

<b>Heat pump model</b>	<b>Master Therm</b>	<b>AQ30IP</b>
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Heat pump type	Brine/Water
Supplementary heater	No
Heat pump combination heater	No

Reference heating season		Average		SCOP 5,13
Reference water temperature		LOW, 35°C		
Full load heating		Prated [kW]	11,88	A+++
Seasonal efficiency		$\eta_s$ [%]	197	
Annual electricity consumption		Q <sub>HE</sub> [kWh]	4789	
Average 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	
	Brine			
	T <sub>j</sub> [°C]	P <sub>dh</sub> [kW]	COP <sub>d</sub> (-)	
A	0	10,60	4,08	
B	0	6,53	5,11	
C	0	4,35	6,04	
D	0	1,84	6,34	
TOL (E)	0	11,88	3,89	
Tbivalent (F)	0	11,88	3,89	

Reference heating season			Average	SCOP 3,95
Reference water temperature			High, 55°C	
Full load heating		Prated [kW]	11,46	A+++
Seasonal efficiency		ηs [%]	150	
Annual electricity consumption		QHE [kWh]	5987	
Average 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	
	Brine			
	Tj [°C]			
		Pdh [kW]	COPd (-)	
A	0	10,26	3,00	
B	0	6,26	3,95	
C	0	4,20	4,71	
D	0	1,78	4,90	
TOL (E)	0	11,46	2,87	
Tbivalent (F)	0	11,46	2,87	

Reference heating season			Warmer
Reference water temperature			Low, 35°C
Full load heating		Prated [kW]	11,88
Seasonal efficiency		$\eta_s$ [%]	206
Annual electricity consumption		QHE [kWh]	2962
Warmer 35°C	Outdoor heat exchanger	Declared capacity	COP at part load
	Brine		
	TJ [°C]		
		Pdh [kW]	COPd (-)
B	0	11,88	3,89
C	0	7,86	4,81
D	0	3,70	6,57
TOL (E)	0	11,88	3,89
Tbivalent (F)	0	11,88	3,89

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Reference heating season		Warmer	
Reference water temperature		High, 55°C	
Full load heating		Prated [kW]	11,46
Seasonal efficiency		$\eta_s$ [%]	149
Annual electricity consumption		$Q_{HE}$ [kWh]	3909
Warmer 55°C	Outdoor heat exchanger	Declared capacity	COP at part load
	Brine		
	Tj [°C]	Pdh [kW]	COPd (-)
B	0	11,46	2,87
C	0	7,86	3,48
D	0	3,54	4,76
TOL (E)	0	11,46	2,87
Tbivalent (F)	0	11,46	2,87

Reference heating season		Colder	
Reference water temperature		Low, 35°C	
Full load heating		Prated [kW]	11,88
Seasonal efficiency		$\eta_s$ [%]	211
Annual electricity consumption		$Q_{HE}$ [kWh]	5360
Colder 35°C	Outdoor heat exchanger	Declared capacity	COP at part load
	Brine		
	Tj [°C]	Pdh [kW]	COPd (-)
A	0	7,58	5,01
B	0	4,48	5,99
C	0	3,08	6,57
D	0	1,84	6,34
TOL (E)	0	11,88	3,89
Tbivalent (F)	0	11,88	3,89
G	0	9,78	4,36

Reference heating season		Colder	
Reference water temperature		High, 55°C	
Full load heating		Prated [kW]	11,46
Seasonal efficiency		$\eta_s$ [%]	158
Annual electricity consumption		$Q_{HE}$ [kWh]	6787
Colder 55°C	Outdoor heat exchanger	Declared capacity	COP at part load
	Brine		
	Tj [°C]	Pdh [kW]	COPd (-)
A	0	7,23	3,79
B	0	4,30	4,52
C	0	2,75	5,21
D	0	1,79	5,21
TOL (E)	0	11,46	2,87
Tbivalent (F)	0	11,46	2,87
G	0	9,38	3,26

Heat pump model	Master Therm	AQ30IP
Power consumption in modes other than "active mode"		
Off mode	P <sub>OFF</sub> [kW]	0,018
Thermostat off mode	P <sub>TO</sub> [kW]	0,018
Standby mode	P <sub>SB</sub> [kW]	0,018
Crankcaseheater mode	P <sub>CK</sub> [kW]	-
Supplementary heater capacity		
Supplementary heater type	P <sub>sup</sub> [kW]	-
	[-]	electricity
Capacity control		
Sound power level Indoor	L <sub>WA</sub> [dBA]	48
Sound power level Outdoor	L <sub>WA</sub> [dBA]	-
Rated water flow	[m <sup>3</sup> /h]	1,74
Temperature controller		
Type	Carel pCO5+HS/pCOOEM+HS, Master Therm custom SW	
Class	II	
Contribution	%	2,0
Temperature controller + Room Terminal		
Type	Carel pCO5+HS/pCOOEM+HS + pGDx, Master Therm custom SW	
Class	VI	
Contribution	%	4,0

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<b>Information sheet</b>			
Temperature application		<b>Low, 35°C</b>	<b>High, 55°C</b>
Space heating energy efficiency class, Average climate	-	A+++	A+++
Nominal heating capacity Pdesign, Average climate	kW	12	11
Space heating seasonal efficiency, Average climate	%	197	150
Space heating annual electricity consumption, Average cl.	kWh	4789	5987
Nominal heating capacity Pdesign, Colder climate	kW	12	11
Space heating seasonal efficiency, Colder climate	%	211	158
Space heating annual electricity consumption, Colder cl.	kWh	5360	6787
Nominal heating capacity Pdesign, Warmer climate	kW	12	11
Space heating seasonal efficiency, Warmer climate	%	206	149
Space heating annual electricity consumption, Warmer cl.	kWh	2962	3909
Sound power level Lwa	dBA	48	

<b>Information sheet for energy efficiency Set with Temperature controller</b>			
Temperature application		<b>Low, 35°C</b>	<b>High, 55°C</b>
Controller Carel pCO5/pCO5+/uPC, Class	-	II	II
Controller Carel pCO5/pCO5+/uPC, Contribution	%	2,0	2,0
Set Space heating seasonal efficiency, Average climate	%	199	152
Set Space heating energy efficiency class, Average climate	-	A+++	A+++
Set Space heating seasonal efficiency, Colder climate	%	213	160
Set Space heating seasonal efficiency, Warmer climate	%	208	151

<b>Information sheet for energy efficiency Set with Temperature controller + Room Terminal</b>			
Temperature application		<b>Low, 35°C</b>	<b>High, 55°C</b>
Controller Carel pCO5/pCO5+/uPC + pAD, Class	-	VI	VI
Controller Carel pCO5/pCO5+/uPC, +pAD, Contribution	%	4,0	4,0
Set Space heating seasonal efficiency, Average climate	%	201	154
Set Space heating energy efficiency class, Average climate	-	A+++	A+++
Set Space heating seasonal efficiency, Colder climate	%	215	162
Set Space heating seasonal efficiency, Warmer climate	%	210	153