

<b>Heat pump model</b>	<b>Master Therm</b>	<b>BA22Z</b>
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Heat pump type	Air/Water
Supplementary heater	Yes
Heat pump combination heater	No

Reference heating season		<b>Average</b>		
Reference water temperature		<b>LOW, 35°C</b>		
Full load heating		<b>Prated [kW]</b>	<b>8.35</b>	
Seasonal efficiency / Energy efficiency class		<b><math>\eta_s</math> [%]</b>	<b>140</b>	<b>A+</b>
Annual electricity consumption		<b><math>Q_{HE}</math> [kWh]</b>	<b>4838</b>	
<b>Average 35°C</b>	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	$T_j$ [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7	5.20	3.03	0.900
B	2	6.14	3.60	0.985
C	7	7.60	4.47	0.985
D	12	10.36	5.88	0.986
TOL (E)	-10	4.70	2.73	0.900
Tbivalent (F)	-2	5.78	3.46	0.900

Reference heating season		<b>Average</b>		
Reference water temperature		<b>High, 55°C</b>		
Full load heating		<b>Prated [kW]</b>	<b>8.15</b>	
Seasonal efficiency / Energy efficiency class		<b><math>\eta_s</math> [%]</b>	<b>117</b>	<b>A+</b>
Annual electricity consumption		<b><math>Q_{HE}</math> [kWh]</b>	<b>5592</b>	
<b>Average 55°C</b>	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	$T_j$ [°C]	Pdh [kW]	COPd (-)	Cdh (-)
A	-7	5.15	2.20	0.900
B	2	6.37	3.04	0.988
C	7	8.25	4.04	0.988
D	12	9.90	4.94	0.988
TOL (E)	-10	4.74	1.96	0.900
Tbivalent (F)	-2	5.64	2.63	0.900

Reference heating season		<b>Warmer</b>		
Reference water temperature		<b>Low, 35°C</b>		
Full load heating		<b>Prated [kW]</b>	<b>6.08</b>	
Seasonal efficiency		<b><math>\eta_s</math> [%]</b>	<b>188</b>	
Annual electricity consumption		<b><math>Q_{HE}</math> [kWh]</b>	<b>1697</b>	
<b>Warmer 35°C</b>	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient
	Outdoor air			
	$T_j$ [°C]	Pdh [kW]	COPd (-)	Cdh (-)
B	2	6.08	3.32	0.900
C	7	8.50	4.68	0.986
D	12	10.26	5.68	0.986
TOL (E)	2	6.08	3.32	0.900
Tbivalent (F)	2	6.08	3.32	0.900

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Reference heating season			Warmer		
Reference water temperature			High, 55°C		
Full load heating		Prated [kW]	6.08		
Seasonal efficiency		$\eta_s$ [%]	140		
Annual electricity consumption		$Q_{HE}$ [kWh]	2274		
Warmer 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient	
	Outdoor air				
	$T_j$ [°C]	Pdh [kW]	COPd (-)	Cdh (-)	
B	2	6.08	2.32	0.900	
C	7	7.94	3.24	0.990	
D	12	9.68	4.47	0.988	
TOL (E)	2	6.08	2.32	0.900	
Tbivalent (F)	2	6.08	2.32	0.900	
Reference heating season			Colder		
Reference water temperature			Low, 35°C		
Full load heating		Prated [kW]	8.36		
Seasonal efficiency		$\eta_s$ [%]	122		
Annual electricity consumption		$Q_{HE}$ [kWh]	6594		
Colder 35°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient	
	Outdoor air				
	$T_j$ [°C]	Pdh [kW]	COPd (-)	Cdh (-)	
A	-7	5.06	3.18	0.900	
B	2	6.18	3.75	0.985	
C	7	7.63	4.54	0.985	
D	12	10.35	5.86	0.986	
TOL (E)	-20	3.40	2.10	0.900	
Tbivalent (F)	-7	5.06	3.18	0.900	
G	-15	3.99	2.50	0.900	
Reference heating season			Colder		
Reference water temperature			High, 55°C		
Full load heating		Prated [kW]	8.00		
Seasonal efficiency		$\eta_s$ [%]	101		
Annual electricity consumption		$Q_{HE}$ [kWh]	7570		
Colder 55°C	Outdoor heat exchanger	Declared capacity	COP at part load	Degradation Coefficient	
	Outdoor air				
	$T_j$ [°C]	Pdh [kW]	COPd (-)	Cdh (-)	
A	-7	5.15	2.51	0.988	
B	2	6.01	3.00	0.988	
C	7	8.32	4.23	0.987	
D	12	9.93	5.00	0.987	
TOL (E)	-20	3.55	1.61	0.900	
Tbivalent (F)	-7	4.84	2.38	0.900	
G	-15	4.06	1.90	0.900	

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Power consumption in modes other than "active mode"		
Off mode	$P_{OFF}$ [kW]	0.025
Thermostat off mode	$P_{TO}$ [kW]	0.025
Standby mode	$P_{SB}$ [kW]	0.025
Crankcaseheater mode	$P_{CK}$ [kW]	-

Supplementary heater capacity	$P_{SUP}$ [kW]	4,5(+4,5)
Supplementary heater type	[-]	electricity

Capacity control		Fixed
Sound power level Indoor	$L_{WA}$ [dBA]	-
Sound power level Outdoor	$L_{WA}$ [dBA]	65
Rated airflow	[m <sup>3</sup> /h]	2500

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	VII	
Contribution	%	3.5

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<b>Information sheet</b>			
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	8
Space heating seasonal efficiency, Average climate	%	140	117
Space heating annual electricity consumption, Average cl.	kWh	4838	5592

Nominal heating capacity Pdesign, Colder climate	kW	8	8
Space heating seasonal efficiency, Colder climate	%	122	101
Space heating annual electricity consumption, Colder cl.	kWh	6594	7570

Nominal heating capacity Pdesign, Warmer climate	kW	6	6
Space heating seasonal efficiency, Warmer climate	%	188	140
Space heating annual electricity consumption, Warmer cl.	kWh	1697	2274

Sound power level Lwa Outdoor	dBA	65
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<b>Information sheet for energy efficiency Set with Temperature controller</b>			
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
Set Space heating seasonal efficiency, Average climate	%	142	119
Set Space heating energy efficiency class, Average climate	-	A+	A+
Set Space heating seasonal efficiency, Colder climate	%	124	103
Set Space heating seasonal efficiency, Warmer climate	%	190	142

<b>Information sheet for energy efficiency Set with Temperature controller + Room Terminal</b>			
Temperature application		Low, 35°C	High, 55°C
Controller Carel pCO5/pCO5+/uPC + pAD, Class	-	VII	VII
Controller Carel pCO5/pCO5+/uPC, +pAD, Contribution	%	3.5	3.5
Set Space heating seasonal efficiency, Average climate	%	143	121
Set Space heating energy efficiency class, Average climate	-	A+	A+
Set Space heating seasonal efficiency, Colder climate	%	125	105
Set Space heating seasonal efficiency, Warmer climate	%	192	143