

Technical parameters for heat pump space heaters and heat pump combination heaters							
Manufacturer & Model:		Quantum QG-7		Type of Heat pump:		Ground source heat pump	
Air-to-water heat pump:		☐ Yes	☒ No				
Water-to-Water heat pump:		☒ Yes	☐ No				
Brine-to-water heat pump:		☒ Yes	☐ No				
Low-temperature heat pump:		☐ Yes	☒ No				
Equipped with a supplementary heater:		☒ Yes	☐ No				
Heat pump combination heater:		☒ Yes	☐ No				
Climate Condition:		Average	Temperature appl.:	Medium temp. 55°C	According to standards, EN 14825 & EN 16147		
Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.							
Parameters shall be declared for average, colder and warmer climate conditions.							
Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heat output (*)	P_{rated}	6	kW	Seasonal space heating energy efficiency	η_s	151	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T_j				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T_j			
$T_j = -7\text{ °C}$	P_{dh}	5,55	kW	$T_j = -7\text{ °C}$	COP_d or PER_d	3,25	kW
$T_j = +2\text{ °C}$	P_{dh}	3,32	kW	$T_j = +2\text{ °C}$	COP_d or PER_d	3,96	kW
$T_j = +7\text{ °C}$	P_{dh}	2,16	kW	$T_j = +7\text{ °C}$	COP_d or PER_d	4,23	kW
$T_j = +12\text{ °C}$	P_{dh}	1,12	kW	$T_j = +12\text{ °C}$	COP_d or PER_d	5,04	kW
T_j = bivalent temperature	P_{dh}	6,1	kW	T_j = bivalent temperature	COP_d or PER_d	2,9	kW
T_j = operation limit temperature	P_{dh}	6,1	kW	T_j = operation limit temperature	COP_d or PER_d	2,9	kW
For air-to-water heat pumps: $T_j = -15\text{ °C}$ (if $TOL < -20\text{ °C}$)	P_{dh}	N/A	kW	For air-to-water heat pumps: $T_j = -15\text{ °C}$ (if $TOL < -20\text{ °C}$)	COP_d or PER_d	N/A	kW
Bivalent temperature	T_{biv}	-10	°C	For air-to-water heat pumps: Operation limit temperature	TOL	N/A	°C
Cycling interval capacity for heating	P_{cyc}	N/A	kW	Cycling interval efficiency	COP_{cyc} or PER_{cyc}	N/A	- Or %
Degradation co-efficient (**)	C_{dh}	1,0	-	Heating water operating limit temperature	WTOL	65	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	P_{OFF}	0,009	kW	Rated heat output (**)	P_{sup}	5	kW
Thermostat-off mode	P_{TO}	0,017	kW	Type of energy input	Electricity		
Standby mode	P_{SB}	0,027	kW				
Crankcase heater mode	P_{CK}	-	kW				
Other items							
Capacity control	Fixed/Variable			For air-to-water heat pumps: Rated air flow rate, outdoors	-	N/A	m³/h
Sound power level, indoors/ outdoors	L_{WA}	39/0	dB	For water- or brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	1,7	m³/h
Annual energy consumption	Q_{HE}	3252	kWh				
For heat pump combination heater:							
Declared load profile	XL			Water heating energy efficiency	η_{wh}	123	%
Daily electricity consumption	Q_{elec}	6,19	kWh	Daily fuel consumption	Q_{fuel}	N/A	kWh
Annual electricity consumption	AEC	1326	kWh	Annual fuel consumption	AFC	N/A	GJ
Contact details	Quantum Energi AB Ji-te gatan 7 265 38 Åstorp Sweden						
(*) For heat pump space heaters and heat pump combination heaters, the rated heat output P_{rated} is equal to the design load for heating $P_{designh}$, and the rated heat output of a supplementary heater P_{sup} is equal to the supplementary capacity for heating $sup(T_j)$.							
(**) If C_{dh} is not determined by measurement then the default degradation coefficient is $C_{dh} = 0,9$.							

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Water-to-Water heat pump:		☒ Yes	☐ No				
Brine-to-water heat pump:		☒ Yes	☐ No				
Low-temperature heat pump:		☐ Yes	☒ No				
Equipped with a supplementary heater:		☒ Yes	☐ No				
Heat pump combination heater:		☒ Yes	☐ No				
Climate Condition:		Average	Temperature appl.:	Cold temp. 35°C	According to standards, EN 14825 & EN 16147		
Parameters shall be declared for medium-temperature application, except for low-temperature heat pumps. For low-temperature heat pumps, parameters shall be declared for low-temperature application.							
Parameters shall be declared for average, colder and warmer climate conditions.							
Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heat output (*)	P_{rated}	6	kW	Seasonal space heating energy efficiency	η_s	190	%
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature T_j				Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature T_j			
$T_j = -7\text{ °C}$	P_{dh}	5,24	kW	$T_j = -7\text{ °C}$	COP_d or PER_d	4,04	kW
$T_j = +2\text{ °C}$	P_{dh}	3,32	kW	$T_j = +2\text{ °C}$	COP_d or PER_d	5,07	kW
$T_j = +7\text{ °C}$	P_{dh}	2,1	kW	$T_j = +7\text{ °C}$	COP_d or PER_d	5,18	kW
$T_j = +12\text{ °C}$	P_{dh}	1,09	kW	$T_j = +12\text{ °C}$	COP_d or PER_d	5,75	kW
$T_j =$ bivalent temperature	P_{dh}	6,03	kW	$T_j =$ bivalent temperature	COP_d or PER_d	3,89	kW
$T_j =$ operation limit temperature	P_{dh}	6,03	kW	$T_j =$ operation limit temperature	COP_d or PER_d	3,89	kW
For air-to-water heat pumps: $T_j = -15\text{ °C}$ (if $TOL < -20\text{ °C}$)	P_{dh}	N/A	kW	For air-to-water heat pumps: $T_j = -15\text{ °C}$ (if $TOL < -20\text{ °C}$)	COP_d or PER_d	N/A	kW
Bivalent temperature	T_{biv}	-10	°C	For air-to-water heat pumps: Operation limit temperature	TOL	N/A	°C
Cycling interval capacity for heating	P_{cyc}	N/A	kW	Cycling interval efficiency	COP_{cyc} or PER_{cyc}	N/A	- Or %
Degradation co-efficient (**)	C_{dh}	1,0	-	Heating water operating limit temperature	WTOL	65	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	P_{OFF}	0,009	kW	Rated heat output (**)	P_{sup}	5	kW
Thermostat-off mode	P_{TO}	0,017	kW	Type of energy input	Electricity		
Standby mode	P_{SB}	0,027	kW				
Crankcase heater mode	P_{CK}	-	kW				
Other items							
Capacity control	Fixed/Variable			For air-to-water heat pumps: Rated air flow rate, outdoors	-	N/A	m³/h
Sound power level, indoors/ outdoors	L_{WA}	39/0	dB	For water- or brine-to-water heat pumps: Rated brine or water flow rate, outdoor heat exchanger	-	1,5	m³/h
Annual energy consumption	Q_{HE}	2505	kWh				
For heat pump combination heater:							
Declared load profile	XL			Water heating energy efficiency	η_{wh}	123	%
Daily electricity consumption	Q_{elec}	6,19	kWh	Daily fuel consumption	Q_{fuel}	N/A	kWh
Annual electricity consumption	AEC	1326	kWh	Annual fuel consumption	AFC	N/A	GJ
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(*) For heat pump space heaters and heat pump combination heaters, the rated heat output P_{rated} is equal to the design load for heating $P_{designh}$, and the rated heat output of a supplementary heater P_{sup} is equal to the supplementary capacity for heating $sup(T_j)$.							
(**) If C_{dh} is not determined by measurement then the default degradation coefficient is $C_{dh} = 0,9$.							