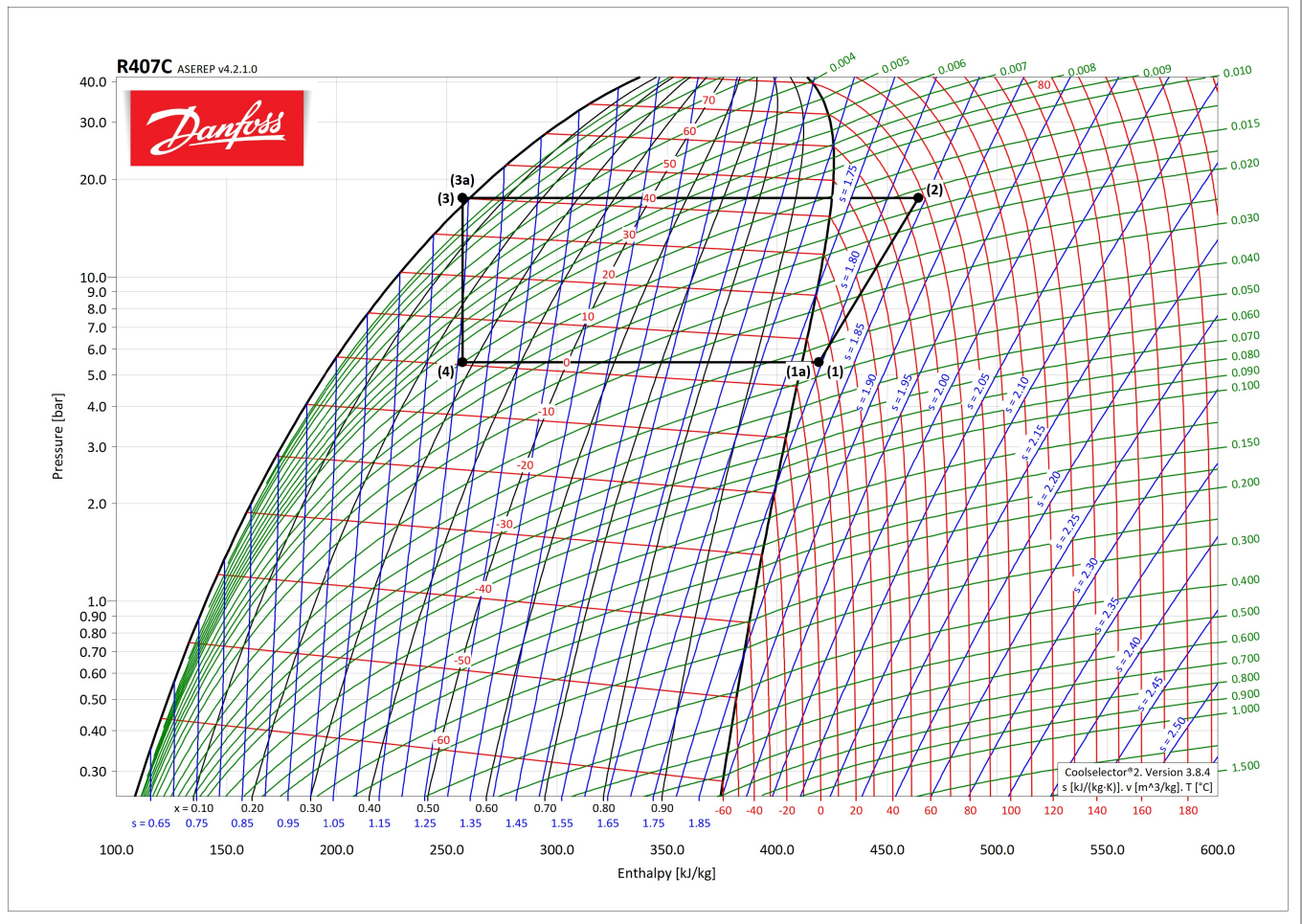
Mass flows

Mass flow in evaporator: 178.2 kg/h Mass flow in compressor: 178.2 kg/h

State points

		Temperature	Pressure	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)	77.5	17.51	62.53	464.1	1.841
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

Economizer	No
Capacity control	Fixed speed
Configuration code	Single
Swept volume [cm ³]	41 cm ³
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
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
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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	3
Frequency [Hz]	50
Compressor power supply [V/Ph/Hz]	400/3/50 460/3/60
Low value of nominal voltage at 50Hz [V]	380 V
High value of nominal voltage at 50Hz [V]	415 V
Low value of voltage range at 50Hz [V]	342 V
High value of voltage range at 50Hz [V]	456 V
Winding resistance for three-phase compressors with identical windings [Ohm]	3.97 Ohm
Winding resistance 1-2 [Ohm]	4.09 Ohm
Winding resistance 1-3 [Ohm]	3.91 Ohm
Winding resistance 2-3 [Ohm]	3.91 Ohm
MCC	7.5 A
LRA	33 A
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
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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)

Polynomials. 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
 M Mass flow kg/s
 Te Evaporating temperature °C
 Tc Condensing temperature °C

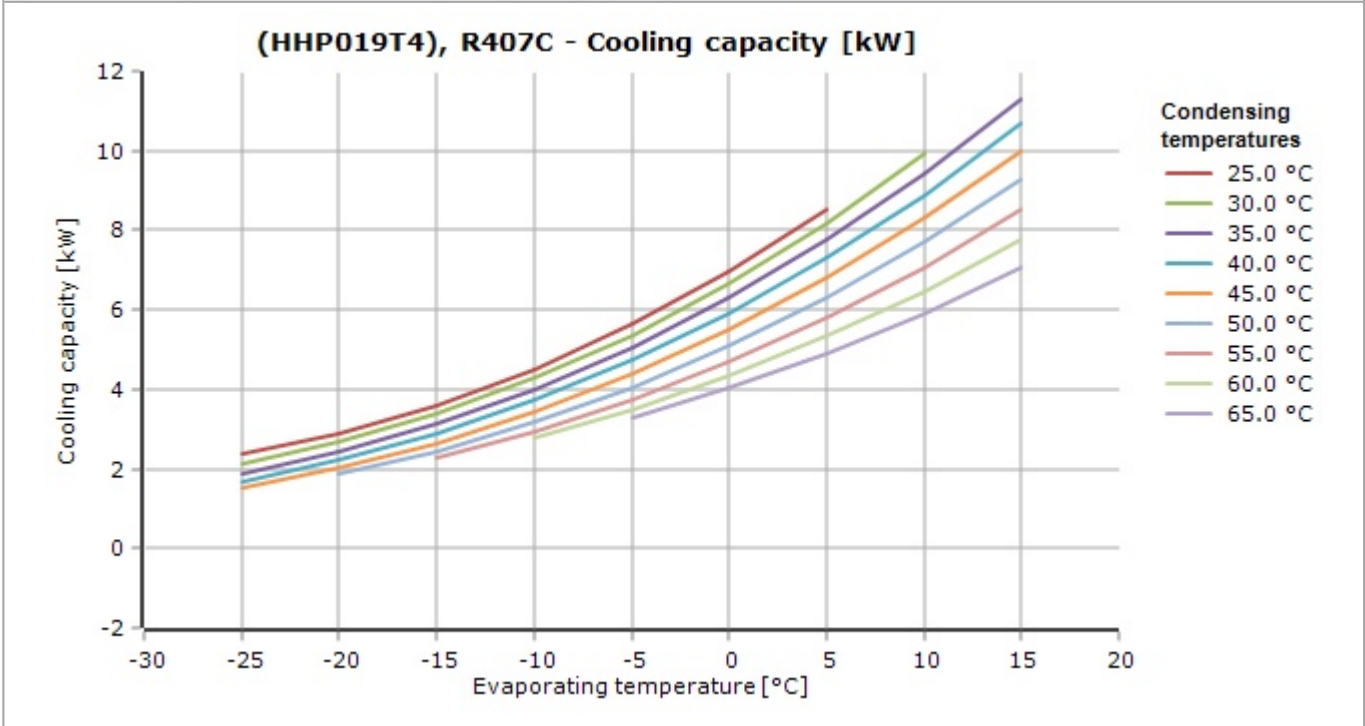
$$Y = C0 + C1*Te + C2*Tc + C3*Te^2 + C4*Te*Tc + C5*Tc^2 + C6*Te^3 + C7*Tc*Te^2 + C8*Te*Tc^2 + C9*Tc^3$$

Polynomials

	Q [W]	P [W]	I [A]	M [kg/s]
C0	7533.58126504135	472.155948638916	-2.09120781421661	0.0379253304749347
C1	221.076251467824	-71.418234872818	-0.101408965727314	0.00138086048532512
C2	107.470764795685	45.2719856500626	0.343811718178913	-0.000119806272940735
C3	3.67409910054758	-1.92682698994875	-0.00119484372844454	2.23164681520569E-5
C4	4.15511986086845	3.08611617565155	0.00553022384166252	-1.04472492200324E-6
C5	-3.90578955130577	-0.752543836086988	-0.00794817965570837	3.13022091009042E-6
C6	-0.000744321638152935	-0.0124925880935043	2.32420763150003E-5	1.01947537977455E-7
C7	-0.00894556577691436	0.0354839777201414	3.69409886141511E-5	-7.4262671123404E-8
C8	-0.0737032059608102	-0.0261499311849475	-6.5623832156416E-5	3.17059391794326E-8
C9	0.0324393864176273	0.0094616990564391	6.69455302529968E-5	-4.7534312119759E-8

Coolselector2

(HHP019T4), R407C - Cooling capacity [kW]

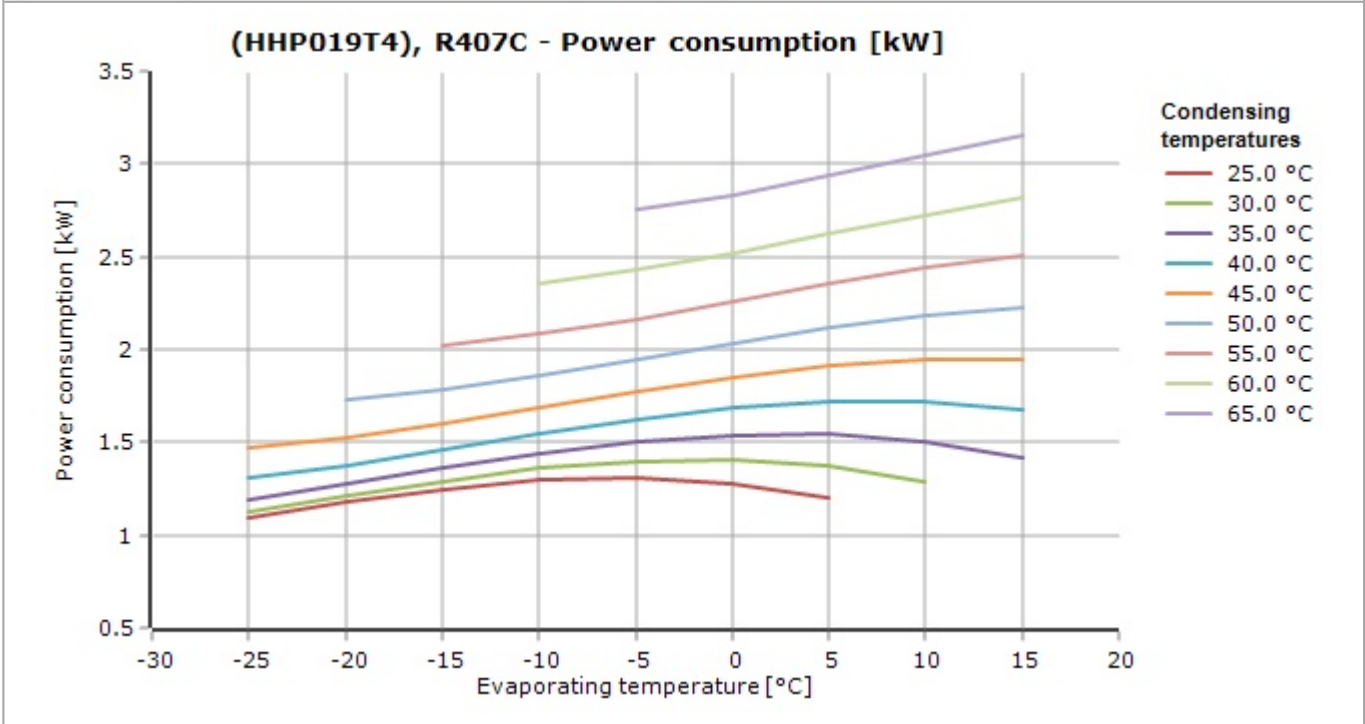


(HHP019T4), R407C - Cooling capacity [kW]

Tc\Te	-30.0	-25.0	-20.0	-15.0	-10.0	-5.0	0	5.0	10.0	15.0	20.0
20.0	-	-	-	-	-	-	-	-	-	-	-
25.0	-	2.375	2.899	3.612	4.522	5.637	6.968	8.523	-	-	-
30.0	-	2.135	2.670	3.382	4.280	5.373	6.670	8.180	9.912	-	-
35.0	-	1.900	2.433	3.133	4.008	5.066	6.318	7.771	9.434	11.32	-
40.0	-	1.687	2.208	2.883	3.723	4.735	5.928	7.313	8.896	10.69	-
45.0	-	1.513	2.009	2.649	3.442	4.395	5.520	6.823	8.314	10.00	-
50.0	-	-	1.856	2.448	3.182	4.065	5.108	6.319	7.707	9.280	-
55.0	-	-	-	2.296	2.959	3.761	4.711	5.818	7.090	8.537	-
60.0	-	-	-	-	2.792	3.500	4.345	5.336	6.481	7.789	-
65.0	-	-	-	-	-	3.299	4.027	4.890	5.896	7.054	-
70.0	-	-	-	-	-	-	-	-	-	-	-

Coolselector2

(HHP019T4), R407C - Power consumption [kW]

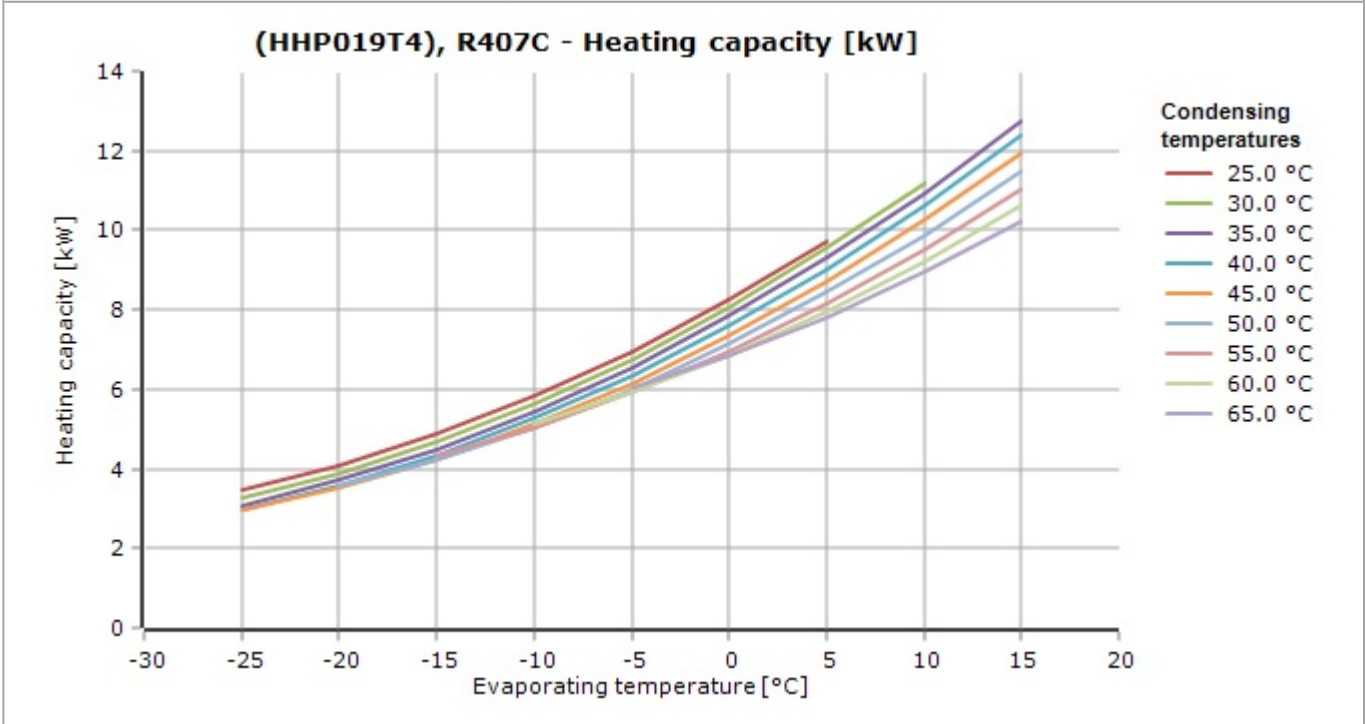


(HHP019T4), R407C - Power consumption [kW]

Tc\Te	-30.0	-25.0	-20.0	-15.0	-10.0	-5.0	0	5.0	10.0	15.0	20.0
20.0	-	-	-	-	-	-	-	-	-	-	-
25.0	-	1.092	1.178	1.249	1.296	1.310	1.281	1.201	-	-	-
30.0	-	1.124	1.211	1.292	1.358	1.400	1.408	1.374	1.286	-	-
35.0	-	1.194	1.275	1.360	1.439	1.502	1.540	1.545	1.505	1.413	-
40.0	-	1.308	1.378	1.460	1.544	1.622	1.685	1.721	1.723	1.681	-
45.0	-	1.474	1.526	1.598	1.682	1.768	1.848	1.910	1.947	1.949	-
50.0	-	-	1.726	1.782	1.859	1.947	2.037	2.119	2.184	2.223	-
55.0	-	-	-	2.019	2.083	2.166	2.260	2.355	2.442	2.511	-
60.0	-	-	-	-	2.360	2.432	2.523	2.625	2.727	2.821	-
65.0	-	-	-	-	-	2.751	2.834	2.935	3.046	3.157	-
70.0	-	-	-	-	-	-	-	-	-	-	-

Coolselector2

(HHP019T4), R407C - Heating capacity [kW]

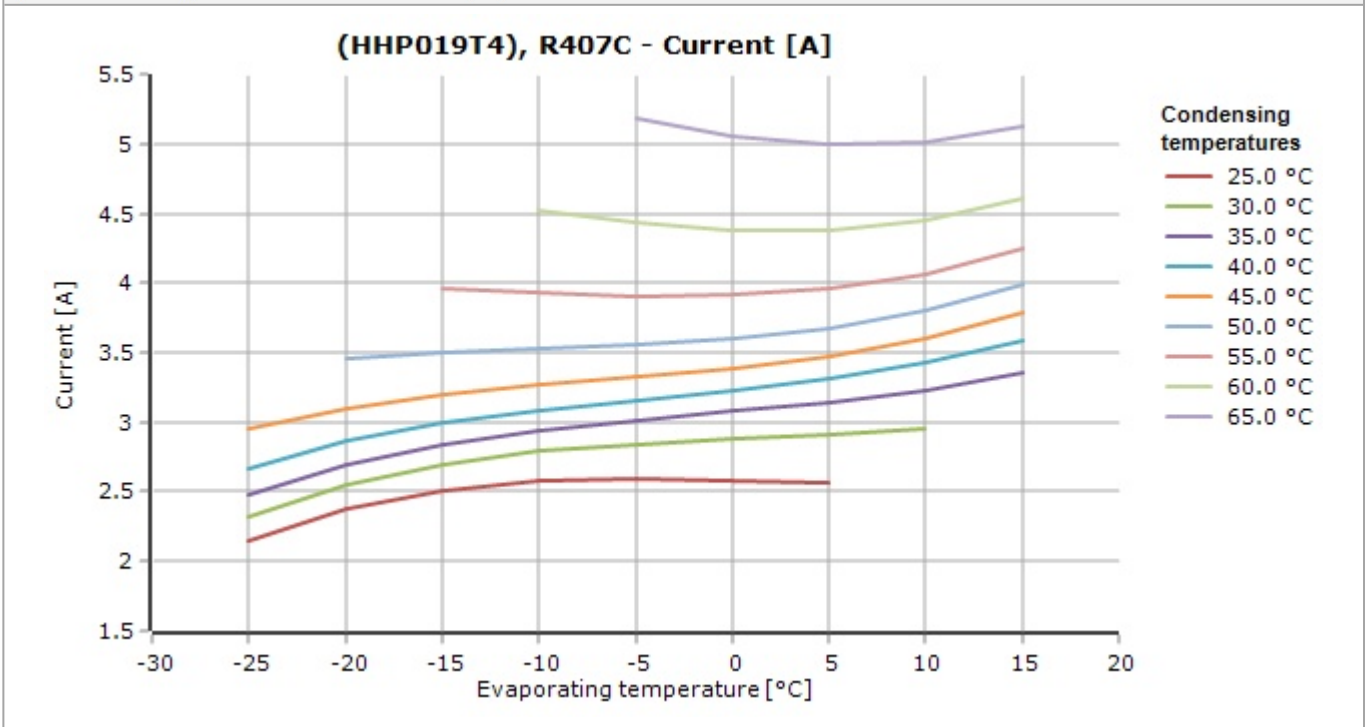


(HHP019T4), R407C - Heating capacity [kW]

Tc\Te	-30.0	-25.0	-20.0	-15.0	-10.0	-5.0	0	5.0	10.0	15.0	20.0
20.0	-	-	-	-	-	-	-	-	-	-	-
25.0	-	3.468	4.077	4.861	5.818	6.947	8.250	9.724	-	-	-
30.0	-	3.259	3.881	4.674	5.638	6.773	8.079	9.554	11.20	-	-
35.0	-	3.093	3.709	4.493	5.447	6.568	7.858	9.315	10.94	12.73	-
40.0	-	2.995	3.585	4.343	5.267	6.357	7.613	9.034	10.62	12.37	-
45.0	-	2.987	3.535	4.247	5.124	6.164	7.367	8.733	10.26	11.95	-
50.0	-	-	3.582	4.230	5.041	6.013	7.145	8.438	9.891	11.50	-
55.0	-	-	-	4.316	5.042	5.927	6.971	8.173	9.532	11.05	-
60.0	-	-	-	-	5.151	5.932	6.868	7.960	9.207	10.61	-
65.0	-	-	-	-	-	6.050	6.861	7.825	8.942	10.21	-
70.0	-	-	-	-	-	-	-	-	-	-	-

Coolselector2

(HHP019T4), R407C - Current [A]

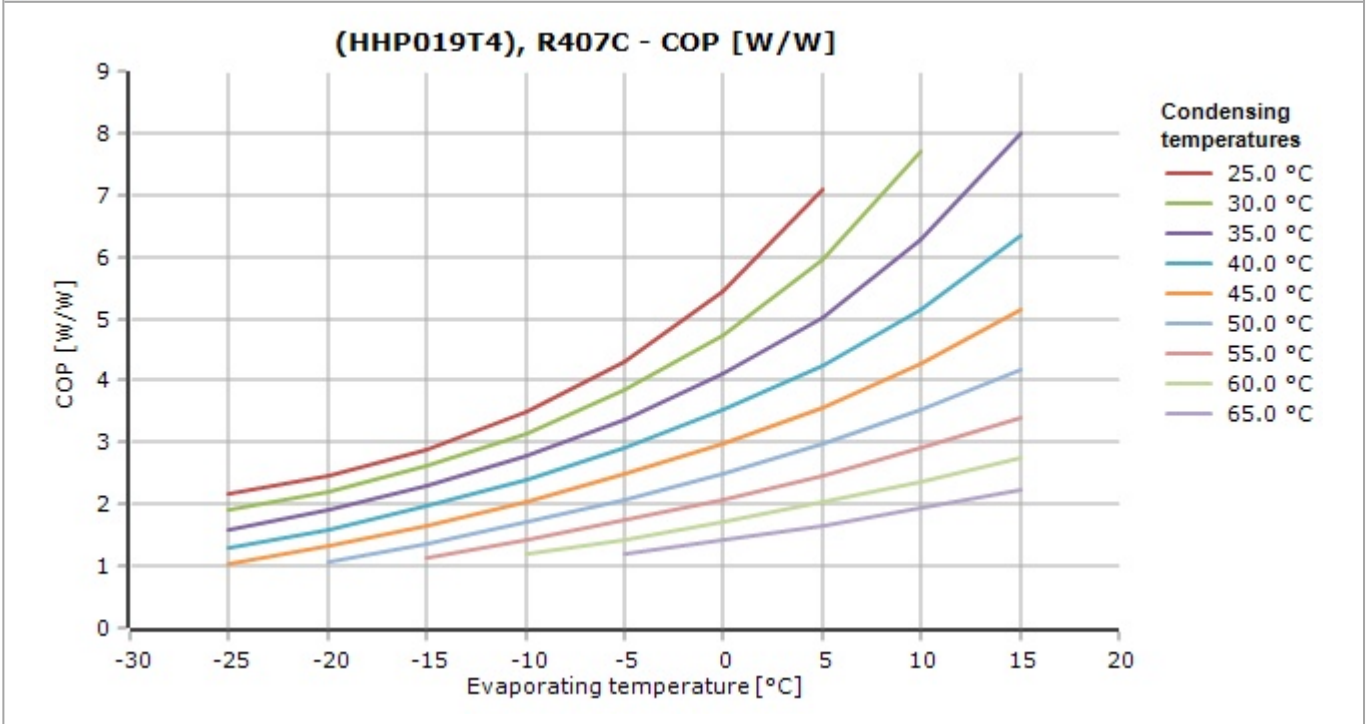


(HHP019T4), R407C - Current [A]

Tc\Te	-30.0	-25.0	-20.0	-15.0	-10.0	-5.0	0	5.0	10.0	15.0	20.0
20.0	-	-	-	-	-	-	-	-	-	-	-
25.0	-	2.154	2.371	2.506	2.574	2.594	2.582	2.558	-	-	-
30.0	-	2.324	2.548	2.698	2.791	2.845	2.877	2.905	2.946	-	-
35.0	-	2.480	2.694	2.843	2.945	3.017	3.076	3.140	3.227	3.353	-
40.0	-	2.672	2.860	2.992	3.086	3.159	3.229	3.313	3.428	3.593	-
45.0	-	2.951	3.095	3.194	3.264	3.322	3.386	3.473	3.601	3.788	-
50.0	-	-	3.451	3.500	3.529	3.555	3.597	3.672	3.796	3.988	-
55.0	-	-	-	3.959	3.931	3.910	3.913	3.958	4.063	4.244	-
60.0	-	-	-	-	4.522	4.436	4.384	4.384	4.451	4.605	-
65.0	-	-	-	-	-	5.184	5.060	4.997	5.012	5.122	-
70.0	-	-	-	-	-	-	-	-	-	-	-

Coolselector2

(HHP019T4), R407C - COP [W/W]

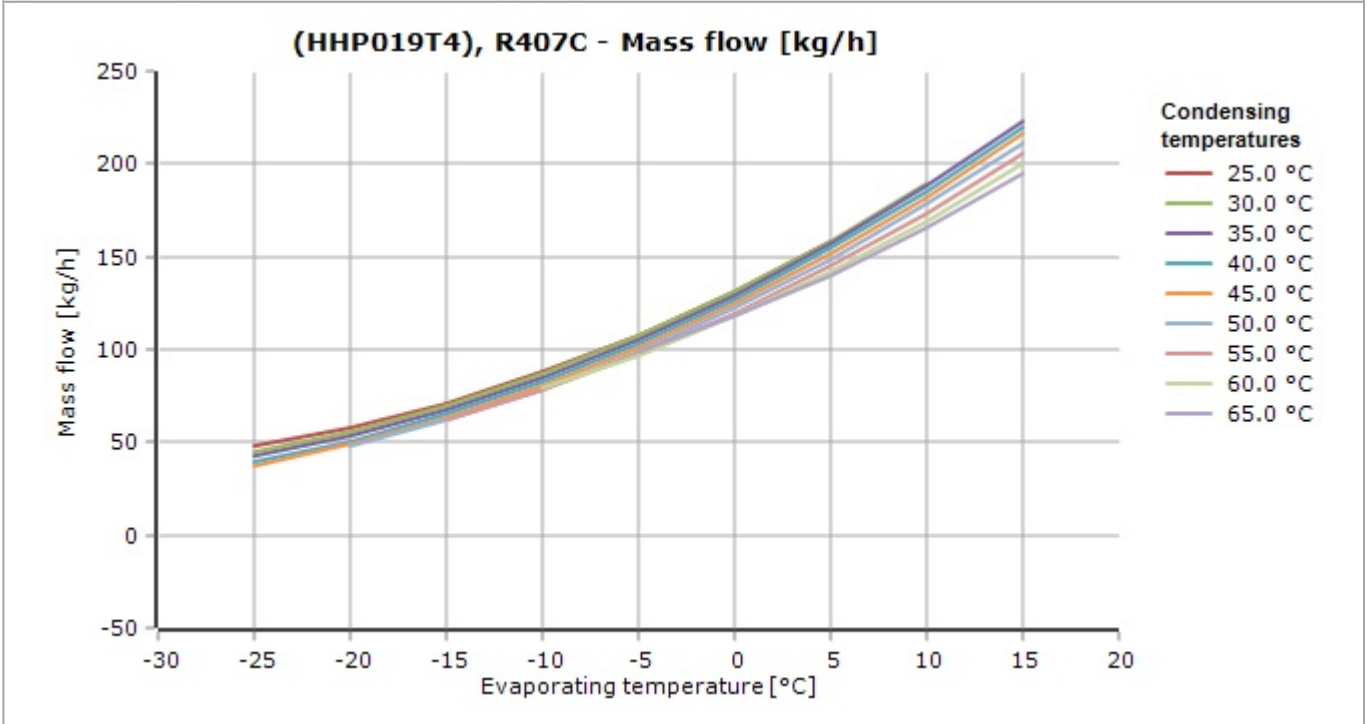


(HHP019T4), R407C - COP [W/W]

Tc\Te	-30.0	-25.0	-20.0	-15.0	-10.0	-5.0	0	5.0	10.0	15.0	20.0
20.0	-	-	-	-	-	-	-	-	-	-	-
25.0	-	2.17	2.46	2.89	3.49	4.30	5.44	7.10	-	-	-
30.0	-	1.90	2.21	2.62	3.15	3.84	4.74	5.96	7.71	-	-
35.0	-	1.59	1.91	2.30	2.79	3.37	4.10	5.03	6.27	8.01	-
40.0	-	1.29	1.60	1.98	2.41	2.92	3.52	4.25	5.16	6.36	-
45.0	-	1.03	1.32	1.66	2.05	2.48	2.99	3.57	4.27	5.13	-
50.0	-	-	1.07	1.37	1.71	2.09	2.51	2.98	3.53	4.17	-
55.0	-	-	-	1.14	1.42	1.74	2.08	2.47	2.90	3.40	-
60.0	-	-	-	-	1.18	1.44	1.72	2.03	2.38	2.76	-
65.0	-	-	-	-	-	1.20	1.42	1.67	1.94	2.23	-
70.0	-	-	-	-	-	-	-	-	-	-	-

Coolselector2

(HHP019T4), R407C - Mass flow [kg/h]



(HHP019T4), R407C - Mass flow [kg/h]

Tc\Te	-30.0	-25.0	-20.0	-15.0	-10.0	-5.0	0	5.0	10.0	15.0	20.0
20.0	-	-	-	-	-	-	-	-	-	-	-
25.0	-	48.27	57.97	71.09	87.66	107.7	131.3	158.5	-	-	-
30.0	-	45.36	55.77	69.49	86.57	107.0	131.0	158.4	189.4	-	-
35.0	-	42.33	53.27	67.42	84.83	105.5	129.6	157.1	188.2	222.8	-
40.0	-	39.56	50.82	65.19	82.72	103.5	127.5	154.9	185.7	220.1	-
45.0	-	37.52	48.85	63.19	80.60	101.1	124.9	151.9	182.4	216.3	-
50.0	-	-	47.87	61.89	78.89	98.95	122.1	148.6	178.3	211.5	-
55.0	-	-	-	61.89	78.13	97.36	119.7	145.1	173.9	206.0	-
60.0	-	-	-	-	79.02	97.00	118.0	142.2	169.6	200.3	-
65.0	-	-	-	-	-	98.73	117.9	140.3	165.9	194.8	-
70.0	-	-	-	-	-	-	-	-	-	-	-