

Heat pump model	Master Therm	BA60IP-1
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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]	20,30	
Seasonal efficiency		η_s [%]	179	A+++
Annual electricity consumption		Q_{HE} [kWh]	9237	
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	18,57	2,68	0,900
B	2	11,47	4,26	0,900
C	7	7,25	6,67	0,900
D	12	5,45	8,37	0,971
TOL (E)	-10	20,30	2,53	0,900
Tbivalent (F)	-10	20,30	2,53	0,900

Reference heating season		Average		SCOP
Reference water temperature		High, 55°C		
Full load heating		Prated [kW]	20,16	
Seasonal efficiency		η_s [%]	137	A++
Annual electricity consumption		Q_{HE} [kWh]	11878	
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	18,27	2,08	0,900
B	2	11,06	3,30	0,900
C	7	7,65	5,05	0,900
D	12	5,31	6,24	0,978
TOL (E)	-10	20,16	1,95	0,900
Tbivalent (F)	-10	20,16	1,95	0,900

Reference heating season		Warmer		
Reference water temperature		Low, 35°C		
Full load heating		Prated [kW]	20,23	
Seasonal efficiency		η_s [%]	258	
Annual electricity consumption		Q_{HE} [kWh]	4136	
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	20,23	3,34	0,900
C	7	14,30	5,71	0,900
D	12	6,19	8,74	0,900
TOL (E)	2	20,23	3,34	0,900
Tbivalent (F)	2	20,23	3,34	0,900

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Reference heating season		Warmer		
Reference water temperature		High, 55°C		
Full load heating		Prated [kW]	19,24	
Seasonal efficiency		η_s [%]	179	
Annual electricity consumption		Q_{HE} [kWh]	5647	
Warmer 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
B	2	19,24	2,38	0,900
C	7	13,34	3,88	0,900
D	12	6,00	6,04	0,900
TOL (E)	2	19,24	2,38	0,900
Tbivalent (F)	2	19,24	2,38	0,900

Reference heating season		Colder		
Reference water temperature		Low, 35°C		
Full load heating		Prated [kW]	25,26	
Seasonal efficiency		η_s [%]	140	
Annual electricity consumption		Q_{HE} [kWh]	17413	
Colder 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7	15,29	2,89	0,900
B	2	9,73	4,63	0,900
C	7	6,32	6,91	0,900
D	12	5,45	8,37	0,971
TOL (E)	-20	14,75	2,18	0,900
Tbivalent (F)	-7	15,29	2,89	0,900
G	-15	14,96	2,45	0,900

Reference heating season		Colder		
Reference water temperature		High, 55°C		
Full load heating		Prated [kW]	24,86	
Seasonal efficiency		η_s [%]	115	
Annual electricity consumption		Q_{HE} [kWh]	20766	
Colder 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7	15,05	2,35	0,900
B	2	9,50	3,68	0,900
C	7	6,19	5,51	0,900
D	12	5,35	6,67	0,976
TOL (E)	-20	14,76	1,77	0,900
Tbivalent (F)	-7	15,05	2,35	0,900
G	-15	14,87	2,00	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]	7,5(+7,5)
Supplementary heater type	[-]	electricity
Capacity control		
Capacity control		Variable
Sound power level Indoor	L_{WA} [dBA]	-
Sound power level Outdoor	L_{WA} [dBA]	62
Rated airflow	[m ³ /h]	max.10000
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	20	20
Space heating seasonal efficiency, Average climate	%	179	137
Space heating annual electricity consumption, Average cl.	kWh	9237	11878

Nominal heating capacity Pdesign, Colder climate	kW	25	25
Space heating seasonal efficiency, Colder climate	%	140	115
Space heating annual electricity consumption, Colder cl.	kWh	17413	20766

Nominal heating capacity Pdesign, Warmer climate	kW	20	19
Space heating seasonal efficiency, Warmer climate	%	258	179
Space heating annual electricity consumption, Warmer cl.	kWh	4136	5647

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	%	181	139
Set Space heating energy efficiency class, Average climate	-	A+++	A++
Set Space heating seasonal efficiency, Colder climate	%	142	117
Set Space heating seasonal efficiency, Warmer climate	%	260	181

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	%	183	141
Set Space heating energy efficiency class, Average climate	-	A+++	A++
Set Space heating seasonal efficiency, Colder climate	%	144	119
Set Space heating seasonal efficiency, Warmer climate	%	262	183