

Heat pump model	Master Therm	AQ301-1, AQ301-0
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Heat pump type	Brine/Water
Supplementary heater	No
Heat pump combination heater	No

Reference heating season		Average		
Reference water temperature		LOW, 35°C		
Full load heating		Prated [kW]	11,43	
Seasonal efficiency		η_s [%]	189	A+++
Annual electricity consumption		Q_{HE} [kWh]	4796	
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	10,10	4,39	0,900
B	2	6,25	4,87	0,900
C	7	4,30	5,41	0,900
D	12	1,89	5,51	0,900
TOL (E)	-10	11,43	4,30	0,900
Tbivalent (F)	-10	11,43	4,30	0,900

Reference heating season		Average		
Reference water temperature		High, 55°C		
Full load heating		Prated [kW]	10,71	
Seasonal efficiency		η_s [%]	145	A++
Annual electricity consumption		Q_{HE} [kWh]	5786	
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	9,37	3,09	0,900
B	2	5,82	3,78	0,900
C	7	3,87	4,40	0,900
D	12	1,82	4,53	0,971
TOL (E)	-10	10,71	2,93	0,900
Tbivalent (F)	-10	10,71	2,93	0,900

Reference heating season		Warmer		
Reference water temperature		Low, 35°C		
Full load heating		Prated [kW]	11,43	
Seasonal efficiency		η_s [%]	193	
Annual electricity consumption		Q_{HE} [kWh]	3036	
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	11,43	4,30	0,900
C	7	7,49	4,71	0,900
D	12	3,17	5,65	0,900
TOL (E)	2	11,43	4,30	0,900
Tbivalent (F)	2	11,43	4,30	0,900

Heat pump model **Master Therm** **AQ30I-1, AQ30I-0**

Reference heating season		Warmer		
Reference water temperature		High, 55°C		
Full load heating		Prated [kW]	10,71	
Seasonal efficiency		η_s [%]	143	
Annual electricity consumption		Q_{HE} [kWh]	3791	
Warmer 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
B	2	10,71	2,93	0,900
C	7	6,99	3,39	0,900
D	12	3,02	4,42	0,900
TOL (E)	2	10,71	2,93	0,900
Tbivalent (F)	2	10,71	2,93	0,900

Reference heating season		Colder		
Reference water temperature		Low, 35°C		
Full load heating		Prated [kW]	11,43	
Seasonal efficiency		η_s [%]	202	
Annual electricity consumption		Q_{HE} [kWh]	5357	
Colder 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7	7,01	4,83	0,900
B	2	4,30	5,41	0,900
C	7	2,79	5,65	0,900
D	12	2,53	5,51	0,974
TOL (E)	-22	11,43	4,30	0,900
Tbivalent (F)	-22	11,43	4,30	0,900
G	-15	10,89	6,25	0,993

Reference heating season		Colder		
Reference water temperature		High, 55°C		
Full load heating		Prated [kW]	10,71	
Seasonal efficiency		η_s [%]	0	
Annual electricity consumption		Q_{HE} [kWh]	0	
Colder 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7	6,61	3,61	0,900
B	2	4,10	4,28	0,900
C	7	2,70	4,76	0,900
D	12	2,45	4,76	0,977
TOL (E)	-22	10,71	2,93	0,900
Tbivalent (F)	-22	10,71	2,93	0,900
G	-15	10,09	4,11	0,995

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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]	-
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]	1,81

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	11	11
Space heating seasonal efficiency, Average climate	%	189	145
Space heating annual electricity consumption, Average cl.	kWh	4796	5786
Nominal heating capacity Pdesign, Colder climate	kW	11	11
Space heating seasonal efficiency, Colder climate	%	202	0
Space heating annual electricity consumption, Colder cl.	kWh	5357	0
Nominal heating capacity Pdesign, Warmer climate	kW	11	11
Space heating seasonal efficiency, Warmer climate	%	193	143
Space heating annual electricity consumption, Warmer cl.	kWh	3036	3791
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	%	191	147
Set Space heating energy efficiency class, Average climate	-	A+++	A++
Set Space heating seasonal efficiency, Colder climate	%	204	2
Set Space heating seasonal efficiency, Warmer climate	%	195	145

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	%	193	149
Set Space heating energy efficiency class, Average climate	-	A+++	A++
Set Space heating seasonal efficiency, Colder climate	%	206	4
Set Space heating seasonal efficiency, Warmer climate	%	197	147