Heat pump model	**Master Therm**	**BA37ISC-1**

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]**	**10.93**	
Seasonal efficiency		**η_S [%]**	**176**	**A+++**
Annual electricity consumption		**Q_{HE} [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
B	2	6.10	4.38	0.900
C	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**	
Reference water temperature			**High, 55°C**	
Full load heating		**Prated [kW]**	**10.02**	
Seasonal efficiency		**η_S [%]**	**137**	**A++**
Annual electricity consumption		**Q_{HE} [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
B	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

Reference heating season			**Warmer**	
Reference water temperature			**Low, 35°C**	
Full load heating		**Prated [kW]**	**12.45**	
Seasonal efficiency		**η_S [%]**	**249**	
Annual electricity consumption		**Q_{HE} [kWh]**	**2645**	
Warmer 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
B	2	12.45	3.33	0.900
C	7	8.12	5.54	0.900
D	12	3.58	7.87	0.900
TOL (E)	-10	12.45	3.33	0.900
Tbivalent (F)	-7	12.45	3.33	0.900

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Heat pump model	**Master Therm**	**BA37ISC-1**

Reference heating season			**Warmer**	
Reference water temperature			**High, 55°C**	
Full load heating		**Prated [kW]**	**11.14**	
Seasonal efficiency		**η_S [%]**	**175**	
Annual electricity consumption		**Q_{HE} [kWh]**	**3348**	
Warmer 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
B	2	11.14	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_S [%]**	**135**	
Annual electricity consumption		**Q_{HE} [kWh]**	**11678**	
Colder 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7	9.87	2.78	0.900
B	2	6.18	4.67	0.900
C	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		**Prated [kW]**	**15.21**	
Seasonal efficiency		**η_S [%]**	**112**	
Annual electricity consumption		**Q_{HE} [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
B	2	5.89	3.78	0.900
C	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

Heat pump model	**Master Therm**	**BA37ISC-1**

Power consumption in modes other than "active mode"		
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]	6.0
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.6000

Declared load profile / Tapping cycle		L
Daily electricity consumption	Q_{elec} [kWh]	3.129
Water heating energy efficiency	η_{wh} [%]	90

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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Heat pump model	**Master Therm**	**BA37ISC-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 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	%	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 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
Set Space heating seasonal efficiency, Warmer climate	%	253	179

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