

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>11.33 kW</i>		

Selection: (HHP030T4), R407C. Discontinued model

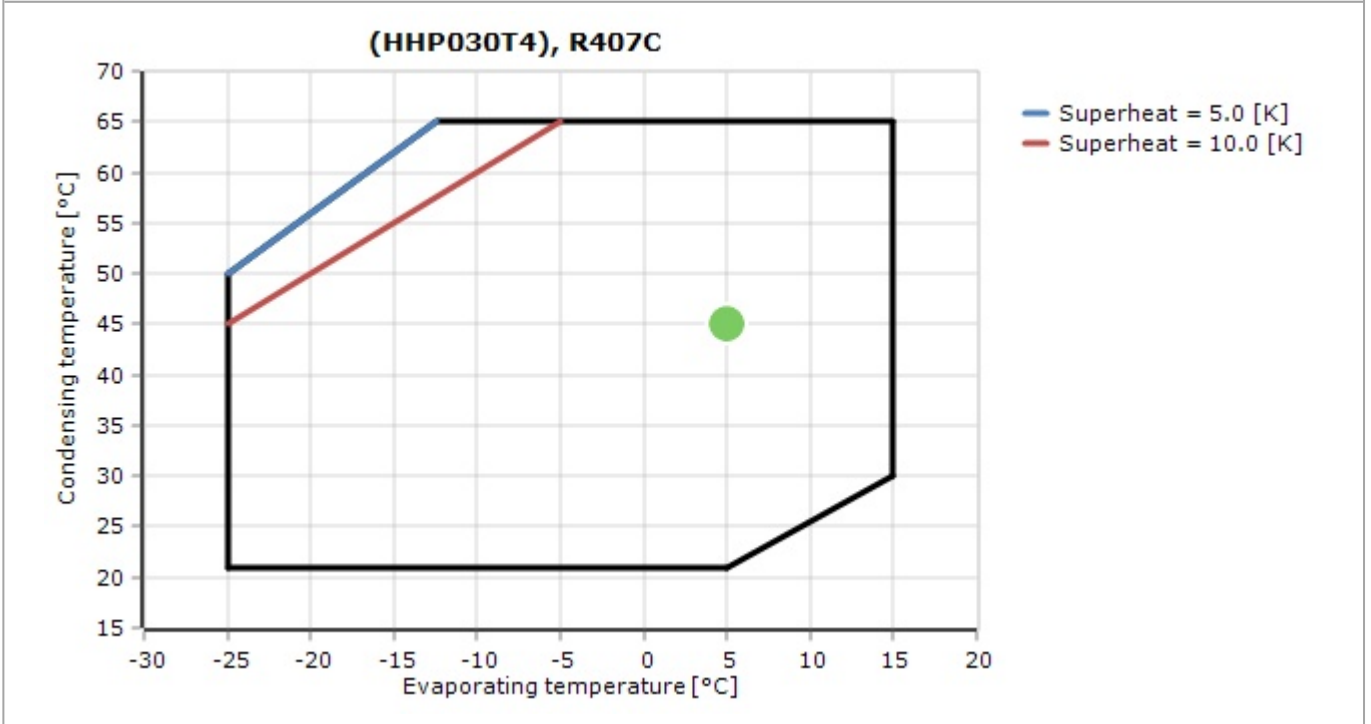
Model	(HHP030T4)
Technology	Scroll
Configuration	Single
Refrigerant	R407C
Capacity control	Fixed speed
Speed [rpm]	2900
Cooling [kW]	11.22
Heating [kW]	14.28
COP cooling [W/W]	3.67
COP heating [W/W]	4.67
Power [kW]	3.058
Current [A]	5.587
Frequency [Hz]	50
Power supply	380 - 400 V (415 V) 3 ph*
Mass flow [kg/h]	249.8

Selected code number and spare parts

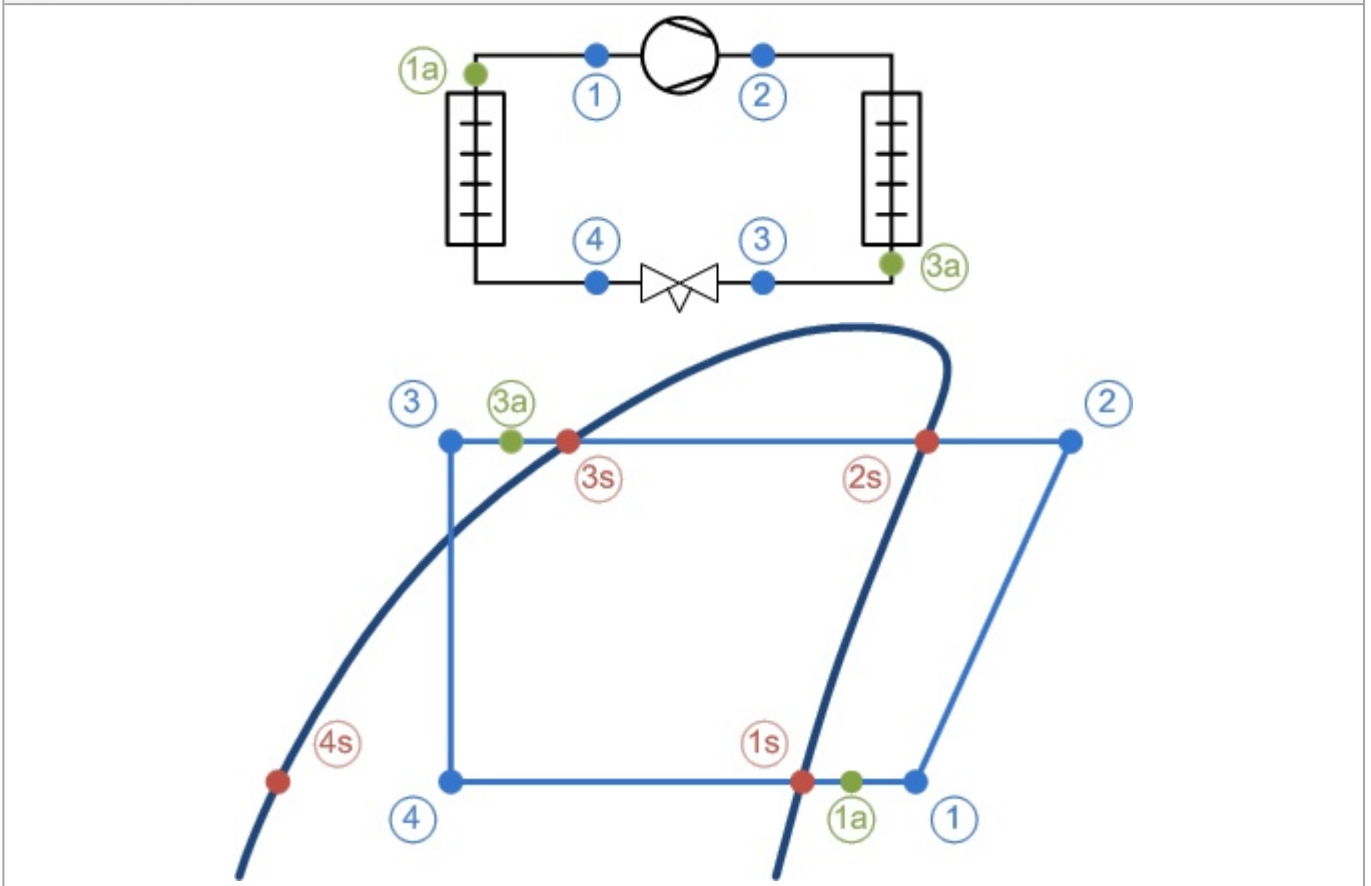
Code number: 121U9017. HHP030T4LC6. Min. order quantity: 12 pcs

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Envelope



System diagrams



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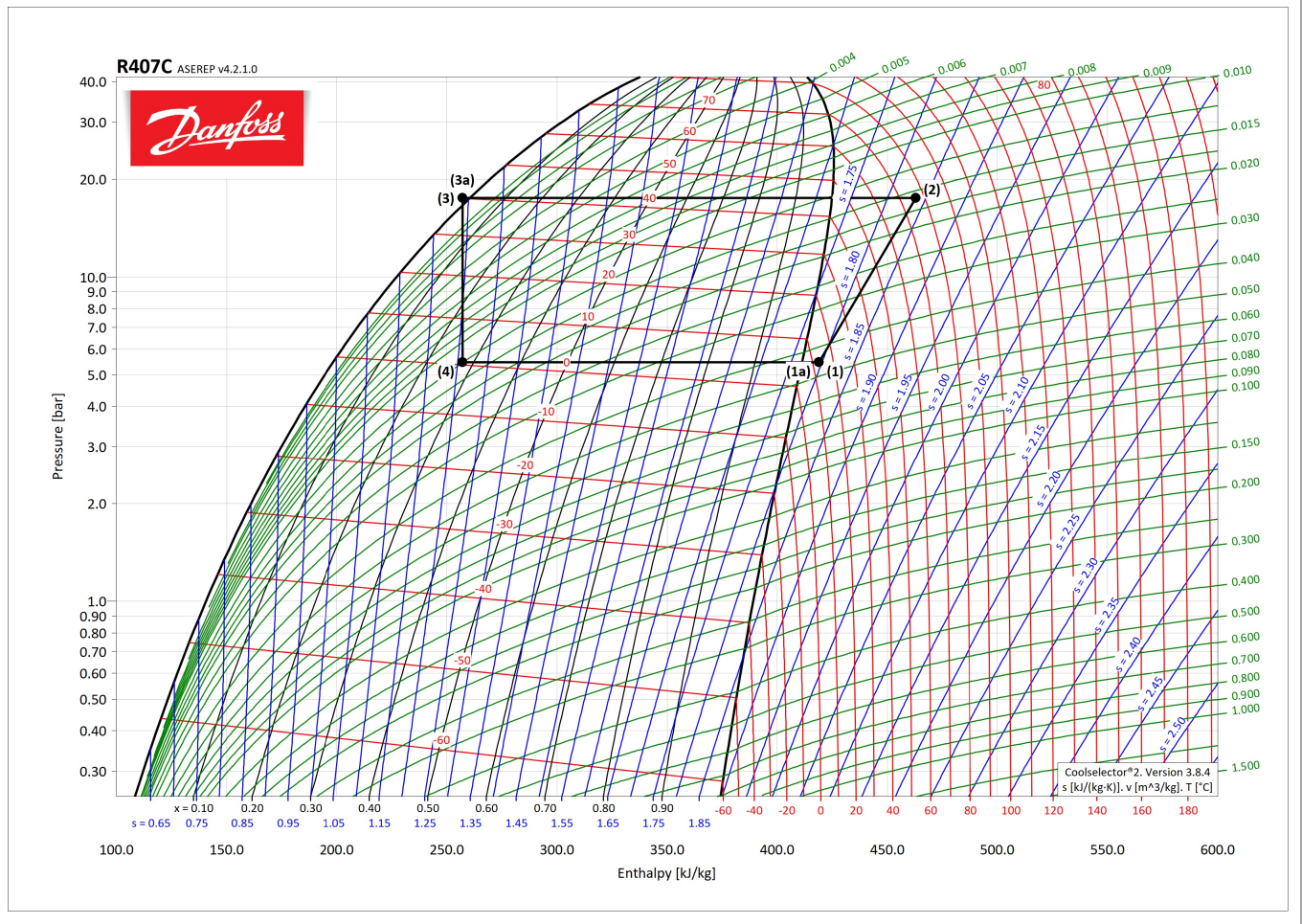
Mass flows

Mass flow in evaporator: 252.3 kg/h Mass flow in compressor: 252.3 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)	76.5	17.51	62.9	462.9	1.837
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]	67 cm ³
Motor protection	Internal overload protector
Refrigerant charge [kg] [Max]	5.4 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	37.67 kg
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Dimensions

Length [mm]	239 mm
Drawing number	0XR6089B-1
Diameter [mm]	184 mm
Width [mm]	239 mm
Total height [mm]	455 mm
Suction connection height [mm]	280 mm
Discharge connection height [mm]	422 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]	2.63 Ohm
Winding resistance 1-2 [Ohm]	2.6 Ohm
Winding resistance 1-3 [Ohm]	2.61 Ohm
Winding resistance 2-3 [Ohm]	2.65 Ohm
MCC	13 A
LRA	60 A
Power connections	Screw connectors 10-32 UNF x 9.5

Mechanical Connections

Connection type	Brazed
Suction connection pipe size [in]	7/8 in
Discharge connection size [in]	1/2 in
Suction connection size [in]	7/8 in
Fitting standard	ODF
Torque earth [Nm]	2 N-m
Torque power [Nm]	3 N-m

Oil Data

Oil reference	160HV
Oil type	PVE

Oil charge [L]	1.57 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	72 db(A)
Sound 2	64 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

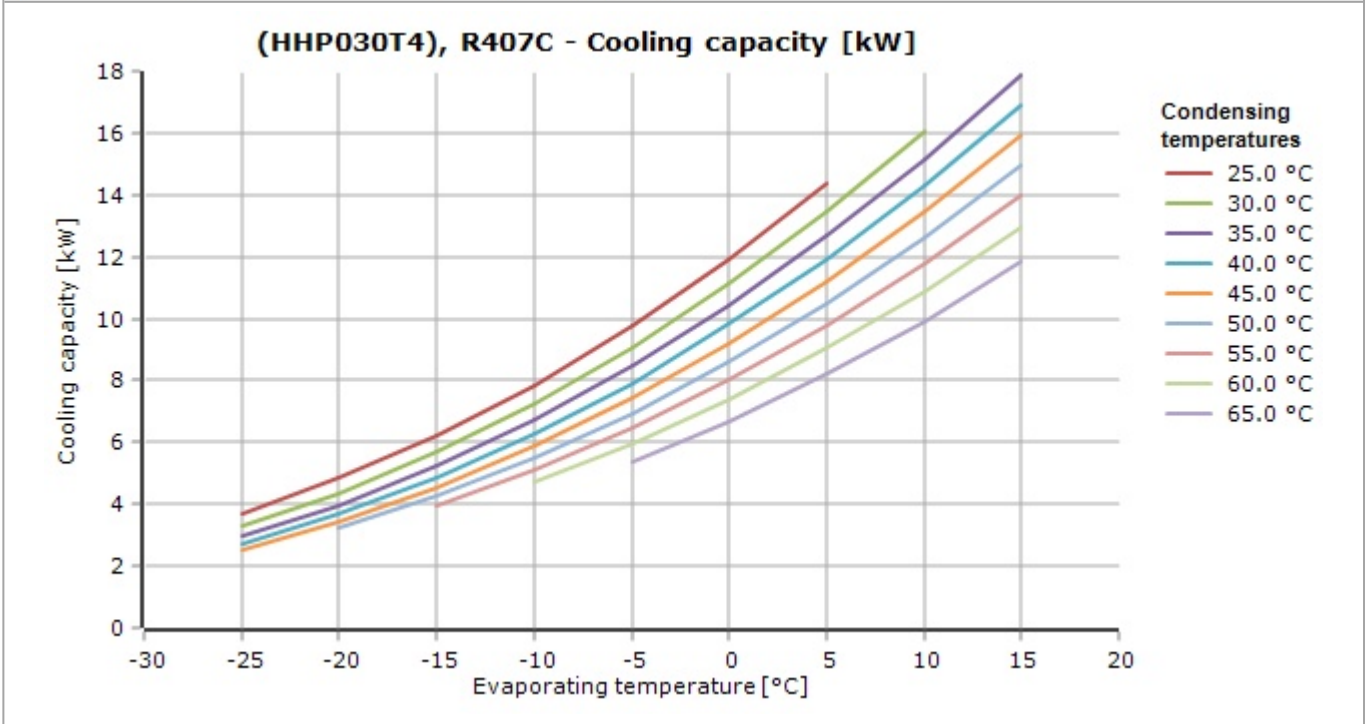
$$Y = C0 + C1*Te + C2*Tc + C3*Te^2 + C4*Te*Tc + C5*Tc^2 + C6*Te^3 + C7*Tc*Te^2 + C8*Te*Tc^2 + C9*Tc^3$$

Polynomials

	Q [W]	P [W]	I [A]	M [kg/s]
C0	18180.3343865662	203.997524261475	0.140726350247863	0.0360548918143217
C1	499.186263264656	-38.2861465215683	-0.0695650085806847	0.00202847965921511
C2	-258.971340862656	75.2164080619812	0.2466519392794	0.00172334601251917
C3	5.68515664237618	-0.309105130881071	-0.00427650156168966	3.00750315689564E-5
C4	-1.50659648426771	1.13847570776939	0.00128401540030609	1.18217235205651E-5
C5	4.11731996083975	-0.464398688077927	-0.00428397219482576	-3.79769341916034E-5
C6	0.0141104436241463	0.0137530442923307	-8.26497207308421E-5	1.87824644824284E-7
C7	-0.0306425408626646	0.00187884776014835	2.60792533117637E-5	5.43533181397497E-8
C8	-0.0157993478219211	0.00236977282818407	1.31275433250266E-5	-1.71039919082531E-7
C9	-0.0284917344840914	0.00356304849218577	3.33190385208582E-5	2.50004054880997E-7

Coolselector2

(HHP030T4), R407C - Cooling capacity [kW]

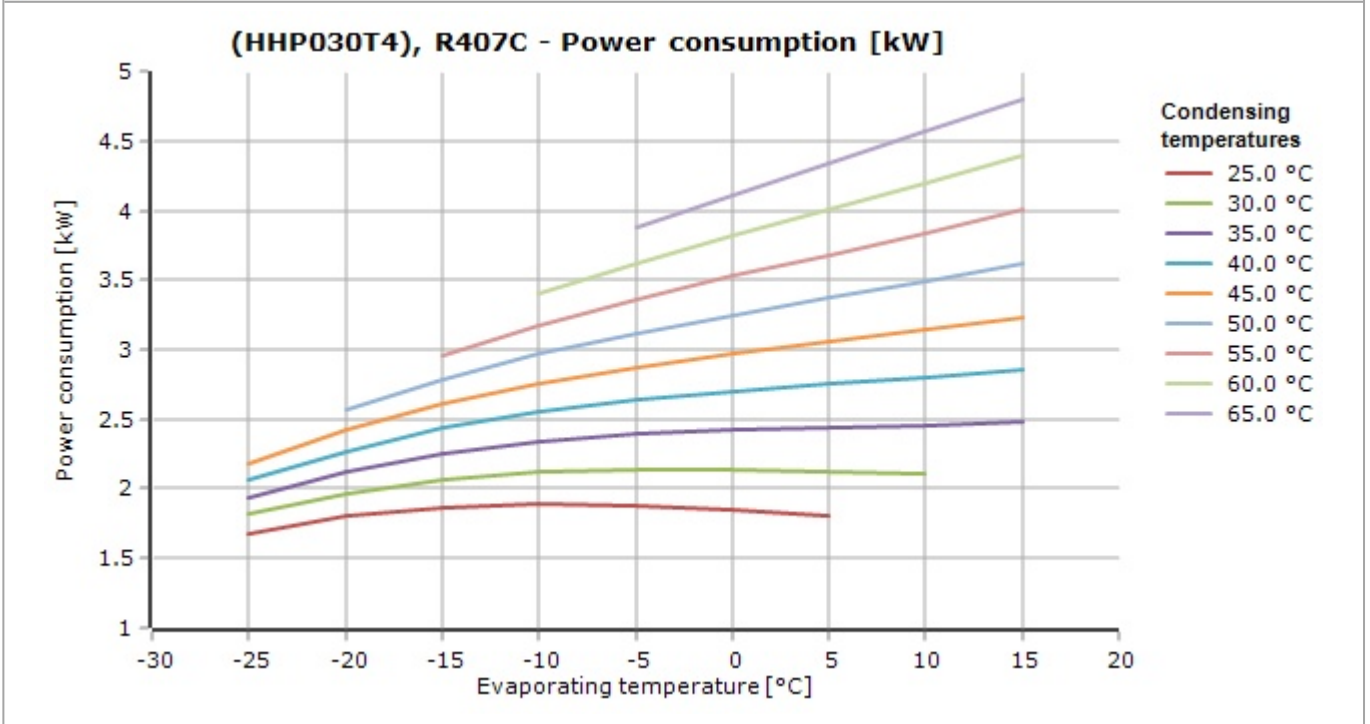


(HHP030T4), R407C - Cooling capacity [kW]

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	-	3.695	4.825	6.213	7.858	9.761	11.92	14.34	-	-	-
30.0	-	3.273	4.349	5.673	7.246	9.069	11.14	13.47	16.04	-	-
35.0	-	2.958	3.974	5.231	6.728	8.466	10.45	12.67	15.14	17.84	-
40.0	-	2.726	3.678	4.862	6.279	7.928	9.811	11.93	14.28	16.87	-
45.0	-	2.554	3.437	4.544	5.875	7.431	9.213	11.22	13.45	15.91	-
50.0	-	-	3.226	4.252	5.493	6.951	8.626	10.52	12.63	14.96	-
55.0	-	-	-	3.961	5.109	6.464	8.028	9.800	11.78	13.98	-
60.0	-	-	-	-	4.698	5.946	7.394	9.043	10.89	12.94	-
65.0	-	-	-	-	-	5.373	6.701	8.221	9.934	11.84	-
70.0	-	-	-	-	-	-	-	-	-	-	-

Coolselector2

(HHP030T4), R407C - Power consumption [kW]

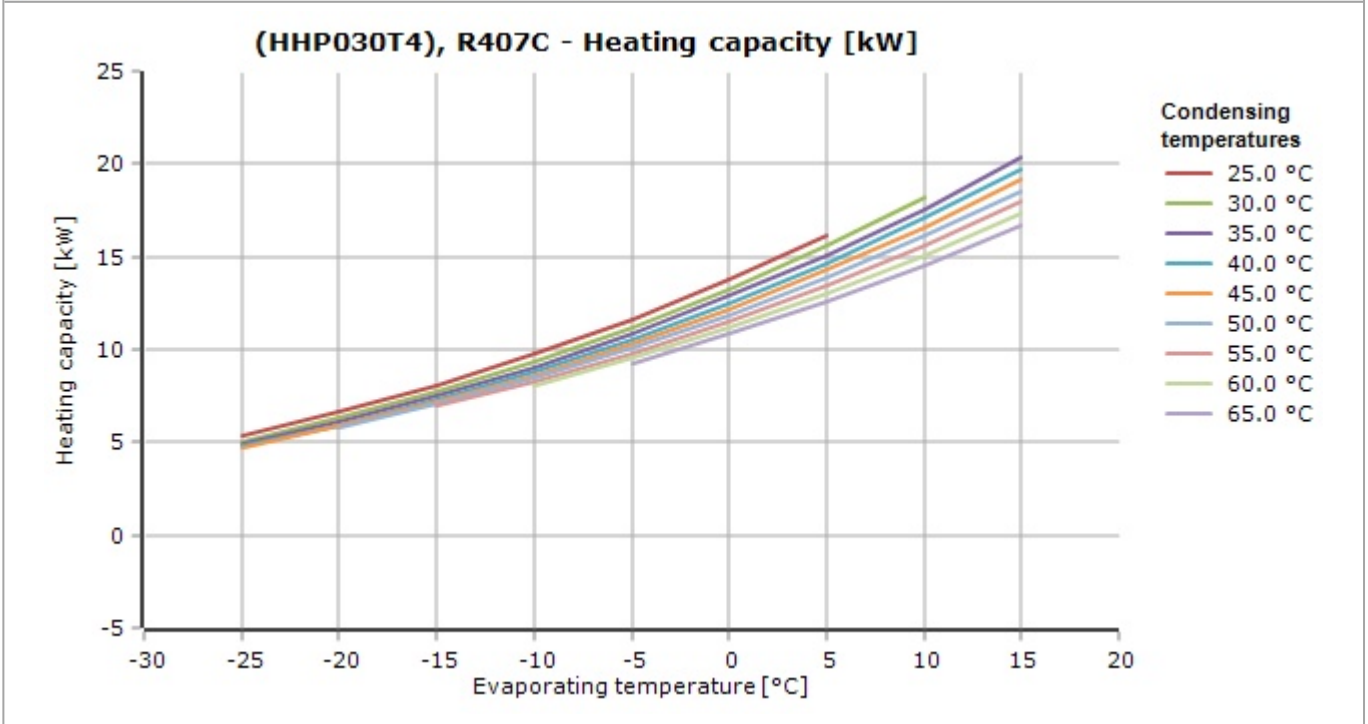


(HHP030T4), R407C - Power consumption [kW]

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	-	1.680	1.802	1.870	1.893	1.883	1.850	1.803	-	-	-
30.0	-	1.816	1.968	2.065	2.120	2.141	2.139	2.124	2.107	-	-
35.0	-	1.942	2.124	2.252	2.338	2.390	2.420	2.438	2.455	2.479	-
40.0	-	2.060	2.273	2.433	2.550	2.635	2.698	2.749	2.798	2.857	-
45.0	-	2.174	2.418	2.610	2.759	2.877	2.973	3.058	3.142	3.235	-
50.0	-	-	2.562	2.786	2.968	3.119	3.249	3.368	3.487	3.616	-
55.0	-	-	-	2.964	3.180	3.365	3.529	3.683	3.837	4.001	-
60.0	-	-	-	-	3.396	3.615	3.815	4.004	4.194	4.395	-
65.0	-	-	-	-	-	3.874	4.109	4.335	4.562	4.800	-
70.0	-	-	-	-	-	-	-	-	-	-	-

Coolselector2

(HHP030T4), R407C - Heating capacity [kW]

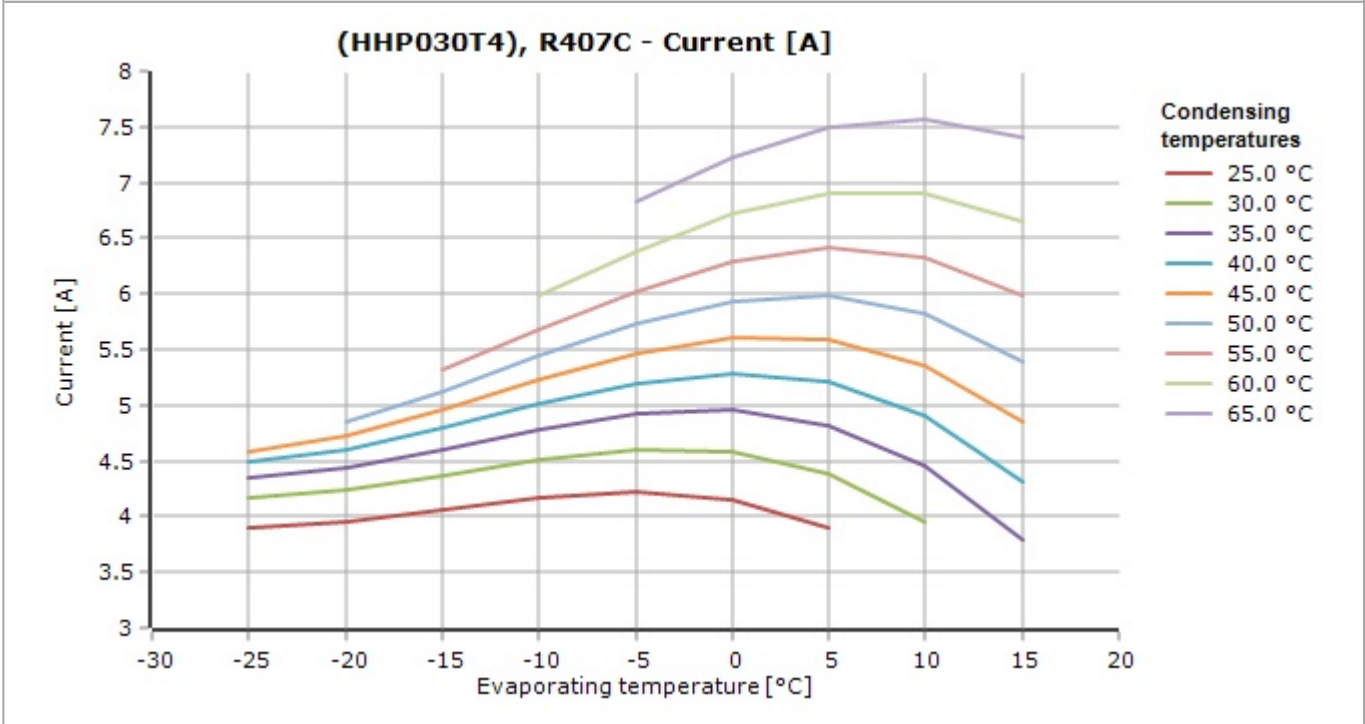


(HHP030T4), R407C - Heating capacity [kW]

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	-	5.374	6.627	8.083	9.751	11.64	13.77	16.15	-	-	-
30.0	-	5.089	6.316	7.738	9.366	11.21	13.28	15.59	18.15	-	-
35.0	-	4.900	6.098	7.483	9.066	10.86	12.87	15.11	17.59	20.32	-
40.0	-	4.787	5.952	7.295	8.829	10.56	12.51	14.68	17.08	19.72	-
45.0	-	4.728	5.855	7.154	8.635	10.31	12.19	14.28	16.59	19.15	-
50.0	-	-	5.788	7.038	8.462	10.07	11.88	13.89	16.12	18.57	-
55.0	-	-	-	6.925	8.288	9.829	11.56	13.48	15.62	17.98	-
60.0	-	-	-	-	8.094	9.561	11.21	13.05	15.09	17.34	-
65.0	-	-	-	-	-	9.248	10.81	12.56	14.50	16.64	-
70.0	-	-	-	-	-	-	-	-	-	-	-

Coolselector2

(HHP030T4), R407C - Current [A]

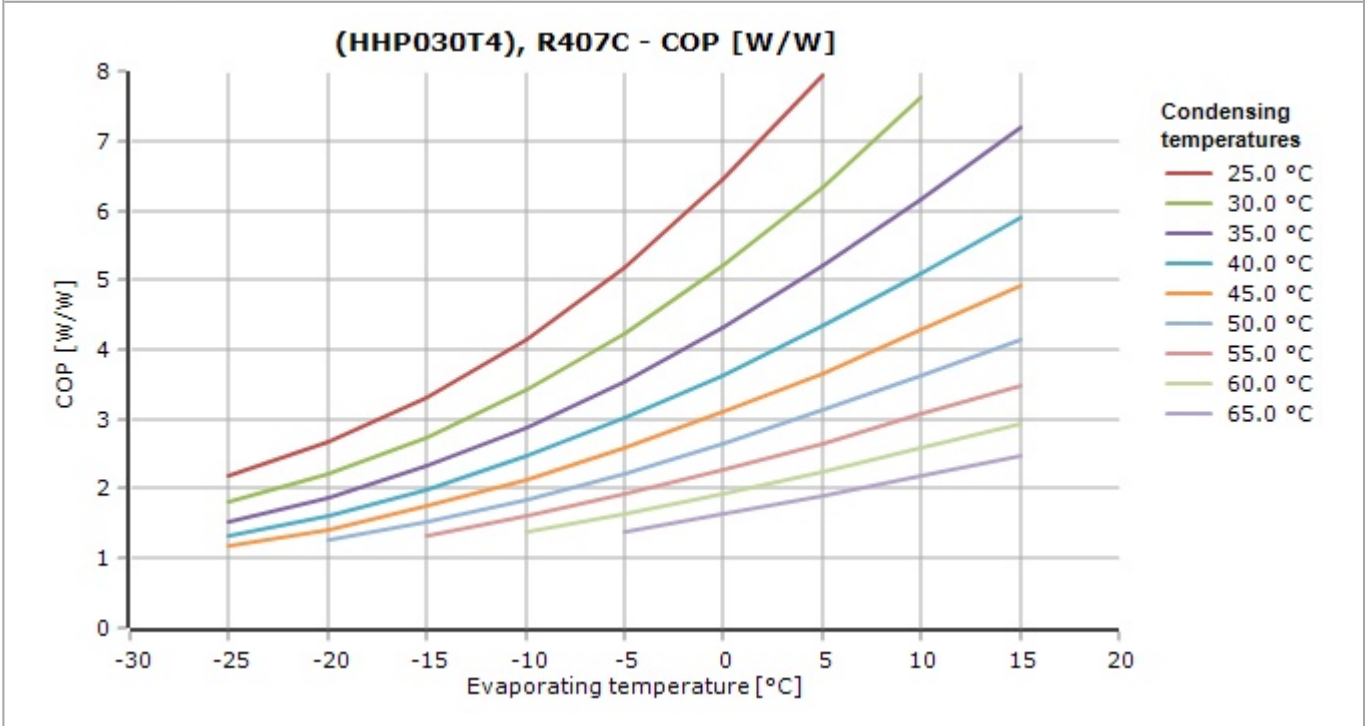


(HHP030T4), R407C - Current [A]

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	-	3.908	3.947	4.052	4.163	4.216	4.150	3.903	-	-	-
30.0	-	4.173	4.232	4.366	4.510	4.603	4.584	4.390	3.960	-	-
35.0	-	4.357	4.441	4.604	4.786	4.923	4.954	4.817	4.450	3.790	-
40.0	-	4.485	4.597	4.794	5.016	5.200	5.285	5.208	4.907	4.320	-
45.0	-	4.583	4.725	4.960	5.226	5.460	5.601	5.587	5.356	4.846	-
50.0	-	-	4.851	5.127	5.439	5.727	5.928	5.981	5.823	5.392	-
55.0	-	-	-	5.319	5.682	6.026	6.291	6.413	6.332	5.984	-
60.0	-	-	-	-	5.979	6.383	6.714	6.910	6.908	6.646	-
65.0	-	-	-	-	-	6.823	7.224	7.495	7.576	7.404	-
70.0	-	-	-	-	-	-	-	-	-	-	-

Coolselector2

(HHP030T4), R407C - COP [W/W]

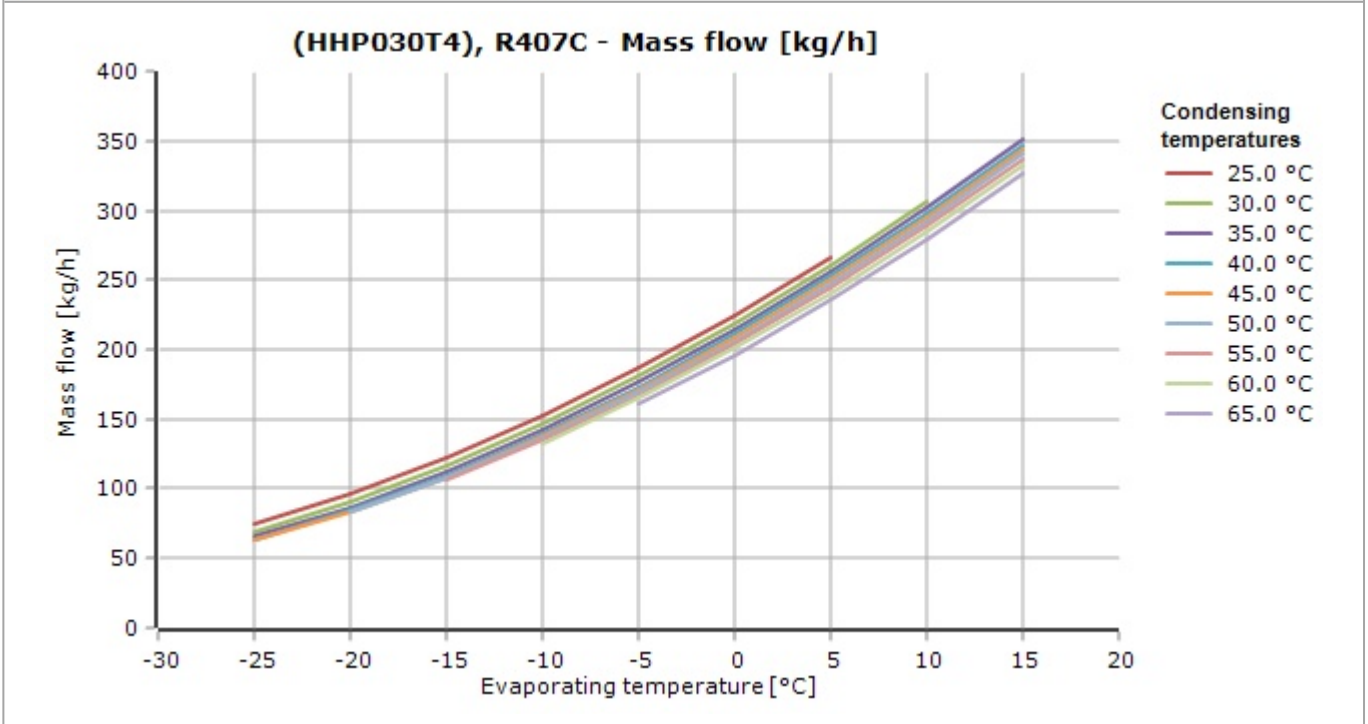


(HHP030T4), R407C - COP [W/W]

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	-	2.20	2.68	3.32	4.15	5.18	6.45	7.95	-	-	-
30.0	-	1.80	2.21	2.75	3.42	4.24	5.21	6.34	7.61	-	-
35.0	-	1.52	1.87	2.32	2.88	3.54	4.32	5.20	6.17	7.20	-
40.0	-	1.32	1.62	2.00	2.46	3.01	3.64	4.34	5.10	5.90	-
45.0	-	1.18	1.42	1.74	2.13	2.58	3.10	3.67	4.28	4.92	-
50.0	-	-	1.26	1.53	1.85	2.23	2.65	3.12	3.62	4.14	-
55.0	-	-	-	1.34	1.61	1.92	2.27	2.66	3.07	3.49	-
60.0	-	-	-	-	1.38	1.65	1.94	2.26	2.60	2.94	-
65.0	-	-	-	-	-	1.39	1.63	1.90	2.18	2.47	-
70.0	-	-	-	-	-	-	-	-	-	-	-

Coolselector2

(HHP030T4), R407C - Mass flow [kg/h]



(HHP030T4), 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	-	75.08	96.47	122.3	152.3	186.5	224.6	266.7	-	-	-
30.0	-	69.54	90.84	116.6	146.6	180.7	218.8	260.8	306.5	-	-
35.0	-	65.92	87.00	112.6	142.4	176.4	214.3	256.2	301.9	351.3	-
40.0	-	63.95	84.68	109.9	139.5	173.3	211.0	252.7	298.2	347.4	-
45.0	-	63.32	83.55	108.4	137.6	171.0	208.5	249.8	295.1	344.0	-
50.0	-	-	83.22	107.5	136.2	169.2	206.3	247.3	292.2	340.8	-
55.0	-	-	-	106.8	134.9	167.3	203.9	244.5	289.0	337.3	-
60.0	-	-	-	-	133.0	164.8	200.8	240.9	285.0	332.9	-
65.0	-	-	-	-	-	160.8	196.2	235.8	279.4	327.0	-
70.0	-	-	-	-	-	-	-	-	-	-	-