

Heat pump model **Master Therm** **BA22IP-0, BA22IP-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		4,85	
Full load heating	Prated [kW]	4,04		
Seasonal efficiency	η_s [%]	191	A+++	
Annual electricity consumption	Q_{HE} [kWh]	1722		
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	3,61	3,00	0,900
B	2	2,24	4,95	0,900
C	7	1,46	7,02	0,900
D	12	1,64	7,97	0,908
TOL (E)	-10	4,04	2,97	0,900
Tbivalent (F)	-10	4,04	2,97	0,900

Reference heating season	Average		SCOP	
Reference water temperature	High, 55°C		3,76	
Full load heating	Prated [kW]	3,63		
Seasonal efficiency	η_s [%]	147	A++	
Annual electricity consumption	Q_{HE} [kWh]	1996		
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	3,33	2,28	0,900
B	2	2,09	3,79	0,900
C	7	1,35	5,47	0,900
D	12	1,51	6,29	0,921
TOL (E)	-10	3,63	2,20	0,900
Tbivalent (F)	-10	3,63	2,20	0,900

Reference heating season	Warmer			
Reference water temperature	Low, 35°C			
Full load heating	Prated [kW]	4,71		
Seasonal efficiency	η_s [%]	238		
Annual electricity consumption	Q_{HE} [kWh]	1045		
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	4,71	3,68	0,900
C	7	3,07	5,97	0,900
D	12	1,36	7,97	0,900
TOL (E)	2	4,71	3,68	0,900
Tbivalent (F)	2	4,71	3,68	0,900

Heat pump model **Master Therm** **BA22IP-0, BA22IP-1**

Reference heating season		Warmer		
Reference water temperature		High, 55°C		
Full load heating		Prated [kW]	4,36	
Seasonal efficiency		η_s [%]	178	
Annual electricity consumption		Q_{HE} [kWh]	1289	
Warmer 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
B	2	4,36	2,62	0,900
C	7	2,86	4,20	0,900
D	12	1,33	6,15	0,900
TOL (E)	2	4,36	2,62	0,900
Tbivalent (F)	2	4,36	2,62	0,900

Reference heating season		Colder		
Reference water temperature		Low, 35°C		
Full load heating		Prated [kW]	6,07	
Seasonal efficiency		η_s [%]	156	
Annual electricity consumption		Q_{HE} [kWh]	3756	
Colder 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7	3,71	3,21	0,900
B	2	2,28	5,36	0,900
C	7	1,49	7,45	0,900
D	12	1,36	7,97	0,889
TOL (E)	-20	3,00	2,42	0,900
Tbivalent (F)	-10	4,15	3,20	0,900
G	-15	3,58	2,81	0,900

Reference heating season		Colder		
Reference water temperature		High, 55°C		
Full load heating		Prated [kW]	5,54	
Seasonal efficiency		η_s [%]	126	
Annual electricity consumption		Q_{HE} [kWh]	4218	
Colder 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7	3,45	2,56	0,900
B	2	2,15	4,22	0,900
C	7	1,32	6,08	0,900
D	12	1,28	6,63	0,902
TOL (E)	-20	2,63	1,84	0,900
Tbivalent (F)	-10	3,79	2,50	0,900
G	-15	3,21	2,17	0,900

Heat pump model	Master Therm	BA22IP-0, BA22IP-1
------------------------	---------------------	---------------------------

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]	4,5(+4,5)
Supplementary heater type	[-]	electricity

Capacity control		Variable
Sound power level Indoor	L_{WA} [dBA]	-
Sound power level Outdoor	L_{WA} [dBA]	50
Rated airflow	[m ³ /h]	max.3000

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

Heat pump model **Master Therm** **BA22IP-0, BA22IP-1**

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	4	4
Space heating seasonal efficiency, Average climate	%	191	147
Space heating annual electricity consumption, Average cl.	kWh	1722	1996

Nominal heating capacity Pdesign, Colder climate	kW	6	6
Space heating seasonal efficiency, Colder climate	%	156	126
Space heating annual electricity consumption, Colder cl.	kWh	3756	4218

Nominal heating capacity Pdesign, Warmer climate	kW	5	4
Space heating seasonal efficiency, Warmer climate	%	238	178
Space heating annual electricity consumption, Warmer cl.	kWh	1045	1289

Sound power level Lwa Outdoor	dBA	50
-------------------------------	-----	----

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	%	193	149
Set Space heating energy efficiency class, Average climate	-	A+++	A++
Set Space heating seasonal efficiency, Colder climate	%	158	128
Set Space heating seasonal efficiency, Warmer climate	%	240	180

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	%	195	151
Set Space heating energy efficiency class, Average climate	-	A+++	A+++
Set Space heating seasonal efficiency, Colder climate	%	160	130
Set Space heating seasonal efficiency, Warmer climate	%	242	182