Heat pump model	**Master Therm**	**BA37IP-0, BA37IP-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**	**4,93**
Full load heating		**Prated [kW]**	**11,50**	
Seasonal efficiency		**η_s [%]**	**194**	**A+++**
Annual electricity consumption		**Q_{HE} [kWh]**	**4821**	
Average 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7	10,36	2,92	0,900
B	2	6,43	5,03	0,900
C	7	4,01	6,53	0,900
D	12	4,37	7,42	0,968
TOL (E)	-10	11,50	2,83	0,900
Tbivalent (F)	-10	11,50	2,83	0,900

Reference heating season			**Average**	**SCOP**
Reference water temperature			**High, 55°C**	**3,93**
Full load heating		**Prated [kW]**	**10,85**	
Seasonal efficiency		**η_s [%]**	**154**	**A+++**
Annual electricity consumption		**Q_{HE} [kWh]**	**5700**	
Average 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7	9,85	2,28	0,900
B	2	6,14	3,99	0,900
C	7	3,86	5,31	0,900
D	12	4,22	6,05	0,973
TOL (E)	-10	10,85	2,15	0,900
Tbivalent (F)	-10	10,85	2,15	0,900

Reference heating season			**Warmer**	
Reference water temperature			**Low, 35°C**	
Full load heating		**Prated [kW]**	**13,30**	
Seasonal efficiency		**η_s [%]**	**240**	
Annual electricity consumption		**Q_{HE} [kWh]**	**2930**	
Warmer 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
B	2	13,30	3,49	0,900
C	7	8,58	5,72	0,900
D	12	4,10	7,42	0,900
TOL (E)	2	13,30	3,49	0,900
Tbivalent (F)	2	13,30	3,49	0,900

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Heat pump model	**Master Therm**	**BA37IP-0, BA37IP-1**

Reference heating season			**Warmer**	
Reference water temperature			**High, 55°C**	
Full load heating		**Prated [kW]**	**12,54**	
Seasonal efficiency		**η_s [%]**	**183**	
Annual electricity consumption		**Q_{HE} [kWh]**	**3608**	
Warmer 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
B	2	12,54	2,55	0,900
C	7	8,08	4,19	0,900
D	12	3,94	5,90	0,900
TOL (E)	2	12,54	2,55	0,900
Tbivalent (F)	2	12,54	2,55	0,900

Reference heating season			**Colder**	
Reference water temperature			**Low, 35°C**	
Full load heating		**Prated [kW]**	**15,40**	
Seasonal efficiency		**η_s [%]**	**160**	
Annual electricity consumption		**Q_{HE} [kWh]**	**9294**	
Colder 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7	9,89	3,22	0,900
B	2	5,85	5,36	0,900
C	7	4,04	6,88	0,968
D	12	4,37	7,42	0,968
TOL (E)	-20	9,65	2,56	0,900
Tbivalent (F)	-10	10,54	3,21	0,900
G	-15	10,09	2,88	0,900

Reference heating season			**Colder**	
Reference water temperature			**High, 55°C**	
Full load heating		**Prated [kW]**	**14,67**	
Seasonal efficiency		**η_s [%]**	**135**	
Annual electricity consumption		**Q_{HE} [kWh]**	**10512**	
Colder 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7	8,99	2,76	0,900
B	2	5,43	4,38	0,900
C	7	3,92	5,81	0,972
D	12	4,26	6,35	0,972
TOL (E)	-20	9,60	1,93	0,900
Tbivalent (F)	-10	10,04	2,58	0,900
G	-15	9,82	2,25	0,900

Heat pump model	**Master Therm**	**BA37IP-0, BA37IP-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]	7,5(+7,5)
Supplementary heater type	[-]	electricity

Capacity control		Variable
Sound power level Indoor	L_{WA} [dBA]	-
Sound power level Outdoor	L_{WA} [dBA]	55
Rated airflow	[m^3/h]	max.8000

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**	**BA37IP-0, BA37IP-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	12	11
Space heating seasonal efficiency, Average climate	%	194	154
Space heating annual electricity consumption, Average cl.	kWh	4821	5700
Nominal heating capacity Pdesign, Colder climate	kW	15	15
Space heating seasonal efficiency, Colder climate	%	160	135
Space heating annual electricity consumption, Colder cl.	kWh	9294	10512
Nominal heating capacity Pdesign, Warmer climate	kW	13	13
Space heating seasonal efficiency, Warmer climate	%	240	183
Space heating annual electricity consumption, Warmer cl.	kWh	2930	3608
Sound power level Lwa Outdoor	dBA	55	

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	%	196	156
Set Space heating energy efficiency class, Average climate	-	A+++	A+++
Set Space heating seasonal efficiency, Colder climate	%	162	137
Set Space heating seasonal efficiency, Warmer climate	%	242	185

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	%	198	158
Set Space heating energy efficiency class, Average climate	-	A+++	A+++
Set Space heating seasonal efficiency, Colder climate	%	164	139
Set Space heating seasonal efficiency, Warmer climate	%	244	187

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