

Heat pump model	Master Therm	AQ221-1, AQ221-0
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Heat pump type	Brine/Water
Supplementary heater	Yes
Heat pump combination heater	No

Reference heating season		Average		
Reference water temperature		LOW, 35°C		
Full load heating	Prated [kW]	6,73		
Seasonal efficiency	η_s [%]	181	A+++	
Annual electricity consumption	Q_{HE} [kWh]	2944		
Average 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	T _j [°C]	P _{dh} [kW]	COP _d (-)	C _{dh} (-)
A	-7	5,92	4,29	0,900
B	2	3,62	4,65	0,900
C	7	2,38	5,28	0,900
D	12	1,19	5,28	0,947
TOL (E)	-10	6,73	4,22	0,900
Tbivalent (F)	-10	6,73	4,22	0,900

Reference heating season		Average		
Reference water temperature		High, 55°C		
Full load heating	Prated [kW]	6,40		
Seasonal efficiency	η_s [%]	135	A++	
Annual electricity consumption	Q_{HE} [kWh]	3690		
Average 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	T _j [°C]	P _{dh} [kW]	COP _d (-)	C _{dh} (-)
A	-7	5,52	2,96	0,900
B	2	3,40	3,56	0,900
C	7	2,32	4,10	0,900
D	12	1,10	4,22	0,954
TOL (E)	-10	6,40	2,83	0,900
Tbivalent (F)	-10	6,40	2,83	0,900

Reference heating season		Warmer		
Reference water temperature		Low, 35°C		
Full load heating	Prated [kW]	6,73		
Seasonal efficiency	η_s [%]	183		
Annual electricity consumption	Q_{HE} [kWh]	1883		
Warmer 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	T _j [°C]	P _{dh} [kW]	COP _d (-)	C _{dh} (-)
B	2	6,73	4,22	0,900
C	7	4,27	4,51	0,900
D	12	2,00	5,43	0,900
TOL (E)	2	6,73	4,22	0,900
Tbivalent (F)	2	6,73	4,22	0,900

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Reference heating season		Warmer		
Reference water temperature		High, 55°C		
Full load heating		Prated [kW]	6,40	
Seasonal efficiency		η_s [%]	132	
Annual electricity consumption		Q_{HE} [kWh]	2436	
Warmer 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
B	2	6,40	2,83	0,900
C	7	4,07	3,21	0,900
D	12	1,82	4,11	0,900
TOL (E)	2	6,40	2,83	0,900
Tbivalent (F)	2	6,40	2,83	0,900

Reference heating season		Colder		
Reference water temperature		Low, 35°C		
Full load heating		Prated [kW]	6,78	
Seasonal efficiency		η_s [%]	188	
Annual electricity consumption		Q_{HE} [kWh]	3413	
Colder 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7	4,01	4,62	0,900
B	2	2,63	5,19	0,900
C	7	1,76	5,43	0,900
D	12	1,58	5,28	0,960
TOL (E)	-22	6,78	4,40	0,900
Tbivalent (F)	-22	6,78	4,40	0,900
G	-15	5,54	4,46	0,900

Reference heating season		Colder		
Reference water temperature		High, 55°C		
Full load heating		Prated [kW]	6,48	
Seasonal efficiency		η_s [%]	141	
Annual electricity consumption		Q_{HE} [kWh]	4285	
Colder 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7	3,85	3,42	0,900
B	2	2,44	3,99	0,900
C	7	1,64	4,46	0,900
D	12	1,49	4,46	0,964
TOL (E)	-22	6,48	3,03	0,900
Tbivalent (F)	-22	6,48	3,03	0,900
G	-15	5,37	3,13	0,900

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Power consumption in modes other than "active mode"		
Off mode	P _{OFF} [kW]	0,012
Thermostat off mode	P _{TO} [kW]	0,012
Standby mode	P _{SB} [kW]	0,012
Crankcaseheater mode	P _{CK} [kW]	-

Supplementary heater capacity	P _{sup} [kW]	3-4 (4,5-6)
Supplementary heater type	[-]	electricity

Capacity control		Variable
Sound power level Indoor	L _{WA} [dBA]	48
Sound power level Outdoor	L _{WA} [dBA]	-
Rated brine flow	[m ³ /h]	0,99

Temperature controller		
Type	Carel pCO5/pCO5+/uPC, Master Therm custom SW	
Class	II	
Contribution	%	2,0

Temperature controller + Room Terminal		
Type	Carel pCO5/pCO5+/uPC + pAD, Master Therm custom SW	
Class	VI	
Contribution	%	4,0

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Information sheet			
Temperature application		Low, 35°C	High, 55°C
Space heating energy efficiency class, Average climate	-	A+++	A++
Nominal heating capacity Pdesign, Average climate	kW	7	6
Space heating seasonal efficiency, Average climate	%	181	135
Space heating annual electricity consumption, Average cl.	kWh	2944	3690
Nominal heating capacity Pdesign, Colder climate	kW	7	6
Space heating seasonal efficiency, Colder climate	%	188	141
Space heating annual electricity consumption, Colder cl.	kWh	3413	4285
Nominal heating capacity Pdesign, Warmer climate	kW	7	6
Space heating seasonal efficiency, Warmer climate	%	183	132
Space heating annual electricity consumption, Warmer cl.	kWh	1883	2436
Sound power level Lwa	dBA	48	

Information sheet for energy efficiency Set with Temperature controller			
Temperature application		Low, 35°C	High, 55°C
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	%	183	137
Set Space heating energy efficiency class, Average climate	-	A+++	A++
Set Space heating seasonal efficiency, Colder climate	%	190	143
Set Space heating seasonal efficiency, Warmer climate	%	185	134

Information sheet for energy efficiency Set with Temperature controller + Room Terminal			
Temperature application		Low, 35°C	High, 55°C
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	%	185	139
Set Space heating energy efficiency class, Average climate	-	A+++	A++
Set Space heating seasonal efficiency, Colder climate	%	192	145
Set Space heating seasonal efficiency, Warmer climate	%	187	136