

Heat pump model	Master Therm	BA37ISC-1
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Heat pump type	Air/Water
Supplementary heater	Yes
Heat pump combination heater	No

Reference heating season			Average	SCOP 4.49
Reference water temperature			LOW, 35°C	
Full load heating		Prated [kW]	10.93	
Seasonal efficiency		ηs [%]	177	A+++
Annual electricity consumption		QHE [kWh]	5029	
Average 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7	9.67	2.64	0.900
B	2	6.10	4.38	0.900
C	7	4.06	6.19	0.900
D	12	4.75	7.62	0.969
TOL (E)	-10	9.04	2.48	0.900
Tbivalent (F)	-7	9.67	2.64	0.900

Reference heating season			Average	SCOP 3.51
Reference water temperature			High, 55°C	
Full load heating		Prated [kW]	10.02	
Seasonal efficiency		ηs [%]	137	A++
Annual electricity consumption		QHE [kWh]	5905	
Average 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]			
A	-7	8.86	2.00	0.900
B	2	5.45	3.41	0.900
C	7	3.48	4.94	0.900
D	12	4.08	6.01	0.972
TOL (E)	-10	8.22	1.85	0.900
Tbivalent (F)	-7	8.86	2.00	0.900

Reference heating season		Warmer		
Reference water temperature		Low, 35°C		
Full load heating	Prated [kW]		12.45	
Seasonal efficiency	ηs [%]		249	
Annual electricity consumption	QHE [kWh]		2641	
Warmer 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]			
		Pdh [kW]	COPd (-)	Cdh (-)
B	2	12.45	3.33	0.900
C	7	8.12	5.54	0.900
D	12	3.58	7.87	0.900
TOL (E)	-10	12.45	3.33	0.900
Tbivalent (F)	-7	12.45	3.33	0.900

Heat pump model		Master Therm	BA37ISC-1	
Reference heating season			Warmer	
Reference water temperature			High, 55°C	
Full load heating		Prated [kW]	11.14	
Seasonal efficiency		ηs [%]	175	
Annual electricity consumption		QHE [kWh]	3340	
Warmer 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]			
B	2	11.14	2.28	0.900
C	7	7.21	3.79	0.900
D	12	4.51	5.84	0.975
TOL (E)	-10	11.14	2.28	0.900
Tbivalent (F)	-7	11.14	2.28	0.900

Reference heating season			Colder	
Reference water temperature			Low, 35°C	
Full load heating		Prated [kW]	16.31	
Seasonal efficiency		ηs [%]	135	
Annual electricity consumption		QHE [kWh]	11674	
Colder 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]			
A	-7	9.87	2.78	0.900
B	2	6.18	4.67	0.900
C	7	4.09	6.35	0.900
D	12	4.75	7.62	0.969
TOL (E)	-22	7.55	2.00	0.900
Tbivalent (F)	-7	9.87	2.78	0.900
G	-15	8.44	2.30	0.900

Reference heating season			Colder	
Reference water temperature			High, 55°C	
Full load heating		Prated [kW]	15.21	
Seasonal efficiency		ηs [%]	113	
Annual electricity consumption		QHE [kWh]	12980	
Colder 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]			
A	-7	9.20	2.27	0.900
B	2	5.89	3.78	0.900
C	7	3.93	5.32	0.900
D	12	4.59	6.36	0.974
TOL (E)	-22	6.95	1.64	0.900
Tbivalent (F)	-7	9.20	2.27	0.900
G	-15	7.82	1.89	0.900

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Power consumption in modes other than "active mode"				
Off mode	P_{OFF} [kW]			0.019
Thermostat off mode	P_{TO} [kW]			0.019
Standby mode	P_{SB} [kW]			0.019
Crankcaseheater mode	P_{CK} [kW]			-
Supplementary heater capacity				
Supplementary heater capacity	P_{SUP} [kW]			6.0
Supplementary heater type	[-]			electricity
Capacity control				
Capacity control				Variable
Sound power level Indoor	L_{WA} [dBA]			48
Sound power level Outdoor	L_{WA} [dBA]			62
Rated airflow	$[m^3/h]$			max.6000
Declared load profile / Tapping cycle				
Declared load profile / Tapping cycle				L
Daily electricity consumption	Q_{elec} [kWh]			3.129
Water heating energy efficiency	η_{WH} [%]			90
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	10
Space heating seasonal efficiency, Average climate	%	177	137
Space heating annual electricity consumption, Average cl.	kWh	5029	5905
Nominal heating capacity Pdesign, Colder climate	kW	16	15
Space heating seasonal efficiency, Colder climate	%	135	113
Space heating annual electricity consumption, Colder cl.	kWh	11674	12980
Nominal heating capacity Pdesign, Warmer climate	kW	12	11
Space heating seasonal efficiency, Warmer climate	%	249	175
Space heating annual electricity consumption, Warmer cl.	kWh	2641	3340
Sound power level Lwa Outdoor	dBA	62	

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	%	179	139
Set Space heating energy efficiency class, Average climate	-	A+++	A++
Set Space heating seasonal efficiency, Colder climate	%	137	115
Set Space heating seasonal efficiency, Warmer climate	%	251	177

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	%	181	141
Set Space heating energy efficiency class, Average climate	-	A+++	A++
Set Space heating seasonal efficiency, Colder climate	%	139	117
Set Space heating seasonal efficiency, Warmer climate	%	253	179