page 1/4

Heat pump model		Master Therm	BA45IS-1	
			A* 844 /	7
Heat pump type			Air/Water	_
Supplementary heater			Yes	_
Heat pump combination heate	r		No	
Reference heating season			Average]
Reference water temperature			LOW, 35°C	
Full load heating		Prated [kW]	13.37	
Seasonal efficiency		η _s [%]	175	A+++
Annual electricity consumption		Q _{HE} [kWh]	6195	
Average 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
, wordgo oo o	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7	11.83	2.77	0.900
B	2	7.91	4.17	0.900
C	7	4.88	6.44	0.900
D	12	5.73	7.93	0.967
TOL (E)	-10	10.96	2.32	0.900
Tbivalent (F)	-7	11.83	2.77	0.900
Reference heating season			Average	
Reference water temperature			High, 55°C	
Full load heating		Prated [kW]	12.05	
Seasonal efficiency		η _s [%]	136	A++
Annual electricity consumption		Q _{HE} [kWh]	7166	
Average 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7	10.66	2.10	0.900
В	2	6.82	3.28	0.900
С	7	4.38	5.00	0.900
D	12	4.83	6.13	0.970
TOL (E)	-10			
This sectors ((E)		9.57	1.77	0.900
Tbivalent (F)	-7	9.57	1.77 2.10	0.900 0.900
Tbivalent (F) Reference heating season				
			2.10	
Reference heating season			2.10 Warmer	
Reference heating season Reference water temperature		10.66 Prated [kW]	2.10 Warmer Low, 35°C	
Reference heating season Reference water temperature Full load heating	-7	10.66	2.10 Warmer Low, 35°C 15.78	
Reference heating season Reference water temperature Full load heating Seasonal efficiency	-7 Outdoor heat exchanger	10.66 Prated [kW] η _s [%]	2.10 Warmer Low, 35°C 15.78 251	
Reference heating season Reference water temperature Full load heating Seasonal efficiency Annual electricity consumption	-7 Outdoor heat exchanger Outdoor air	10.66 Prated [kW] ŋ _s [%] Q _{HE} [kWh] Declared capacity	2.10 Warmer Low, 35°C 15.78 251 3326 COP at part load	0.900
Reference heating season Reference water temperature Full load heating Seasonal efficiency Annual electricity consumption Warmer 35°C	-7 Outdoor heat exchanger Outdoor air Tj [°C]	10.66 Prated [kW] ¶ ¶ ¶ ¶ [%] Q _{HE} [kWh] Declared capacity Pdh [kW]	2.10 Warmer Low, 35°C 15.78 251 3326 COP at part load COPd (-)	0.900 Degradation Coefficient Cdh (-)
Reference heating season Reference water temperature Full load heating Seasonal efficiency Annual electricity consumption Warmer 35°C B	-7 Outdoor heat exchanger Outdoor air Tj [°C] 2	10.66 Рrated [kW] Ŋ _s [%] Q _{HE} [kWh] Declared capacity Pdh [kW] 15.78	2.10 Warmer Low, 35°C 15.78 251 3326 COP at part load COPd (-) 3.03	0.900 Degradation Coefficient Cdh (-) 0.900
Reference heating season Reference water temperature Full load heating Seasonal efficiency Annual electricity consumption Warmer 35°C	-7 Outdoor heat exchanger Outdoor air Tj [°C] 2 7	10.66 Рrated [kW] ŋ s [%] Q _{HE} [kWh] Declared capacity Pdh [kW] 15.78 9.77	2.10 Warmer Low, 35°C 15.78 251 3326 COP at part load COPd (-) 3.03 5.50	0.900 Degradation Coefficient Cdh (-) 0.900 0.900
Reference heating season Reference water temperature Full load heating Seasonal efficiency Annual electricity consumption Warmer 35°C B C	-7 Outdoor heat exchanger Outdoor air Tj [°C] 2	10.66 Рrated [kW] Ŋ _s [%] Q _{HE} [kWh] Declared capacity Pdh [kW] 15.78	2.10 Warmer Low, 35°C 15.78 251 3326 COP at part load COPd (-) 3.03	0.900 Degradation Coefficient Cdh (-) 0.900

Heat pump model		Master Therm	BA45IS-1	
Reference heating season			Warmer	7
Reference water temperature			High, 55°C	
Full load heating		Prated [kW]	13.11	
Seasonal efficiency		η _s [%]	172	
Annual electricity consumption		Q _{HE} [kWh]	3992	
Warmer 55°C	Outdoor heat exchanger Outdoor air	Declared capacity	COP at part load	Degradation Coefficient
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
В	2	13.11	2.14	0.900
С	7	8.70	3.66	0.900
D	12	6.40	5.94	0.978
TOL (E)	2	13.11	2.14	0.900
Tbivalent (F)	2	13.11	2.14	0.900

Reference heating season			Colder	
Reference water temperature			Low, 35°C	
Full load heating		Prated [kW]	19.79	
Seasonal efficiency		η _s [%]	130	
Annual electricity consumption		Q _{HE} [kWh]	14639	
Colder 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
А	-7	11.98	2.61	0.900
В	2	7.22	4.62	0.900
С	7	5.76	6.63	0.972
D	12	6.74	7.93	0.972
TOL (E)	-22	8.20	1.97	0.900
Tbivalent (F)	-7	11.98	2.61	0.900
G	-15	9.47	2.18	0.900

Reference heating season			Colder	
Reference water temperature			High, 55°C	
Full load heating		Prated [kW]	19.18	
Seasonal efficiency		η _s [%]	108	
Annual electricity consumption	1	Q _{HE} [kWh]	17082	
Colder 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
А	-7	11.61	2.09	0.900
В	2	6.66	3.72	0.900
С	7	5.56	5.43	0.977
D	12	6.52	6.52	0.976
TOL (E)	-22	7.65	1.68	0.900
Tbivalent (F)	-7	11.61	2.09	0.900
G	-15	8.95	1.77	0.900

Heat pump model	Master Therm	BA45IS-1
Power consumption in modes other than "active mo	ode"	
Off mode	P _{OFF} [kW]	0.026
Thermostat off mode	P _{TO} [kW]	0.024
Standby mode	P _{SB} [kW]	0.026
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]	48
Sound power level Outdoor	L _{WA} [dBA]	62
Rated airflow	[m ³ /h]	max.8000
Temperature controller		
Туре	Carel pCO5/pCO5+/uPC, M	laster Therm custom SW
Class	Ш	
Contribution	%	2.0
Temperature controller + Room Terminal		
Туре	Carel pCO5/pCO5+/uPC + pAD), Master Therm custom SW
Class	VI	
Contribution	%	4.0

page 3/4

Heat pump model

A++

112

176

BA45IS-1

A+++

134

255

Femperature application		Low, 35°C	High, 55°C
Space heating energy efficiency class, Average climate	-	A+++	A++
Nominal heating capacity Pdesign, Average climate	kW	13	12
Space heating seasonal efficiency, Average climate	%	175	136
Space heating annual electricity consumption, Average cl.	kWh	6195	7166
Nominal heating capacity Pdesign, Colder climate	kW	20	19
Space heating seasonal efficiency, Colder climate	%	130	108
Space heating annual electricity consumption, Colder cl.	kWh	14639	17082
Nominal heating capacity Pdesign, Warmer climate	kW	16	13
Space heating seasonal efficiency, Warmer climate	%	251	172
Space heating annual electricity consumption, Warmer cl.	kWh	3326	3992
			1
Sound power level Lwa Outdoor	dBA	62	
			1
nformation sheet for energy efficiency Set with Temperature co	ntroller	Low, 35°C	High, 55°C
nformation sheet for energy efficiency Set with Temperature co remperature application Controller Carel pCO5/pCO5+/uPC, Class	ntroller -	Low, 35°C	High, 55°C
Femperature application	ntroller - %		
Temperature application Controller Carel pCO5/pCO5+/uPC, Class	-		
Femperature application Controller Carel pCO5/pCO5+/uPC, Class Controller Carel pCO5/pCO5+/uPC, Contribution	- %	II 2.0	II 2.0
Temperature application Controller Carel pCO5/pCO5+/uPC, Class Controller Carel pCO5/pCO5+/uPC, Contribution Set Space heating seasonal efficiency, Average climate	- % %	II 2.0 177	II 2.0 138
Temperature application Controller Carel pCO5/pCO5+/uPC, Class Controller Carel pCO5/pCO5+/uPC, Contribution Set Space heating seasonal efficiency, Average climate Set Space heating energy efficiency class, Average climate	- % % -	II 2.0 177 A+++	II 2.0 138 A++
Temperature application Controller Carel pCO5/pCO5+/uPC, Class Controller Carel pCO5/pCO5+/uPC, Contribution Set Space heating seasonal efficiency, Average climate Set Space heating energy efficiency class, Average climate Set Space heating seasonal efficiency, Colder climate Set Space heating seasonal efficiency, Warmer climate Set Space heating seasonal efficiency, Warmer climate	- % % - % %	II 2.0 177 A+++ 132 253	II 2.0 138 A++ 110
Temperature application Controller Carel pCO5/pCO5+/uPC, Class Controller Carel pCO5/pCO5+/uPC, Contribution Set Space heating seasonal efficiency, Average climate Set Space heating energy efficiency class, Average climate Set Space heating seasonal efficiency, Colder climate Set Space heating seasonal efficiency, Warmer climate Set Space heating seasonal efficiency Warmer climate Set Space heating seasonal efficiency Set with Temperature co	- % % - % %	II 2.0 177 A+++ 132 253	II 2.0 138 A++ 110 174
Temperature application Controller Carel pCO5/pCO5+/uPC, Class Controller Carel pCO5/pCO5+/uPC, Contribution Set Space heating seasonal efficiency, Average climate Set Space heating energy efficiency class, Average climate Set Space heating seasonal efficiency, Colder climate Set Space heating seasonal efficiency, Colder climate Set Space heating seasonal efficiency, Warmer climate Set Space heating seasonal efficiency, Warmer climate Set Space heating seasonal efficiency Set with Temperature co remperature application	- % % - % %	II 2.0 177 A+++ 132 253	II 2.0 138 A++ 110
Temperature application Controller Carel pCO5/pCO5+/uPC, Class Controller Carel pCO5/pCO5+/uPC, Contribution Set Space heating seasonal efficiency, Average climate Set Space heating energy efficiency class, Average climate Set Space heating seasonal efficiency, Colder climate Set Space heating seasonal efficiency, Warmer climate Set Space heating seasonal efficiency Warmer climate Set Space heating seasonal efficiency Set with Temperature co	- % - % % ntroller + Room Terminal	II 2.0 177 A+++ 132 253 Low, 35°C	II 2.0 138 A++ 110 174 High, 55°C

-

%

%

Master Therm

Set Space heating energy efficiency class, Average climate

Set Space heating seasonal efficiency, Colder climate

Set Space heating seasonal efficiency, Warmer climate

page 4/4