Heat pump model		Master Therm	BA22I-1	
Heat pump type			Air/Water	7
Supplementary heater			Yes	-
Heat pump combination heater			No	_
rieat pump combination neater			NU	
Reference heating season			Average	]
Reference water temperature			LOW, 35°C	
Full load heating		Prated [kW]	4.51	
Seasonal efficiency		η <sub>s</sub> [%]	172	A++
Annual electricity consumption		Q <sub>HE</sub> [kWh]	2128	
Average 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air		222.143	<b>2</b> H ()
٨	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
АВ	-7 2	3.99 2.58	2.74 4.16	0.900
C	7	2.58	6.22	0.900
C	12	2.08	7.50	0.938
TOL (E)	-10	3.64	2.61	0.900
Tbivalent (F)	-7	3.99	2.74	0.900
Reference heating season			Average	
Reference water temperature			High, 55°C	
Full load heating		Prated [kW]	4.44	
Seasonal efficiency		η <sub>s</sub> [%]	130	A++
Annual electricity consumption		Q <sub>HE</sub> [kWh]	2759	
Average 55°C	Outdoor heat exchanger Outdoor air	Declared capacity	COP at part load	Degradation Coefficient
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
А	-7	3.93	2.03	0.900
В	2	2.45	3.15	0.900
С	7	1.69	4.74	0.900
D	12	1.96	5.73	0.950
TOL (E)	-10	3.68	1.90	0.900
Tbivalent (F)	-7	3.93	2.03	0.900
Reference heating season			Warmer	7
Reference water temperature			Low, 35°C	
Full load heating		Prated [kW]	5.32	1
Seasonal efficiency		η <sub>s</sub> [%]	239	
Annual electricity consumption		Q <sub>HE</sub> [kWh]	1176	
Warmer 35°C	Outdoor heat exchanger Outdoor air	Declared capacity	COP at part load	Degradation Coefficient
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
В	2	5.32	3.34	0.900
С	7	3.78	5.20	0.976
D	12	1.58	7.76	0.900
TOL (E)	2	5.32	3.34	0.900
Tbivalent (F)	2	5.32	3.34	0.900

Heat pump model		Master Therm	BA22I-1	
Reference heating season			Warmer	7
Reference water temperature			High, 55°C	
Full load heating		Prated [kW]	5.08	
Seasonal efficiency		η <sub>s</sub> [%]	164	
Annual electricity consumption		Q <sub>HE</sub> [kWh]	1626	
Warmer 55°C	Outdoor heat exchanger Outdoor air	Declared capacity	COP at part load	Degradation Coefficient
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
В	2	5.08	2.25	0.900
С	7	3.54	3.52	0.900
D	12	1.95	5.56	0.951
TOL (E)	2	5.08	2.25	0.900
Tbivalent (F)	2	5.08	2.25	0.900

Reference heating season		Colder		
Reference water temperature	Reference water temperature		Low, 35°C	
Full load heating		Prated [kW]	6.55	
Seasonal efficiency		η <sub>s</sub> [%]	134	
Annual electricity consumption		Q <sub>HE</sub> [kWh]	4717	
Colder 35°C	Outdoor heat exchanger Outdoor air	Declared capacity	COP at part load	Degradation Coefficient
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
А	-7	3.97	2.91	0.900
В	2	2.61	4.47	0.900
С	7	1.56	6.42	0.900
D	12	2.08	7.50	0.938
TOL (E)	-22	2.64	2.34	0.900
Tbivalent (F)	-7	3.97	2.91	0.900
G	-15	3.15	2.56	0.900

Reference heating season Reference water temperature		Colder		
		High, 55°C		
Full load heating		Prated [kW]	6.49	
Seasonal efficiency		η <sub>s</sub> [%]	110	
Annual electricity consumption	1	Q <sub>HE</sub> [kWh]	5643	
Colder 55°C	Outdoor heat exchanger Outdoor air	Declared capacity	COP at part load	Degradation Coefficient
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
Α	-7	3.93	2.33	0.900
В	2	2.50	3.53	0.900
С	7	1.73	5.18	0.948
D	12	1.99	6.12	0.947
TOL (E)	-22	2.84	1.88	0.900
Tbivalent (F)	-7	3.93	2.33	0.900
G	-15	3.26	2.05	0.900

Heat pump model	Master Therm	BA22I-1
Development for the solution of the state of		
Power consumption in modes other than "active m	ode"	
Off mode	P <sub>OFF</sub> [kW]	0.018
Thermostat off mode	P <sub>TO</sub> [kW]	0.017
Standby mode	P <sub>SB</sub> [kW]	0.018
Crankcaseheater mode	P <sub>CK</sub> [kW]	-
Supplementary heater capacity	P <sub>sup</sub> [kW]	4,5(+4,5)
Supplementary heater type	[-]	electricity
Capacity control		Variable
Sound power level Indoor	L <sub>WA</sub> [dBA]	-
Sound power level Outdoor	L <sub>WA</sub> [dBA]	63
Rated airflow	[m <sup>3</sup> /h]	max.3000
Temperature controller		
Туре	Carel pCO5/pCO5+/uPC, Ma	aster Therm custom SW
Class	11	
Contribution	%	2.0

Temperature controller + Room Terminal		
Туре	Carel pCO5/pCO5+/uPC + pA	AD, Master Therm custom SW
Class	١	/I
Contribution	%	4.0

Heat pump model	Master Therm	BA22I-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	5	4
Space heating seasonal efficiency, Average climate	%	172	130
Space heating annual electricity consumption, Average cl.	kWh	2128	2759
		•	•
Nominal heating capacity Pdesign, Colder climate	kW	7	6
Space heating seasonal efficiency, Colder climate	%	134	110
Space heating annual electricity consumption, Colder cl.	kWh	4717	5643
Nominal heating capacity Pdesign, Warmer climate	kW	5	5
Space heating seasonal efficiency, Warmer climate	%	239	164
Space heating annual electricity consumption, Warmer cl.	kWh	1176	1626
· · · · · · · · · · · · · · · · · · ·			-
Sound power level Lwa Outdoor	dBA	63	

Information sheet for energy efficiency Set with Temperature controller					
Temperature application		Low, 35°C	High, 55°C		
Controller Carel pCO5/pCO5+/uPC, Class	-	II	Ш		
Controller Carel pCO5/pCO5+/uPC, Contribution	%	2.0	2.0		
Set Space heating seasonal efficiency, Average climate	%	174	132		
Set Space heating energy efficiency class, Average climate	-	A++	A++		
Set Space heating seasonal efficiency, Colder climate	%	136	112		
Set Space heating seasonal efficiency, Warmer climate	%	241	166		

Information sheet for energy efficiency Set with Temperature cor	ntroller + 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	134
Set Space heating energy efficiency class, Average climate	-	A+++	A++
Set Space heating seasonal efficiency, Colder climate	%	138	114
Set Space heating seasonal efficiency, Warmer climate	%	243	168

Heat pump model		Master Therm	BA26I-1	
			A	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]	6.51	
Seasonal efficiency		η <sub>s</sub> [%]	168	A++
Annual electricity consumption		Q <sub>HE</sub> [kWh]	3139	
Average 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7	5.76	2.59	0.900
В	2	3.72	3.91	0.900
С	7	2.42	6.53	0.900
D	12	2.74	7.21	0.951
TOL (E)	-10	5.88	2.52	0.900
Tbivalent (F)	-7	5.76	2.59	0.900
Reference heating season			Average	
Reference water temperature			High, 55°C	
Full load heating		Prated [kW]	6.33	
Seasonal efficiency		η <sub>s</sub> [%]	126	A++
Annual electricity consumption		Q <sub>HE</sub> [kWh]	4039	
Average 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7		1 0 1	
		5.60	1.94	0.900
В	2	3.50	3.02	0.900
B C	2 7	3.50 2.33	3.02 4.69	0.900 0.900
B C D	2 7 12	3.50 2.33 2.78	3.02 4.69 5.55	0.900 0.900 0.963
B C D TOL (E)	2 7 12 -10	3.50 2.33 2.78 5.66	3.02 4.69 5.55 1.82	0.900 0.900 0.963 0.900
B C D	2 7 12	3.50 2.33 2.78	3.02 4.69 5.55	0.900 0.900 0.963
B C D TOL (E) Tbivalent (F)	2 7 12 -10	3.50 2.33 2.78 5.66	3.02 4.69 5.55 1.82 1.94	0.900 0.900 0.963 0.900
B C D TOL (E)	2 7 12 -10	3.50 2.33 2.78 5.66	3.02 4.69 5.55 1.82	0.900 0.900 0.963 0.900
B C D TOL (E) Tbivalent (F) Reference heating season	2 7 12 -10	3.50 2.33 2.78 5.66	3.02 4.69 5.55 1.82 1.94 Warmer	0.900 0.900 0.963 0.900
B C D TOL (E) Tbivalent (F) Reference heating season Reference water temperature Full load heating	2 7 12 -10	3.50 2.33 2.78 5.66 5.60 Prated [kW]	3.02 4.69 5.55 1.82 1.94 Warmer Low, 35°C	0.900 0.900 0.963 0.900
B C D TOL (E) Tbivalent (F) Reference heating season Reference water temperature Full load heating Seasonal efficiency	2 7 12 -10 -7	3.50 2.33 2.78 5.66 5.60 Prated [kW] η <sub>s</sub> [%]	3.02 4.69 5.55 1.82 1.94 Warmer Low, 35°C 7.67	0.900 0.900 0.963 0.900
B C D TOL (E) Tbivalent (F) Reference heating season Reference water temperature Full load heating	2 7 12 -10 -7	3.50 2.33 2.78 5.66 5.60 Prated [kW]	3.02 4.69 5.55 1.82 1.94 Warmer Low, 35°C 7.67 259	0.900 0.900 0.963 0.900
B C D TOL (E) Tbivalent (F) Reference heating season Reference water temperature Full load heating Seasonal efficiency	2 7 12 -10 -7	3.50 2.33 2.78 5.66 5.60 Prated [kW] η <sub>s</sub> [%]	3.02 4.69 5.55 1.82 1.94 Warmer Low, 35°C 7.67 259	0.900 0.900 0.963 0.900
B C D TOL (E) Tbivalent (F) Reference heating season Reference water temperature Full load heating Seasonal efficiency Annual electricity consumption	2 7 12 -10 -7 Outdoor heat exchanger Outdoor air	3.50 2.33 2.78 5.66 5.60 Prated [kW] ¶ <sub>s</sub> [%] Q <sub>HE</sub> [kWh] Declared capacity	3.02 4.69 5.55 1.82 1.94 Warmer Low, 35°C 7.67 259 1567 COP at part load	0.900 0.900 0.963 0.900 0.900
B C D TOL (E) Tbivalent (F) Reference heating season Reference water temperature Full load heating Seasonal efficiency Annual electricity consumption Warmer 35°C	2 7 12 -10 -7 Outdoor heat exchanger Outdoor air Tj [°C]	3.50 2.33 2.78 5.66 5.60 Prated [kW] ¶s [%] Q <sub>HE</sub> [kWh] Declared capacity Pdh [kW]	3.02 4.69 5.55 1.82 1.94 Warmer Low, 35°C 7.67 259 1567 COP at part load COPd (-)	0.900 0.900 0.963 0.900 0.900 0.900
B C D TOL (E) Tbivalent (F) Reference heating season Reference water temperature Full load heating Seasonal efficiency Annual electricity consumption Warmer 35°C B	2       7       12       -10       -7         Outdoor heat exchanger       Outdoor air       Tj [°C]       2	3.50 2.33 2.78 5.66 5.60 Prated [kW] ¶s [%] Q <sub>HE</sub> [kWh] Declared capacity Pdh [kW] 7.67	3.02 4.69 5.55 1.82 1.94 Warmer Low, 35°C 7.67 259 1567 COP at part load COPd (-) 3.41	0.900 0.900 0.963 0.900 0.900 Degradation Coefficient Cdh (-) 0.900
B C D TOL (E) Tbivalent (F) Reference heating season Reference water temperature Full load heating Seasonal efficiency Annual electricity consumption Warmer 35°C B C	2 7 12 -10 -7 Outdoor heat exchanger Outdoor air Tj [°C] 2 7	3.50         2.33         2.78         5.66         5.60         Prated [kW]         ¶s [%]         Q <sub>HE</sub> [kWh]         Declared capacity         Pdh [kW]         7.67         5.10	3.02 4.69 5.55 1.82 1.94 Warmer Low, 35°C 7.67 259 1567 COP at part load COPd (-) 3.41 5.85	0.900 0.900 0.963 0.900 0.900 Degradation Coefficient Cdh (-) 0.900 0.900
B C D TOL (E) Tbivalent (F) Reference heating season Reference water temperature Full load heating Seasonal efficiency Annual electricity consumption Warmer 35°C B	2       7       12       -10       -7         Outdoor heat exchanger       Outdoor air       Tj [°C]       2	3.50 2.33 2.78 5.66 5.60 Prated [kW] ¶s [%] Q <sub>HE</sub> [kWh] Declared capacity Pdh [kW] 7.67	3.02 4.69 5.55 1.82 1.94 Warmer Low, 35°C 7.67 259 1567 COP at part load COPd (-) 3.41	0.900 0.900 0.963 0.900 0.900 Degradation Coefficient Cdh (-) 0.900

Heat pump model		Master Therm	BA26I-1	
Reference heating season			Warmer	7
Reference water temperature			High, 55°C	
Full load heating		Prated [kW]	7.40	
Seasonal efficiency		η <sub>s</sub> [%]	177	
Annual electricity consumption		Q <sub>HE</sub> [kWh]	2199	
Warmer 55°C	Outdoor heat exchanger Outdoor air	Declared capacity	COP at part load	Degradation Coefficient
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
В	2	7.40	2.21	0.900
С	7	5.17	3.71	0.900
D	12	2.46	6.09	0.957
TOL (E)	2	7.40	2.21	0.900
Tbivalent (F)	2	7.40	2.21	0.900

Reference heating season			Colder	
Reference water temperature		Low, 35°C		
Full load heating		Prated [kW]	9.65	
Seasonal efficiency		η <sub>s</sub> [%]	132	
Annual electricity consumption		Q <sub>HE</sub> [kWh]	5987	
Colder 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
А	-7	5.84	2.70	0.900
В	2	3.54	4.55	0.900
С	7	2.97	6.82	0.960
D	12	3.45	7.50	0.959
TOL (E)	-22	4.16	2.08	0.900
Tbivalent (F)	-7	5.84	2.70	0.900
G	-15	4.81	2.32	0.900

Reference heating season			Colder	
Reference water temperature Full load heating Pr			High, 55°C	
		Prated [kW]	9.31	
Seasonal efficiency		η <sub>s</sub> [%]	107	
Annual electricity consumption		Q <sub>HE</sub> [kWh]	7116	
Colder 55°C	Outdoor heat exchanger	t exchanger Declared capacity CO	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7	5.63	2.17	0.900
В	2	3.69	3.58	0.900
С	7	2.86	5.58	0.966
D	12	3.33	6.22	0.965
TOL (E)	-22	3.53	1.42	0.900
Tbivalent (F)	-7	5.63	2.17	0.900
G	-15	4.34	1.71	0.900

Heat pump model	Master Therm	BA26I-1
Power consumption in modes other than "active m	iode"	
Off mode	P <sub>OFF</sub> [kW]	0.018
Thermostat off mode	P <sub>TO</sub> [kW]	0.017
Standby mode	P <sub>SB</sub> [kW]	0.018
Crankcaseheater mode	P <sub>CK</sub> [kW]	-
Supplementary heater capacity	P <sub>sup</sub> [kW]	4.5(+4.5)
Supplementary heater type	[-]	electricity
Capacity control		Variable
Sound power level Indoor	L <sub>WA</sub> [dBA]	-
Sound power level Outdoor	L <sub>WA</sub> [dBA]	58
Rated airflow	[m <sup>3</sup> /h]	max. 3500
Temperature controller		
Туре	Carel pCO5/pCO5+/uPC, Ma	aster Therm custom SW
Class	II	
Contribution	%	2.0
Temperature controller + Room Terminal		
Туре	Carel pCO5/pCO5+/uPC + pAD	, Master Therm custom SW
Class	VI	
Contribution	%	4.0

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Heat pump model	Master Therm	BA26I-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	7	6
Space heating seasonal efficiency, Average climate	%	168	126
Space heating annual electricity consumption, Average cl.	kWh	3139	4039
Nominal heating capacity Pdesign, Colder climate	kW	10	9
Space heating seasonal efficiency, Colder climate	%	132	107
Space heating annual electricity consumption, Colder cl.	kWh	5987	7116
Nominal heating capacity Pdesign, Warmer climate	kW	8	7
Space heating seasonal efficiency, Warmer climate	%	259	177
Space heating annual electricity consumption, Warmer cl.	kWh	1567	2199
			-
			-
Sound power level Lwa Outdoor	dBA	58	]
Information sheet for energy efficiency Set with Temperature			Hiah. 55°C
Information sheet for energy efficiency Set with Temperature Temperature application		58 Low, 35°C	High, 55°C
Information sheet for energy efficiency Set with Temperature Temperature application Controller Carel pCO5/pCO5+/uPC, Class		Low, 35°C	
Information sheet for energy efficiency Set with Temperature Temperature application	controller	Low, 35°C II	1
Information sheet for energy efficiency Set with Temperature Temperature application Controller Carel pCO5/pCO5+/uPC, Class Controller Carel pCO5/pCO5+/uPC, Contribution	controller	Low, 35°C II 2.0	II 2.0
Information sheet for energy efficiency Set with Temperature Temperature application Controller Carel pCO5/pCO5+/uPC, Class Controller Carel pCO5/pCO5+/uPC, Contribution Set Space heating seasonal efficiency, Average climate	controller	Low, 35°C II 2.0 170	II 2.0 128
Information sheet for energy efficiency Set with Temperature 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		Low, 35°C II 2.0 170 A++	II 2.0 128 A++
Information sheet for energy efficiency Set with Temperature 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	-         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -	Low, 35°C II 2.0 170 A++ 134	II 2.0 128 A++ 109
Information sheet for energy efficiency Set with Temperature 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	-         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -	Low, 35°C II 2.0 170 A++ 134	II 2.0 128 A++ 109 179
Information sheet for energy efficiency Set with Temperature 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 Temperature application	-         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -	Low, 35°C II 2.0 170 A++ 134 261	II 2.0 128 A++ 109
Information sheet for energy efficiency Set with Temperature 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 Information sheet for energy efficiency Set with Temperature Temperature application Controller Carel pCO5/pCO5+/uPC + pAD, Class	controller	Low, 35°C II 2.0 170 A++ 134 261 Low, 35°C	II 2.0 128 A++ 109 179 High, 55°C
Information sheet for energy efficiency Set with Temperature 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 Set with Temperature Information sheet for energy efficiency Set with Temperature Temperature application Controller Carel pCO5/pCO5+/uPC + pAD, Class Controller Carel pCO5/pCO5+/uPC, +pAD, Contribution	controller	Low, 35°C II 2.0 170 A++ 134 261 Low, 35°C VI	II 2.0 128 A++ 109 179 High, 55°C VI
Information sheet for energy efficiency Set with Temperature Temperature application Controller Carel pCO5/pCO5+/uPC, Class Controller Carel pCO5/pCO5+/uPC, Contribution Set Space heating seasonal efficiency, Average climate Set Space heating seasonal 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 Set with Temperature Information sheet for energy efficiency Set with Temperature Temperature application Controller Carel pCO5/pCO5+/uPC + pAD, Class Controller Carel pCO5/pCO5+/uPC, +pAD, Contribution Set Space heating seasonal efficiency, Average climate	controller	Low, 35°C II 2.0 170 A++ 134 261 Low, 35°C VI 4.0	II           2.0           128           A++           109           179             High, 55°C           VI           4.0
Information sheet for energy efficiency Set with Temperature 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	-     -       %     -       %     -       %     -       %     -       %     -       %     -       %     -       •     %       •     -       %     -       %     -       %     -       %     -       %     -       %     -       %     -       %     -       %     -       %     -	Low, 35°C II 2.0 170 A++ 134 261 Low, 35°C VI 4.0 172	II 2.0 128 A++ 109 179 High, 55°C VI 4.0 130

Heat pump model		Master Therm	BA30I-1	
Heat nump tupo			AirMAlatar	7
Heat pump type Supplementary heater			Air/Water Yes	-
			No	-
Heat pump combination heater			INU	
Reference heating season			Average	
Reference water temperature			LOW, 35°C	
Full load heating		Prated [kW]	7.64	
Seasonal efficiency		η <sub>s</sub> [%]	187	A+++
Annual electricity consumption		Q <sub>HE</sub> [kWh]	3326	
Average 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7	6.76	2.80	0.900
В	2	4.35	4.52	0.900
С	7	2.82	6.91	0.900
D	12	3.46	8.54	0.958
TOL (E)	-10	6.23	2.64	0.900
Tbivalent (F)	-7	6.76	2.80	0.900
Reference heating season			Average	7
Reference water temperature			High, 55°C	-
Full load heating		Prated [kW]	7.14	-
•			141	A++
Seasonal efficiency		η <sub>s</sub> [%]		ATT
Annual electricity consumption		Q <sub>HE</sub> [kWh]	4088	-
Average 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			0
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7	6.31	2.02	0.900
В	Z	4.15	3.46	0.900
B C	2 7	4.15 2.69	3.46 5.33	0.900
С	7	2.69	5.33	0.900
C D	7 12	2.69 3.31	5.33 6.53	0.900 0.966
С	7	2.69	5.33	0.900
C D TOL (E) Tbivalent (F)	7 12 -10	2.69 3.31 5.61	5.33 6.53 1.79 2.02	0.900 0.966 0.900
C D TOL (E) Tbivalent (F) Reference heating season	7 12 -10	2.69 3.31 5.61	5.33 6.53 1.79 2.02 Warmer	0.900 0.966 0.900
C D TOL (E) Tbivalent (F) Reference heating season Reference water temperature	7 12 -10	2.69 3.31 5.61 6.31	5.33 6.53 1.79 2.02 Warmer Low, 35°C	0.900 0.966 0.900
C D TOL (E) Tbivalent (F) Reference heating season Reference water temperature Full load heating	7 12 -10	2.69 3.31 5.61 6.31 Prated [kW]	5.33 6.53 1.79 2.02 Warmer Low, 35°C 9.04	0.900 0.966 0.900
C D TOL (E) Tbivalent (F) Reference heating season Reference water temperature Full load heating Seasonal efficiency	7 12 -10 -7	2.69 3.31 5.61 6.31 Prated [kW] η <sub>s</sub> [%]	5.33 6.53 1.79 2.02 Warmer Low, 35°C 9.04 270	0.900 0.966 0.900
C D TOL (E) Tbivalent (F) Reference heating season Reference water temperature Full load heating	7 12 -10 -7	2.69 3.31 5.61 6.31 Prated [kW]	5.33 6.53 1.79 2.02 Warmer Low, 35°C 9.04	0.900 0.966 0.900
C D TOL (E) Tbivalent (F) Reference heating season Reference water temperature Full load heating Seasonal efficiency Annual electricity consumption	7 12 -10 -7	2.69 3.31 5.61 6.31 Prated [kW] η <sub>s</sub> [%]	5.33 6.53 1.79 2.02 Warmer Low, 35°C 9.04 270	0.900 0.966 0.900
C D TOL (E) Tbivalent (F) Reference heating season Reference water temperature Full load heating Seasonal efficiency	7 12 -10 -7	2.69 3.31 5.61 6.31 Prated [kW] η <sub>s</sub> [%] Q <sub>HE</sub> [kWh]	5.33 6.53 1.79 2.02 Warmer Low, 35°C 9.04 270 1771	0.900 0.966 0.900 0.900
C D TOL (E) Tbivalent (F) Reference heating season Reference water temperature Full load heating Seasonal efficiency Annual electricity consumption	7 12 -10 -7 Outdoor heat exchanger Outdoor air	2.69 3.31 5.61 6.31 Prated [kW] ¶s [%] Q <sub>HE</sub> [kWh] Declared capacity	5.33 6.53 1.79 2.02 Warmer Low, 35°C 9.04 270 1771 COP at part load	0.900 0.966 0.900 0.900
C D TOL (E) Tbivalent (F) Reference heating season Reference water temperature Full load heating Seasonal efficiency Annual electricity consumption Warmer 35°C	7       12       -10       -7       Outdoor heat exchanger       Outdoor air       Tj [°C]	2.69 3.31 5.61 6.31 Prated [kW] ¶s [%] Q <sub>HE</sub> [kWh] Declared capacity Pdh [kW]	5.33 6.53 1.79 2.02 Warmer Low, 35°C 9.04 270 1771 COP at part load COPd (-)	0.900 0.966 0.900 0.900 Degradation Coefficient Cdh (-)
C D TOL (E) Tbivalent (F) Reference heating season Reference water temperature Full load heating Seasonal efficiency Annual electricity consumption Warmer 35°C B	7       12       -10       -7       Outdoor heat exchanger       Outdoor air       Tj [°C]       2	2.69 3.31 5.61 6.31 Prated [kW] ¶s [%] Q <sub>HE</sub> [kWh] Declared capacity Pdh [kW] 9.04	5.33 6.53 1.79 2.02 Warmer Low, 35°C 9.04 270 1771 COP at part load COPd (-) 3.49	0.900 0.966 0.900 0.900 Degradation Coefficient Cdh (-) 0.900
C D TOL (E) Tbivalent (F) Reference heating season Reference water temperature Full load heating Seasonal efficiency Annual electricity consumption Warmer 35°C	7       12       -10       -7       Outdoor heat exchanger       Outdoor air       Tj [°C]       2       7	2.69 3.31 5.61 6.31 Prated [kW] ¶s [%] Q <sub>HE</sub> [kWh] Declared capacity Pdh [kW] 9.04 5.83	5.33 6.53 1.79 2.02 Warmer Low, 35°C 9.04 270 1771 COP at part load COPd (-) 3.49 5.83	0.900 0.966 0.900 0.900 Degradation Coefficient Cdh (-) 0.900 0.900
C D TOL (E) Tbivalent (F) Reference heating season Reference water temperature Full load heating Seasonal efficiency Annual electricity consumption Warmer 35°C B C	7       12       -10       -7       Outdoor heat exchanger       Outdoor air       Tj [°C]       2	2.69 3.31 5.61 6.31 Prated [kW] ¶s [%] Q <sub>HE</sub> [kWh] Declared capacity Pdh [kW] 9.04	5.33 6.53 1.79 2.02 Warmer Low, 35°C 9.04 270 1771 COP at part load COPd (-) 3.49	0.900 0.966 0.900 0.900 Degradation Coefficient Cdh (-) 0.900

Heat pump model		Master Therm	BA30I-1	
Reference heating season			Warmer	7
Reference water temperature			High, 55°C	
Full load heating		Prated [kW]	8.41	
Seasonal efficiency		η <sub>s</sub> [%]	185	
Annual electricity consumption		Q <sub>HE</sub> [kWh]	2386	
Warmer 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
В	2	8.41	2.34	0.900
С	7	5.36	3.89	0.900
D	12	2.47	6.32	0.900
TOL (E)	2	8.41	2.34	0.900
Tbivalent (F)	2	8.41	2.34	0.900

Reference heating season			Colder	
Reference water temperature		Low, 35°C		
Full load heating		Prated [kW]	11.14	
Seasonal efficiency		η <sub>s</sub> [%]	139.07	
Annual electricity consumption		Q <sub>HE</sub> [kWh]	6587	
Colder 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
А	-7	6.74	1.00	2.943
В	2	4.10	1.00	4.831
С	7	2.64	1.00	7.116
D	12	1.17	0.45	8.536
TOL (E)	-22	11.14	1.00	2.128
Tbivalent (F)	-7	6.74	1.00	2.943
G	-15	9.09	1.00	2.430

Reference heating season			Colder	
Reference water temperature Full load heating			High, 55°C	
		Prated [kW]	10.94	
Seasonal efficiency		η <sub>s</sub> [%]	114.12	
Annual electricity consumption		Q <sub>HE</sub> [kWh]	7845	
Colder 55°C	der 55°C Outdoor heat exchanger Declared capacity	COP at part load	Degradation Coefficient	
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
А	-7	6.62	1.00	2.376
В	2	4.03	1.00	3.864
С	7	2.59	1.00	5.798
D	12	1.15	0.46	6.963
TOL (E)	-22	10.94	1.00	1.510
Tbivalent (F)	-7	6.62	1.00	2.376
G	-15	8.92	1.00	1.840

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Heat pump model	Master Therm	BA30I-1
Power consumption in modes other than "active m	ode"	
Off mode	P <sub>OFF</sub> [kW]	0.018
Thermostat off mode	P <sub>TO</sub> [kW]	0.017
Standby mode	P <sub>SB</sub> [kW]	0.018
Crankcaseheater mode	Р <sub>ск</sub> [kW]	-
Supplementary heater capacity	P <sub>sup</sub> [kW]	6(+6)
Supplementary heater type	[-]	electricity
Capacity control		Variable
Sound power level Indoor	L <sub>WA</sub> [dBA]	-
Sound power level Outdoor	L <sub>WA</sub> [dBA]	65
Rated airflow	[m³/h]	max.6000
Temperature controller		
Туре	Carel pCO5/pCO5+/uPC, M	aster Therm custom SW
Class	II	
Contribution	%	2.0
Temperature controller + Room Terminal		
Туре	Carel pCO5/pCO5+/uPC + pAD	, Master Therm custom SW
Class	VI	
Contribution	%	4.0

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Heat pump model	Master Therm	BA30I-1	
nformation 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	8	7
Space heating seasonal efficiency, Average climate	%	187	141
Space heating annual electricity consumption, Average cl.	kWh	3326	4088
Nominal heating capacity Pdesign, Colder climate	kW	11	11
Space heating seasonal efficiency, Colder climate	%	139	114
Space heating annual electricity consumption, Colder cl.	kWh	6587	7845
Nominal heating capacity Pdesign, Warmer climate	kW	9	8
Space heating seasonal efficiency, Warmer climate	%	270	185
Space heating annual electricity consumption, Warmer cl.	kWh	1771	2386
Sound power level Lwa Outdoor	dBA	65	J
· · · · · · · · · · · · · · · · · · ·		65	
Information sheet for energy efficiency Set with Temperature		65 Low, 35°C	High, 55°C
Information sheet for energy efficiency Set with Temperature Temperature application			High, 55°C
Information sheet for energy efficiency Set with Temperature Temperature application Controller Carel pCO5/pCO5+/uPC, Class	controller	Low, 35°C	
Temperature application	controller	Low, 35°C II	
Information sheet for energy efficiency Set with Temperature Temperature application Controller Carel pCO5/pCO5+/uPC, Class Controller Carel pCO5/pCO5+/uPC, Contribution Set Space heating seasonal efficiency, Average climate	controller	Low, 35°C II 2.0	II 2.0
Information sheet for energy efficiency Set with Temperature Temperature application Controller Carel pCO5/pCO5+/uPC, Class Controller Carel pCO5/pCO5+/uPC, Contribution	controller	Low, 35°C II 2.0 189	II 2.0 143
Information sheet for energy efficiency Set with Temperature 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		Low, 35°C II 2.0 189 A+++	II 2.0 143 A++
Information sheet for energy efficiency Set with Temperature 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	-         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -	Low, 35°C II 2.0 189 A+++ 141	II 2.0 143 A++ 116
Information sheet for energy efficiency Set with Temperature 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	-         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -	Low, 35°C II 2.0 189 A+++ 141	II 2.0 143 A++ 116
Information sheet for energy efficiency Set with Temperature 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	-         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -	Low, 35°C II 2.0 189 A+++ 141 272	II 2.0 143 A++ 116 187
Information sheet for energy efficiency Set with Temperature 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 Information sheet for energy efficiency Set with Temperature Temperature application Controller Carel pCO5/pCO5+/uPC + pAD, Class	controller	Low, 35°C II 2.0 189 A+++ 141 272 Low, 35°C	II 2.0 143 A++ 116 187 High, 55°C
Information sheet for energy efficiency Set with Temperature 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 Set with Temperature Temperature application Controller Carel pCO5/pCO5+/uPC + pAD, Class Controller Carel pCO5/pCO5+/uPC, +pAD, Contribution	controller	Low, 35°C II 2.0 189 A+++ 141 272 Low, 35°C VI	II 2.0 143 A++ 116 187 High, 55°C VI
Information sheet for energy efficiency Set with Temperature 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 Set with Temperature Information sheet for energy efficiency Set with Temperature Temperature application Controller Carel pCO5/pCO5+/uPC + pAD, Class Controller Carel pCO5/pCO5+/uPC, +pAD, Contribution Set Space heating seasonal efficiency, Average climate	controller	Low, 35°C II 2.0 189 A+++ 141 272 Low, 35°C VI 4.0	II 2.0 143 A++ 116 187 High, 55°C VI 4.0
Information sheet for energy efficiency Set with Temperature 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	-         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -	Low, 35°C II 2.0 189 A+++ 141 272 Low, 35°C VI 4.0 191	II 2.0 143 A++ 116 187 High, 55°C VI 4.0 145

Heat pump model		Master Therm	BA37I-1	]
Used as were the s			A:	-
Heat pump type			Air/Water	-
Supplementary heater			Yes	-
Heat pump combination heater			No	
Reference heating season			Average	7
Reference water temperature			LOW, 35°C	
Full load heating		Prated [kW]	10.93	
Seasonal efficiency		η <sub>s</sub> [%]	176	A+++
Annual electricity consumption		Q <sub>HE</sub> [kWh]	5035	
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
В	2	6.10	4.38	0.900
С	7	4.06	6.19	0.900
D	12	4.75	7.62	0.961
TOL (E)	-10	9.04	2.48	0.900
Tbivalent (F)	-7	9.67	2.64	0.900
Reference heating season			Average	7
Reference water temperature			High, 55°C	_
Full load heating		Prated [kW]	10.02	_
Seasonal efficiency			137	A++
-		η <sub>s</sub> [%]	5910	ATT
Annual electricity consumption		Q <sub>HE</sub> [kWh]	5910	
Average 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7	8.86	2.00	0.900
В	2	5.45	3.41	0.900
C	7	3.48	4.94	0.900
D	12	4.08	6.01	0.965
TOL (E)	-10	8.22	1.85	0.900
Tbivalent (F)	-7	8.86	2.00	0.900
<b></b>				-
Reference heating season			Warmer	-
Reference water temperature			Low, 35°C	_
Full load heating		Prated [kW]	12.45	_
Seasonal efficiency		η <sub>s</sub> [%]	249	_
Annual electricity consumption		Q <sub>HE</sub> [kWh]	2645	
Warmer 35°C	Outdoor heat exchanger Outdoor air	Declared capacity	COP at part load	Degradation Coefficient
Warmer 35°C	Outdoor air			5
	Outdoor air Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
В	Outdoor air Tj [°C] 2	Pdh [kW] 12.45	COPd (-) 3.33	Cdh (-) 0.900
B C	Outdoor air Tj [°C] 2 7	Pdh [kW] 12.45 8.12	COPd (-) 3.33 5.54	Cdh (-) 0.900 0.900
В	Outdoor air Tj [°C] 2	Pdh [kW] 12.45	COPd (-) 3.33	Cdh (-) 0.900

Heat pump model		Master Therm	BA37I-1	
Reference heating season			Warmer	7
Reference water temperature			High, 55°C	
Full load heating		Prated [kW]	11.14	
Seasonal efficiency		η <sub>s</sub> [%]	175	
Annual electricity consumption		Q <sub>HE</sub> [kWh]	3348	
Warmer 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
D	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
B	2	11.14	2.28	0.900
C	7	7.21	3.79	0.900
D	12	4.51	5.84	0.969
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		η <sub>s</sub> [%]	135	
Annual electricity consumption		Q <sub>HE</sub> [kWh]	11678	
Colder 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
А	-7	9.87	2.78	0.900
В	2	6.18	4.67	0.900
С	7	4.09	6.35	0.900
D	12	4.75	7.62	0.961
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	heating Prated [kW]		15.21	
Seasonal efficiency		η <sub>s</sub> [%]	112	
Annual electricity consumption	1	Q <sub>HE</sub> [kWh]	12984	
Colder 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7	9.20	2.27	0.900
В	2	5.89	3.78	0.900
С	7	3.93	5.32	0.900
D	12	4.59	6.36	0.967
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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Heat pump model	Master Therm	BA37I-1
Power consumption in modes other than "active m	ode"	
Off mode	P <sub>OFF</sub> [kW]	0.026
Thermostat off mode	P <sub>TO</sub> [kW]	0.024
Standby mode	P <sub>SB</sub> [kW]	0.026
Crankcaseheater mode	P <sub>CK</sub> [kW]	-
Supplementary heater capacity	P <sub>sup</sub> [kW]	7.5(+7.5)
Supplementary heater type	[-]	electricity
Capacity control		Variable
Sound power level Indoor	L <sub>WA</sub> [dBA]	-
Sound power level Outdoor	L <sub>WA</sub> [dBA]	62
Rated airflow	[m <sup>3</sup> /h]	max.6000
Temperature controller		
Туре	Carel pCO5/pCO5+/uPC, M	aster Therm custom SW
Class	II	
Contribution	%	2.0
Temperature controller + Room Terminal		
Туре	Carel pCO5/pCO5+/uPC + pAD	, Master Therm custom SW
Class	VI	
Contribution	%	4.0

Heat pump model	Master Therm	BA37I-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	11	10
Space heating seasonal efficiency, Average climate	%	176	137
Space heating annual electricity consumption, Average cl.	kWh	5035	5910
Nominal heating capacity Pdesign, Colder climate	kW	16	15
Space heating seasonal efficiency, Colder climate	%	135	112
Space heating annual electricity consumption, Colder cl.	kWh	11678	12984
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	2645	3348
			_
Sound power level Lwa Outdoor	dBA	62	
Information sheet for energy efficiency Set with Temperature Temperature application	e controller	Low, 35°C	High, 55°C
Controller Carel pCO5/pCO5+/uPC, Class	-		
Controller Carel pCO5/pCO5+/uPC, Contribution	%	2.0	2.0
Set Space heating seasonal efficiency, Average climate	%	178	139
Set Space heating energy efficiency class, Average climate	-	A+++	A++
Set Space heating seasonal efficiency, Colder climate	%	137	114
Set Space heating seasonal efficiency, Warmer climate	%	251	177
	•		·
Information sheet for energy efficiency Set with Temperature	e 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	%	180	141
Set Space heating energy efficiency class, Average climate	-	A+++	A++
Set Space heating seasonal efficiency, Colder climate	%	139	116

%

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Set Space heating seasonal efficiency, Warmer climate

Heat pump model		Master Therm	BA45I-1	
			A	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 <sub>s</sub> [%]	175	A+++
Annual electricity consumption		Q <sub>HE</sub> [kWh]	6195	
Average 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			J. J
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7	11.83	2.77	0.900
В	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 <sub>s</sub> [%]	136	A++
Annual electricity consumption		Q <sub>HE</sub> [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	9.57	1.77	0.900
Tbivalent (F)	-7	10.66	2.10	0.900
Reference heating season			Warmer	7
Reference water temperature			Low, 35°C	
Full load heating		Prated [kW]	15.78	7
Seasonal efficiency		η <sub>s</sub> [%]	251	7
Annual electricity consumption		Q <sub>HE</sub> [kWh]	3326	
Warmer 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
В	2	15.78	3.03	0.900
С	7	9.77	5.50	0.900
	12	5.09	8.20	0.961
D				
	2	15.78 15.78	3.03 3.03	0.900

Heat pump model		Master Therm	BA45I-1	
Reference heating season			Warmer	7
Reference water temperature			High, 55°C	
Full load heating		Prated [kW]	13.11	
Seasonal efficiency		η <sub>s</sub> [%]	172	
Annual electricity consumption		Q <sub>HE</sub> [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 <sub>s</sub> [%]	130	
Annual electricity consumption		Q <sub>HE</sub> [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	eating Prated [kW]	19.18		
Seasonal efficiency		η <sub>s</sub> [%]	108	
Annual electricity consumption	1	Q <sub>HE</sub> [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

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Heat pump model	Master Therm	BA45I-1
Power consumption in modes other than "active mo		
Off mode	P <sub>OFF</sub> [kW]	0.026
Thermostat off mode	P <sub>TO</sub> [kW]	0.024
Standby mode	P <sub>SB</sub> [kW]	0.026
Crankcaseheater mode	P <sub>CK</sub> [kW]	-
Supplementary heater capacity	P <sub>sup</sub> [kW]	7.5(+7.5)
Supplementary heater type	[-]	electricity
Capacity control		Variable
Sound power level Indoor	L <sub>WA</sub> [dBA]	-
Sound power level Outdoor	L <sub>WA</sub> [dBA]	62
Rated airflow	[m³/h]	max.8000
Temperature controller		
Туре	Carel pCO5/pCO5+/uPC, Ma	aster Therm custom SW
Class	II	
Contribution	%	2.0
Temperature controller + Room Terminal		
Туре	Carel pCO5/pCO5+/uPC + pAD	, Master Therm custom SW
Class	VI	
Contribution	%	4.0

Temperature application

Set Space heating energy efficiency class, Average climate

Information sheet for energy efficiency Set with Temperature controller + Room Terminal

Set Space heating seasonal efficiency, Colder climate

Controller Carel pCO5/pCO5+/uPC + pAD, Class

Set Space heating seasonal efficiency, Warmer climate

Controller Carel pCO5/pCO5+/uPC, +pAD, Contribution

Set Space heating seasonal efficiency, Average climate

Set Space heating seasonal efficiency, Colder climate

Set Space heating seasonal efficiency, Warmer climate

Set Space heating energy efficiency class, Average climate

Heat pump model	Master Therm	BA45I-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	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
			_
Sound power level Lwa Outdoor	dBA	62	
			-
Information sheet for energy efficiency Set with Temperatu	re controller		
Temperature application		Low, 35°C	High, 55°C
Controller Carel pCO5/pCO5+/uPC, Class	-	II	11
Controller Carel pCO5/pCO5+/uPC, Contribution	%	2.0	2.0
Set Space heating seasonal efficiency, Average climate	%	177	138

%

%

%

%

-

%

%

A+++

132

253

Low, 35°C

VI

4.0

179

A+++

134

255

A++

110

174

High, 55°C

VI

4.0

140 A++

112

176

Master Therm tepelná čerpadla s.r.o.
Václavské náměstí 819/43
110 00 Praha 1, Czech Republic

Heat pump model		Master Therm	BA60I-1	
			A* AA4 .	-
Heat pump type			Air/Water	_
Supplementary heater			Yes	_
Heat pump combination heater			No	
Reference heating season			Average	]
Reference water temperature			LOW, 35°C	
Full load heating		Prated [kW]	22.57	
Seasonal efficiency		η <sub>s</sub> [%]	177	A+++
Annual electricity consumption		Q <sub>HE</sub> [kWh]	10351	
Average 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			5
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7	20.64	2.64	0.900
В	2	12.68	4.21	0.900
C	7	8.04	6.61	0.900
D	12	9.26	8.02	0.977
TOL (E)	-10	22.57	2.35	0.900
Tbivalent (F)	-10	22.57	2.35	0.900
	• •	•		
Reference heating season			Average	
Reference water temperature			High, 55°C	
Full load heating		Prated [kW]	24.94	
Seasonal efficiency		η <sub>s</sub> [%]	135	A++
Annual electricity consumption		Q <sub>HE</sub> [kWh]	14980	
August 55%O		De alere d'anne aite	COD at a set lass d	Describertions Opentitations (
Average 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
٨	Tj [°C] -7	Pdh [kW]	COPd (-) 2.05	Cdh (-)
A B		21.44		0.900
C	2 7	12.27 7.80	3.22 5.06	0.900
C	12	9.00	6.13	0.900
TOL (E)	-10	22.06	1.55	0.900
Tbivalent (F)	-7	22.00	1.55	0.900
	· ·	22.00	1100	0.000
Reference heating season			Warmer	
Reference water temperature			Low, 35°C	
Full load heating		Prated [kW]	30.53	
i an iouu riouurig		η <sub>s</sub> [%]	248	
Seasonal efficiency		'IS [ /0]		
Seasonal efficiency		Q <sub>HE</sub> [kWh]	6503	
Seasonal efficiency				-
Seasonal efficiency	Outdoor heat exchanger			Degradation Coefficient
Seasonal efficiency Annual electricity consumption	Outdoor air	Q <sub>HE</sub> [kWh] Declared capacity	6503 COP at part load	
Seasonal efficiency Annual electricity consumption Warmer 35°C	Outdoor air Tj [°C]	Q <sub>HE</sub> [kWh] Declared capacity Pdh [kW]	6503 COP at part load COPd (-)	Cdh (-)
Seasonal efficiency Annual electricity consumption Warmer 35°C B	Outdoor air Tj [°C] 2	Q <sub>HE</sub> [kWh] Declared capacity Pdh [kW] 30.53	6503 COP at part load COPd (-) 3.18	Cdh (-) 0.900
Seasonal efficiency Annual electricity consumption Warmer 35°C B C	Outdoor air Tj [°C] 2 7	Q <sub>HE</sub> [kWh] Declared capacity Pdh [kW] 30.53 20.32	6503 COP at part load COPd (-) 3.18 5.22	Cdh (-) 0.900 0.900
Seasonal efficiency Annual electricity consumption Warmer 35°C B	Outdoor air Tj [°C] 2	Q <sub>HE</sub> [kWh] Declared capacity Pdh [kW] 30.53	6503 COP at part load COPd (-) 3.18	Cdh (-) 0.900

Heat pump model		Master Therm	BA60I-1	
Reference heating season			Warmer	7
Reference water temperature			High, 55°C	
Full load heating		Prated [kW]	30.47	
Seasonal efficiency		η <sub>s</sub> [%]	173	
Annual electricity consumption	1	Q <sub>HE</sub> [kWh]	9259	
Warmer 55°C	Outdoor heat exchanger Outdoor air	Declared capacity	COP at part load	Degradation Coefficient
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
В	2	30.47	2.27	0.900
С	7	20.53	3.57	0.900
D	12	8.97	5.93	0.900
TOL (E)	2	30.47	2.27	0.900
Tbivalent (F)	2	30.47	2.27	0.900

Reference heating season			Colder	
Reference water temperature			Low, 35°C	
Full load heating		Prated [kW]	32.27	
Seasonal efficiency		η <sub>s</sub> [%]	141	
Annual electricity consumption		Q <sub>HE</sub> [kWh]	22051	
Colder 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
А	-7	19.53	2.79	0.900
В	2	12.78	4.49	0.900
С	7	8.07	6.82	0.900
D	12	9.26	8.02	0.977
TOL (E)	-22	20.47	2.24	0.900
Tbivalent (F)	-7	19.53	2.79	0.900
G	-15	22.66	2.41	0.900

Reference heating season			Colder	
Reference water temperature			High, 55°C	
Full load heating		Prated [kW]	31.21	
Seasonal efficiency		η <sub>s</sub> [%]	116	
Annual electricity consumption		Q <sub>HE</sub> [kWh]	25783	
Colder 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
А	-7	18.89	2.28	0.900
В	2	12.43	3.60	0.900
С	7	7.89	5.52	0.900
D	12	9.07	6.54	0.981
TOL (E)	-22	21.78	1.86	0.900
Tbivalent (F)	-7	18.89	2.28	0.900
G	-15	22.84	1.98	0.900

Heat pump model	Master Therm	BA60I-1
Power consumption in modes other than "active mo		
Off mode	P <sub>OFF</sub> [kW]	0.028
Thermostat off mode	P <sub>TO</sub> [kW]	0.027
Standby mode	P <sub>SB</sub> [kW]	0.028
Crankcaseheater mode	P <sub>CK</sub> [kW]	-
Supplementary heater capacity	P <sub>sup</sub> [kW]	7.5(+7.5)
Supplementary heater type	[-]	electricity
Capacity control		Variable
Sound power level Indoor	L <sub>WA</sub> [dBA]	-
Sound power level Outdoor	L <sub>WA</sub> [dBA]	66
Rated airflow	[m <sup>3</sup> /h]	max.8000
Temperature controller		
Туре	Carel pCO5/pCO5+/uPC, Ma	aster Therm custom SW
Class	II	
Contribution	%	2.0
Temperature controller + Room Terminal		
Туре	Carel pCO5/pCO5+/uPC + pAD	, Master Therm custom SW
Class	VI	
Contribution	%	4.0

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Heat pump model	Master Therm	BA60I-1	
			-
nformation 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	23	25
Space heating seasonal efficiency, Average climate	%	177	135
Space heating annual electricity consumption, Average cl.	kWh	10351	14980
Nominal heating capacity Pdesign, Colder climate	kW	32	31
Space heating seasonal efficiency, Colder climate	%	141	116
Space heating annual electricity consumption, Colder cl.	kWh	22051	25783
Nominal heating capacity Pdesign, Warmer climate	kW	31	30
Space heating seasonal efficiency, Warmer climate	%	248	173
Space heating annual electricity consumption, Warmer cl.	kWh	6503	9259
Sound power level Lwa Outdoor	dBA	66	]
· · · · · · · · · · · · · · · · · · ·		66	]
Information sheet for energy efficiency Set with Temperature			High, 55°C
Information sheet for energy efficiency Set with Temperature Temperature application	controller	Low, 35°C	High, 55°C
Sound power level Lwa Outdoor Information sheet for energy efficiency Set with Temperature Temperature application Controller Carel pCO5/pCO5+/uPC, Class Controller Carel pCO5/pCO5+/uPC, Contribution			High, 55°C II 2.0
Information sheet for energy efficiency Set with Temperature Temperature application Controller Carel pCO5/pCO5+/uPC, Class Controller Carel pCO5/pCO5+/uPC, Contribution	controller	Low, 35°C II	II
Information sheet for energy efficiency Set with Temperature Temperature application	controller	Low, 35°C II 2.0	II 2.0
Information sheet for energy efficiency Set with Temperature Temperature application Controller Carel pCO5/pCO5+/uPC, Class Controller Carel pCO5/pCO5+/uPC, Contribution Set Space heating seasonal efficiency, Average climate	controller	Low, 35°C II 2.0 179	II 2.0 137
Information sheet for energy efficiency Set with Temperature 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		Low, 35°C II 2.0 179 A+++	II 2.0 137 A++
Information sheet for energy efficiency Set with Temperature 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	-         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -	Low, 35°C II 2.0 179 A+++ 143	II 2.0 137 A++ 118
Information sheet for energy efficiency Set with Temperature 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	-         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -	Low, 35°C II 2.0 179 A+++ 143	II 2.0 137 A++ 118
Information sheet for energy efficiency Set with Temperature 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	-         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -           %         -	Low, 35°C II 2.0 179 A+++ 143 250	II 2.0 137 A++ 118 175
Information sheet for energy efficiency Set with Temperature 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 Information sheet for energy efficiency Set with Temperature Temperature application Controller Carel pCO5/pCO5+/uPC + pAD, Class	e controller	Low, 35°C II 2.0 179 A+++ 143 250 Low, 35°C	II 2.0 137 A++ 118 175 High, 55°C
Information sheet for energy efficiency Set with Temperature 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 Information sheet for energy efficiency Set with Temperature Temperature application Controller Carel pCO5/pCO5+/uPC + pAD, Class Controller Carel pCO5/pCO5+/uPC, +pAD, Contribution	e controller	Low, 35°C II 2.0 179 A+++ 143 250 Low, 35°C VI	II 2.0 137 A++ 118 175 High, 55°C VI
Information sheet for energy efficiency Set with Temperature 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	e controller	Low, 35°C II 2.0 179 A+++ 143 250 Low, 35°C VI 4.0	II 2.0 137 A++ 118 175 High, 55°C VI 4.0
Information sheet for energy efficiency Set with Temperature Temperature application Controller Carel pCO5/pCO5+/uPC, Class Controller Carel pCO5/pCO5+/uPC, Contribution Set Space heating seasonal efficiency, Average climate Set Space heating seasonal 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 Set with Temperature Temperature application Controller Carel pCO5/pCO5+/uPC + pAD, Class Controller Carel pCO5/pCO5+/uPC, +pAD, Contribution Set Space heating seasonal efficiency, Average climate	e controller	Low, 35°C II 2.0 179 A+++ 143 250 Low, 35°C VI 4.0 181	II 2.0 137 A++ 118 175 High, 55°C VI 4.0 139