Heat pump model	**Master Therm**	**BA22ISC**

Heat pump type	Air/Water
Supplementary heater	Yes
Heat pump combination heater	Yes

Reference heating season			**Average**	
Reference water temperature			**LOW, 35°C**	
Full load heating		**Prated [kW]**	**4,51**	
Seasonal efficiency		**η_S [%]**	**172**	**A++**
Annual electricity consumption		**Q_{HE} [kWh]**	**2132**	
Average 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7	3,99	2,74	0,900
B	2	2,58	4,16	0,900
C	7	1,64	6,22	0,900
D	12	2,08	7,50	0,923
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_S [%]**	**130**	**A++**
Annual electricity consumption		**Q_{HE} [kWh]**	**2764**	
Average 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7	3,93	2,03	0,900
B	2	2,45	3,15	0,900
C	7	1,69	4,74	0,900
D	12	1,96	5,73	0,937
TOL (E)	-10	3,68	1,90	0,900
Tbivalent (F)	-7	3,93	2,03	0,900

Reference heating season			**Warmer**	
Reference water temperature			**Low, 35°C**	
Full load heating		**Prated [kW]**	**5,32**	
Seasonal efficiency		**η_S [%]**	**226**	
Annual electricity consumption		**Q_{HE} [kWh]**	**1239**	
Warmer 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
B	2	5,32	3,34	0,900
C	7	3,78	5,20	0,970
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

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Heat pump model	**Master Therm**	**BA22ISC**

Reference heating season			**Warmer**	
Reference water temperature			**High, 55°C**	
Full load heating		**Prated [kW]**	**5,08**	
Seasonal efficiency		**η_S [%]**	**163**	
Annual electricity consumption		**Q_{HE} [kWh]**	**1632**	
Warmer 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
B	2	5,08	2,25	0,900
C	7	3,54	3,52	0,900
D	12	1,95	5,56	0,939
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			**Low, 35°C**	
Full load heating		**Prated [kW]**	**6,55**	
Seasonal efficiency		**η_S [%]**	**133**	
Annual electricity consumption		**Q_{HE} [kWh]**	**4738**	
Colder 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7	3,97	2,91	0,900
B	2	2,61	4,47	0,900
C	7	1,56	6,42	0,900
D	12	2,08	7,50	0,923
TOL (E)	-20	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			**Colder**	
Reference water temperature			**High, 55°C**	
Full load heating		**Prated [kW]**	**6,49**	
Seasonal efficiency		**η_S [%]**	**110**	
Annual electricity consumption		**Q_{HE} [kWh]**	**5663**	
Colder 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7	3,93	2,33	0,900
B	2	2,50	3,53	0,900
C	7	1,73	5,18	0,936
D	12	1,99	6,12	0,934
TOL (E)	-20	2,84	1,88	0,900
Tbivalent (F)	-7	3,93	2,33	0,900
G	-15	3,26	2,05	0,900

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Heat pump model	**Master Therm**	**BA22ISC**

Power consumption in modes other than "active mode"		
Off mode	P_{OFF} [kW]	0,022
Thermostat off mode	P_{TO} [kW]	0,022
Standby mode	P_{SB} [kW]	0,022
Crankcaseheater mode	P_{CK} [kW]	-

Supplementary heater capacity	P_{sup} [kW]	4,5
Supplementary heater type	[-]	electricity

Capacity control		Variable
Sound power level Indoor	L_{WA} [dBA]	48
Sound power level Outdoor	L_{WA} [dBA]	63
Rated airflow	[m^3/h]	max.3000

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**	**BA22ISC**

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	2132	2764
Nominal heating capacity Pdesign, Colder climate	kW	7	6
Space heating seasonal efficiency, Colder climate	%	133	110
Space heating annual electricity consumption, Colder cl.	kWh	4738	5663
Nominal heating capacity Pdesign, Warmer climate	kW	5	5
Space heating seasonal efficiency, Warmer climate	%	226	163
Space heating annual electricity consumption, Warmer cl.	kWh	1239	1632
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	II
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	%	135	112
Set Space heating seasonal efficiency, Warmer climate	%	228	165

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	%	176	134
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	%	230	167

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Heat pump model	**Master Therm**	**BA26ISC**

Heat pump type	Air/Water
Supplementary heater	Yes
Heat pump combination heater	Yes

Reference heating season			**Average**	
Reference water temperature			**LOW, 35°C**	
Full load heating		**Prated [kW]**	**6,51**	
Seasonal efficiency		**η_S [%]**	**168**	**A++**
Annual electricity consumption		**Q_{HE} [kWh]**	**3140**	
Average 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
-7	A	5,76	2,59	0,900
2	B	3,72	3,91	0,900
7	C	2,42	6,53	0,900
12	D	2,74	7,18	0,949
-10	TOL (E)	5,88	2,52	0,900
-7	Tbivalent (F)	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_S [%]**	**126**	**A++**
Annual electricity consumption		**Q_{HE} [kWh]**	**4040**	
Average 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
-7	A	5,60	1,94	0,900
2	B	3,50	3,02	0,900
7	C	2,33	4,69	0,900
12	D	2,78	5,53	0,962
-10	TOL (E)	5,66	1,82	0,900
-7	Tbivalent (F)	5,60	1,94	0,900

Reference heating season			**Warmer**	
Reference water temperature			**Low, 35°C**	
Full load heating		**Prated [kW]**	**7,67**	
Seasonal efficiency		**η_S [%]**	**253**	
Annual electricity consumption		**Q_{HE} [kWh]**	**1600**	
Warmer 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
2	B	7,67	3,41	0,900
7	C	5,72	5,59	0,982
12	D	2,52	8,10	0,942
2	TOL (E)	7,67	3,41	0,900
2	Tbivalent (F)	7,67	3,41	0,900

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Heat pump model	**Master Therm**	**BA26ISC**

Reference heating season			**Warmer**	
Reference water temperature			**High, 55°C**	
Full load heating		**Prated [kW]**	**7,40**	
Seasonal efficiency		**η_S [%]**	**177**	
Annual electricity consumption		**Q_{HE} [kWh]**	**2200**	
Warmer 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
2	B	7,40	2,21	0,900
7	C	5,17	3,71	0,900
12	D	2,46	6,08	0,955
2	TOL (E)	7,40	2,21	0,900
2	Tbivalent (F)	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_S [%]**	**131**	
Annual electricity consumption		**Q_{HE} [kWh]**	**6028**	
Colder 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
-7	A	5,84	2,70	0,900
2	B	3,54	4,55	0,900
7	C	2,97	6,82	0,958
12	D	3,45	7,47	0,957
-20	TOL (E)	4,16	2,08	0,900
-7	Tbivalent (F)	5,84	2,70	0,900
-15	G	4,81	2,32	0,900

Reference heating season			**Colder**	
Reference water temperature			**High, 55°C**	
Full load heating		**Prated [kW]**	**9,31**	
Seasonal efficiency		**η_S [%]**	**107**	
Annual electricity consumption		**Q_{HE} [kWh]**	**7134**	
Colder 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	Tj [°C]	Pdh [kW]	COPd (-)	Cdh (-)
-7	A	5,63	2,17	0,900
2	B	3,69	3,58	0,900
7	C	2,86	5,58	0,965
12	D	3,33	6,20	0,964
-20	TOL (E)	3,53	1,42	0,900
-7	Tbivalent (F)	5,63	2,17	0,900
-15	G	4,34	1,71	0,900

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Heat pump model	**Master Therm**	**BA26ISC**

Power consumption in modes other than "active mode"		
Off mode	P_{OFF} [kW]	0,022
Thermostat off mode	P_{TO} [kW]	0,018
Standby mode	P_{SB} [kW]	0,022
Crankcaseheater mode	P_{CK} [kW]	0,000

Supplementary heater capacity	P_{sup} [kW]	6
Supplementary heater type	[-]	electricity

Capacity control		Variable
Sound power level Indoor	L_{WA} [dBA]	48
Sound power level Outdoor	L_{WA} [dBA]	63
Rated airflow	[m^3/h]	max. 3500

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**	**BA26ISC**

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	3140	4040
Nominal heating capacity Pdesign, Colder climate	kW	10	9
Space heating seasonal efficiency, Colder climate	%	131	107
Space heating annual electricity consumption, Colder cl.	kWh	6028	7134
Nominal heating capacity Pdesign, Warmer climate	kW	8	7
Space heating seasonal efficiency, Warmer climate	%	253	177
Space heating annual electricity consumption, Warmer cl.	kWh	1600	2200
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	II
Controller Carel pCO5/pCO5+/uPC, Contribution	%	2,0	2,0
Set Space heating seasonal efficiency, Average climate	%	170	128
Set Space heating energy efficiency class, Average climate	-	A++	A++
Set Space heating seasonal efficiency, Colder climate	%	133	109
Set Space heating seasonal efficiency, Warmer climate	%	255	179

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	%	172	130
Set Space heating energy efficiency class, Average climate	-	A++	A++
Set Space heating seasonal efficiency, Colder climate	%	135	111
Set Space heating seasonal efficiency, Warmer climate	%	257	181

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