

Heat pump model **Master Therm** **BA37IP-0, BA37IP-1**

Heat pump type	Air/Water
Supplementary heater	Yes
Heat pump combination heater	No

Reference heating season	Average		SCOP	
Reference water temperature	LOW, 35°C			
Full load heating	Prated [kW]	10,58	A++	
Seasonal efficiency	η_s [%]	172		
Annual electricity consumption	Q_{HE} [kWh]	5000		
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	9,41	2,52	0,900
B	2	5,77	4,35	0,900
C	7	3,93	6,14	0,900
D	12	4,54	7,57	0,968
TOL (E)	-10	10,58	2,11	0,900
Tbivalent (F)	-10	10,58	2,11	0,900

Reference heating season	Average		SCOP	
Reference water temperature	High, 55°C			
Full load heating	Prated [kW]	10,45	A++	
Seasonal efficiency	η_s [%]	137		
Annual electricity consumption	Q_{HE} [kWh]	6165		
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	9,30	1,98	0,900
B	2	5,74	3,44	0,900
C	7	3,79	5,02	0,900
D	12	4,38	6,13	0,973
TOL (E)	-10	10,45	1,69	0,900
Tbivalent (F)	-10	10,45	1,69	0,900

Reference heating season	Warmer			
Reference water temperature	Low, 35°C			
Full load heating	Prated [kW]	12,23		
Seasonal efficiency	η_s [%]	237		
Annual electricity consumption	Q_{HE} [kWh]	2722		
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	12,23	3,05	0,900
C	7	7,99	5,55	0,900
D	12	4,56	7,77	0,968
TOL (E)	2	12,23	3,05	0,900
Tbivalent (F)	2	12,23	3,05	0,900

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Reference heating season		Warmer		
Reference water temperature		High, 55°C		
Full load heating		Prated [kW]	11,66	
Seasonal efficiency		η_s [%]	177	
Annual electricity consumption		Q_{HE} [kWh]	3467	
Warmer 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
B	2	11,66	2,27	0,900
C	7	7,70	3,96	0,900
D	12	4,36	5,98	0,974
TOL (E)	2	11,66	2,27	0,900
Tbivalent (F)	2	11,66	2,27	0,900

Reference heating season		Colder		
Reference water temperature		Low, 35°C		
Full load heating		Prated [kW]	15,62	
Seasonal efficiency		η_s [%]	132	
Annual electricity consumption		Q_{HE} [kWh]	11440	
Colder 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7	9,46	2,66	0,900
B	2	5,83	4,60	0,900
C	7	3,94	6,31	0,900
D	12	4,54	7,57	0,968
TOL (E)	-20	7,96	1,94	0,900
Tbivalent (F)	-7	9,46	2,66	0,900
G	-15	8,53	2,21	0,900

Reference heating season		Colder		
Reference water temperature		High, 55°C		
Full load heating		Prated [kW]	15,27	
Seasonal efficiency		η_s [%]	112	
Annual electricity consumption		Q_{HE} [kWh]	13134	
Colder 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7	9,24	2,21	0,900
B	2	5,66	3,79	0,900
C	7	3,84	5,36	0,900
D	12	4,42	6,43	0,972
TOL (E)	-20	8,20	1,57	0,900
Tbivalent (F)	-7	9,24	2,21	0,900
G	-15	8,60	1,81	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	P_{sup} [kW]	7,5(+7,5)
Supplementary heater type	[-]	electricity

Capacity control		Variable
Sound power level Indoor	L_{WA} [dBA]	-
Sound power level Outdoor	L_{WA} [dBA]	62
Rated airflow	[m ³ /h]	max.6000

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	%	172	137
Space heating annual electricity consumption, Average cl.	kWh	5000	6165

Nominal heating capacity Pdesign, Colder climate	kW	16	15
Space heating seasonal efficiency, Colder climate	%	132	112
Space heating annual electricity consumption, Colder cl.	kWh	11440	13134

Nominal heating capacity Pdesign, Warmer climate	kW	12	12
Space heating seasonal efficiency, Warmer climate	%	237	177
Space heating annual electricity consumption, Warmer cl.	kWh	2722	3467

Sound power level Lwa Outdoor	dBA	62
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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	%	174	139
Set Space heating energy efficiency class, Average climate	-	A++	A++
Set Space heating seasonal efficiency, Colder climate	%	134	114
Set Space heating seasonal efficiency, Warmer climate	%	239	179

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	%	176	141
Set Space heating energy efficiency class, Average climate	-	A+++	A++
Set Space heating seasonal efficiency, Colder climate	%	136	116
Set Space heating seasonal efficiency, Warmer climate	%	241	181