

Heat pump model	Master Therm	AQ90I-1
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Heat pump type	Water/Water
Supplementary heater	No
Heat pump combination heater	No

Reference heating season		Average		
Reference water temperature		LOW, 35°C		
Full load heating	Prated [kW]	44		
Seasonal efficiency	η_s [%]	188		
Annual electricity consumption	Q_{HE} [kWh]	18408		
Average 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	T_j [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7	39.07	3.82	0.900
B	2	23.70	4.84	0.900
C	7	15.49	5.58	0.900
D	12	6.97	5.96	0.900
TOL (E)	-10	43.68	3.56	0.900
Tbivalent (F)	-10	43.68	3.56	0.900

Reference heating season		Average		
Reference water temperature		High, 55°C		
Full load heating	Prated [kW]	42.23		
Seasonal efficiency	η_s [%]	150		
Annual electricity consumption	Q_{HE} [kWh]	22038		
Average 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	T_j [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7	38.71	2.96	0.900
B	2	24.34	3.94	0.900
C	7	15.37	4.62	0.900
D	12	6.80	4.77	0.900
TOL (E)	-10	42.23	2.60	0.900
Tbivalent (F)	-10	42.23	2.60	0.900

Reference heating season		Warmer		
Reference water temperature		Low, 35°C		
Full load heating	Prated [kW]	43.68		
Seasonal efficiency	η_s [%]	195		
Annual electricity consumption	Q_{HE} [kWh]	11500		
Warmer 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	T_j [°C]	Pdh [kW]	COPd (-)	Cdh (-)
B	2	43.68	3.56	0.900
C	7	28.76	4.55	0.900
D	12	12.85	5.89	0.900
TOL (E)	2	43.68	3.56	0.900
Tbivalent (F)	2	43.68	3.56	0.900

Heat pump model		Master Therm		AQ90I-1	
Reference heating season			Warmer		
Reference water temperature			High, 55°C		
Full load heating		Prated [kW]		42.23	
Seasonal efficiency		η_s [%]		148	
Annual electricity consumption		Q_{HE} [kWh]		14476	
Warmer 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient	
	Outdoor air				
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)	
B	2	42.23	2.60	0.900	
C	7	28.60	3.43	0.900	
D	12	12.94	4.63	0.900	
TOL (E)	2	42.23	2.60	0.900	
Tbivalent (F)	2	42.23	2.60	0.900	
Reference heating season			Colder		
Reference water temperature			Low, 35°C		
Full load heating		Prated [kW]		43.68	
Seasonal efficiency		η_s [%]		196	
Annual electricity consumption		Q_{HE} [kWh]		21074	
Colder 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient	
	Outdoor air				
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)	
A	-7	27.13	4.69	0.900	
B	2	17.17	5.51	0.900	
C	7	10.49	6.13	0.900	
D	12	6.97	5.96	0.978	
TOL (E)	-22	43.68	3.56	0.900	
Tbivalent (F)	-22	43.68	3.56	0.900	
G	-15	36.45	4.01	0.900	
Reference heating season			Colder		
Reference water temperature			High, 55°C		
Full load heating		Prated [kW]		42.23	
Seasonal efficiency		η_s [%]		156	
Annual electricity consumption		Q_{HE} [kWh]		25401	
Colder 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient	
	Outdoor air				
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)	
A	-7	27.07	3.68	0.900	
B	2	17.03	4.51	0.900	
C	7	10.60	5.03	0.900	
D	12	6.85	5.05	0.981	
TOL (E)	-22	42.23	2.60	0.900	
Tbivalent (F)	-22	42.23	2.60	0.900	
G	-15	35.98	3.12	0.900	

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Power consumption in modes other than "active mode"		
Off mode	P_{OFF} [kW]	0.000
Thermostat off mode	P_{TO} [kW]	0.026
Standby mode	P_{SB} [kW]	0.026
Crankcaseheater mode	P_{CK} [kW]	-
Supplementary heater capacity		
Supplementary heater capacity	P_{sup} [kW]	-
Supplementary heater type	[-]	electricity
Capacity control		
Capacity control		Variable
Sound power level Indoor	L_{WA} [dBA]	60
Sound power level Outdoor	L_{WA} [dBA]	-
Rated water flow	[m ³ /h]	11.93
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	44	42
Space heating seasonal efficiency, Average climate	%	188	150
Space heating annual electricity consumption, Average cl.	kWh	18408	22038
Nominal heating capacity Pdesign, Colder climate	kW	44	42
Space heating seasonal efficiency, Colder climate	%	196	156
Space heating annual electricity consumption, Colder cl.	kWh	21074	25401
Nominal heating capacity Pdesign, Warmer climate	kW	44	42
Space heating seasonal efficiency, Warmer climate	%	195	148
Space heating annual electricity consumption, Warmer cl.	kWh	11500	14476
Sound power level Lwa	dBA	60	

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	%	190	152
Set Space heating energy efficiency class, Average climate	-	A+++	A+++
Set Space heating seasonal efficiency, Colder climate	%	198	158
Set Space heating seasonal efficiency, Warmer climate	%	197	150

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	%	192	154
Set Space heating energy efficiency class, Average climate	-	A+++	A+++
Set Space heating seasonal efficiency, Colder climate	%	200	160
Set Space heating seasonal efficiency, Warmer climate	%	199	152