Technical parameters for heat pump space heaters and heat pump combination heaters

As by **ANNEX II, point 5 - REQUIREMENTS FOR PRODUCT INFORMATION, Table 2 - COMMISSION REGULATION (EU) No 813/2013 of 2 August 2013** implementing **Directive 2009/125/EC of the European Parliament and of the Council** with regard to ecodesign requirements for space heaters and combination heaters and by ANNEX V - **Table 8 of COMMISSION REGULATION (EU) No 811/2013 of 18 February 2013** supplementing **Directive 2010/30/EU of the European Parliament and of the Council** with regard to the energy labelling of space heaters, combination heaters, packages of space heater, temperature control and solar device and packages of combination heater, temperature control and solar device.

Model	**AG4HP163PH**
Type of heat pump	☒ Air-to-water heat pump ☐ Water-to-water heat pump ☐ Brine-to-water heat pump
Low-temperature heat pump	☐ Yes ☒ No
Equipped with a supplementary heater	☐ Yes ☒ No
Heat pump combination heater	☒ Yes ☐ No
Climate	☒ Average ☐ Colder ☐ Warmer
Temperature application	☐ Medium (55°C) ☒ Low (35°C)
Applied starndards	EN14825 / EN16147

Item	**Symbol**	**Value**	**Unit**
Rated heat output	**Prated**	**13**	**kW**
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = - 7°C	Pdh	11.6	kW
Degradation coefficient	Cdh	0.99	-
Tj = + 2°C	Pdh	6.7	kW
Degradation coefficient	Cdh	0.98	-
Tj = + 7°C	Pdh	4.5	kW
Degradation coefficient	Cdh	0.97	-
Tj = + 12°C	Pdh	3.4	kW
Degradation coefficient	Cdh	0.95	-
Tj = bivalent temperature	Pdh	11.6	kW
Tj = operation limit temperature	Pdh	11.1	kW
T j = – 15 °C (if TOL < – 20 °C)	Pdh	-	kW
Bivalent temperature	Tbiv	-7	°C
Cycling interval capacity for heating	Pcych	-	kW
		-	

Item	**Symbol**	**Value**	**Unit**
Seasonal space heating energy efficiency	**η_s**	**179**	**%**
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = - 7°C	COPd	2.89	-
Tj = + 2°C	COPd	4.50	-
Tj = + 7°C	COPd	5.82	-
Tj = + 12°C	COPd	7.53	-
Tj = bivalent temperature	COPd	2.89	-
Tj = operation limit temperature	COPd	2.29	-
T j = – 15 °C (if TOL < – 20 °C)	COPd	-	kW
Operation limit temperature	TOL	-10	°C
Cycling interval efficiency	COPcyc	-	-
Heating water operating limit temperature	WTOL	65	°C

Power consumption in modes other than active mode			
Off mode	P_{OFF}	0.025	kW
Thermostat-off mode	P_{SB}	0.025	kW
Standby mode	P_{TO}	0.025	kW
Crankcase heater mode	P_{CK}	0.025	kW

Supplementary heater			
Rated heat output	Psup	1.9	kW
Type of energy input	Electric		

Other items			
Capacity control	variable		
Sound power level, indoor / outdoor	L_{WA}	-/68	dB
Annual energy consumption	Q_{HE}	5927	kWh

Rated air flow rate, outdoor	-	5015	m^3/h
Rated brine or water flow rate, outdoor heat exchanger	-	-	m^3/h

For heat pump combination heater			
Declared load profile	**XL**		
Daily electricity consumption	Qelec	7.243	kWh
Annual electricity consumption	AEC	1518	kWh

Water heating energy efficiency	**η_{wh}**	110	**%**
Daily fuel consumption	Qfuel	-	kWh
Annual fuel consumption	AFC	-	GJ

Contact details	**ARGOCLIMA S.p.A.Via Alfeno Varo, 35, 25020, Alfianello (BS), Italy**

Technical parameters for heat pump space heaters and heat pump combination heaters

As by **ANNEX II, point 5 - REQUIREMENTS FOR PRODUCT INFORMATION, Table 2 - COMMISSION REGULATION (EU) No 813/2013 of 2 August 2013** implementing **Directive 2009/125/EC of the European Parliament and of the Council** with regard to ecodesign requirements for space heaters and combination heaters and by ANNEX V - **Table 8 of COMMISSION REGULATION (EU) No 811/2013 of 18 February 2013** supplementing **Directive 2010/30/EU of the European Parliament and of the Council** with regard to the energy labelling of space heaters, combination heaters, packages of space heater, temperature control and solar device and packages of combination heater, temperature control and solar device.

Model	**AG4HP163PH**
Type of heat pump	☒ Air-to-water heat pump ☐ Water-to-water heat pump ☐ Brine-to-water heat pump
Low-temperature heat pump	☐ Yes ☒ No
Equipped with a supplementary heater	☐ Yes ☒ No
Heat pump combination heater	☒ Yes ☐ No
Climate	☐ Average ☒ Colder ☐ Warmer
Temperature application	☐ Medium (55°C) ☒ Low (35°C)
Applied starndards	EN14825 / EN16147

Item	**Symbol**	**Value**	**Unit**
Rated heat output	**Prated**	**12**	**kW**
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = - 7°C	Pdh	7.0	kW
Degradation coefficient	Cdh	0.99	-
Tj = + 2°C	Pdh	4.2	kW
Degradation coefficient	Cdh	0.97	-
Tj = + 7°C	Pdh	3.0	kW
Degradation coefficient	Cdh	0.95	-
Tj = + 12°C	Pdh	3.2	kW
Degradation coefficient	Cdh	0.95	-
Tj = bivalent temperature	Pdh	9.7	kW
Tj = operation limit temperature	Pdh	7.6	kW
T j = – 15 °C (if TOL < – 20 °C)	Pdh	9.7	kW
Bivalent temperature	Tbiv	-15	°C
Cycling interval capacity for heating	Pcych	-	kW

Item	**Symbol**	**Value**	**Unit**
Seasonal space heating energy efficiency	**η_s**	**158**	**%**
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = - 7°C	COPd	3.40	-
Tj = + 2°C	COPd	5.04	-
Tj = + 7°C	COPd	6.06	-
Tj = + 12°C	COPd	6.17	-
Tj = bivalent temperature	COPd	2.38	-
Tj = operation limit temperature	COPd	1.79	-
T j = – 15 °C (if TOL < – 20 °C)	COPd	2.38	kW
Operation limit temperature	TOL	-22	°C
Cycling interval efficiency	COPcyc	-	-
Heating water operating limit temperature	WTOL	65	°C

Power consumption in modes other than active mode			
Off mode	P_{OFF}	0.025	kW
Thermostat-off mode	P_{SB}	0.025	kW
Standby mode	P_{TO}	0.025	kW
Crankcase heater mode	P_{CK}	0.025	kW

Supplementary heater			
Rated heat output	Psup	4.4	kW
Type of energy input	Electric		

Other items			
Capacity control	variable		
Sound power level, indoor / outdoor	L_{WA}	-/68	dB
Annual energy consumption	Q_{HE}	7293	kWh

Rated air flow rate, outdoor	-	5015	m^3/h
Rated brine or water flow rate, outdoor heat exchanger	-	-	m^3/h

For heat pump combination heater			
Declared load profile	**XL**		
Daily electricity consumption	Qelec	9.164	kWh
Annual electricity consumption	AEC	1924	kWh

Water heating energy efficiency	**η_{wh}**	87	%
Daily fuel consumption	Qfuel	-	kWh
Annual fuel consumption	AFC	-	GJ

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Model	**AG4HP163PH**
Type of heat pump	☒ Air-to-water heat pump ☐ Water-to-water heat pump ☐ Brine-to-water heat pump
Low-temperature heat pump	☐ Yes ☒ No
Equipped with a supplementary heater	☐ Yes ☒ No
Heat pump combination heater	☒ Yes ☐ No
Climate	☐ Average ☐ Colder ☒ Warmer
Temperature application	☐ Medium (55°C) ☒ Low (35°C)
Applied starndards	EN14825 / EN16147

Item	**Symbol**	**Value**	**Unit**
Rated heat output	**Prated**	**14**	**kW**
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = - 7°C	Pdh	-	kW
Degradation coefficient	Cdh	-	-
Tj = + 2°C	Pdh	13.7	kW
Degradation coefficient	Cdh	0.99	-
Tj = + 7°C	Pdh	8.5	kW
Degradation coefficient	Cdh	0.98	-
Tj = + 12°C	Pdh	3.7	kW
Degradation coefficient	Cdh	0.95	-
Tj = bivalent temperature	Pdh	13.7	kW
Tj = operation limit temperature	Pdh	13.7	kW
T j = – 15 °C (if TOL < – 20 °C)	Pdh	-	kW
Bivalent temperature	Tbiv	2	°C
Cycling interval capacity for heating	Pcych	-	kW

Item	**Symbol**	**Value**	**Unit**
Seasonal space heating energy efficiency	**η_s**	**241**	**%**
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = - 7°C	COPd	-	-
Tj = + 2°C	COPd	2.90	-
Tj = + 7°C	COPd	5.36	-
Tj = + 12°C	COPd	7.86	-
Tj = bivalent temperature	COPd	2.90	-
Tj = operation limit temperature	COPd	2.90	-
T j = – 15 °C (if TOL < – 20 °C)	COPd	-	kW
Operation limit temperature	TOL	2	°C
Cycling interval efficiency	COPcyc	-	-
Heating water operating limit temperature	WTOL	65	°C

Power consumption in modes other than active mode			
Off mode	P_{OFF}	0.025	kW
Thermostat-off mode	P_{SB}	0.025	kW
Standby mode	P_{TO}	0.025	kW
Crankcase heater mode	P_{CK}	0.025	kW

Supplementary heater			
Rated heat output	Psup	0.3	kW
Type of energy input	Electric		

Other items			
Capacity control	variable		
Sound power level, indoor / outdoor	L_{WA}	-/68	dB
Annual energy consumption	Q_{HE}	2995	kWh

Rated air flow rate, outdoor	-	5015	m^3/h
Rated brine or water flow rate, outdoor heat exchanger	-	-	m^3/h

For heat pump combination heater			
Declared load profile	**XL**		
Daily electricity consumption	Qelec	7.036	kWh
Annual electricity consumption	AEC	1475	kWh

Water heating energy efficiency	**η_{wh}**	113	**%**
Daily fuel consumption	Qfuel	-	kWh
Annual fuel consumption	AFC	-	GJ

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Model	**AG4HP163PH**
Type of heat pump	☒ Air-to-water heat pump ☐ Water-to-water heat pump ☐ Brine-to-water heat pump
Low-temperature heat pump	☐ Yes ☒ No
Equipped with a supplementary heater	☐ Yes ☒ No
Heat pump combination heater	☒ Yes ☐ No
Climate	☒ Average ☐ Colder ☐ Warmer
Temperature application	☒ Medium (55°C) ☐ Low (35°C)
Applied starndards	EN14825 / EN16147

Item	**Symbol**	**Value**	**Unit**
Rated heat output	**Prated**	**14**	**kW**
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = - 7°C	Pdh	12.1	kW
Degradation coefficient	Cdh	1.00	-
Tj = + 2°C	Pdh	6.9	kW
Degradation coefficient	Cdh	0.99	-
Tj = + 7°C	Pdh	4.4	kW
Degradation coefficient	Cdh	0.98	-
Tj = + 12°C	Pdh	3.0	kW
Degradation coefficient	Cdh	0.96	-
Tj = bivalent temperature	Pdh	12.1	kW
Tj = operation limit temperature	Pdh	11.5	kW
T j = – 15 °C (if TOL < – 20 °C)	Pdh	-	kW
Bivalent temperature	Tbiv	-7	°C
Cycling interval capacity for heating	Pcych	-	kW

Item	**Symbol**	**Value**	**Unit**
Seasonal space heating energy efficiency	**η_s**	**138**	**%**
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = - 7°C	COPd	2.17	-
Tj = + 2°C	COPd	3.66	-
Tj = + 7°C	COPd	4.30	-
Tj = + 12°C	COPd	4.93	-
Tj = bivalent temperature	COPd	2.17	-
Tj = operation limit temperature	COPd	2.02	-
T j = – 15 °C (if TOL < – 20 °C)	COPd	-	kW
Operation limit temperature	TOL	-10	°C
Cycling interval efficiency	COPcyc	-	-
Heating water operating limit temperature	WTOL	65	°C

Power consumption in modes other than active mode			
Off mode	P_{OFF}	0.025	kW
Thermostat-off mode	P_{SB}	0.025	kW
Standby mode	P_{TO}	0.025	kW
Crankcase heater mode	P_{CK}	0.025	kW

Supplementary heater			
Rated heat output	Psup	2.5	kW
Type of energy input	Electric		

Other items			
Capacity control	variable		
Sound power level, indoor / outdoor	L_{WA}	-/68	dB
Annual energy consumption	Q_{HE}	8014	kWh

Rated air flow rate, outdoor	-	5015	m^3/h
Rated brine or water flow rate, outdoor heat exchanger	-	-	m^3/h

For heat pump combination heater			
Declared load profile	**XL**		
Daily electricity consumption	Qelec	7.243	kWh
Annual electricity consumption	AEC	1518	kWh

Water heating energy efficiency	**η_{wh}**	110	**%**
Daily fuel consumption	Qfuel	-	kWh
Annual fuel consumption	AFC	-	GJ

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Model	**AG4HP163PH**
Type of heat pump	☒ Air-to-water heat pump ☐ Water-to-water heat pump ☐ Brine-to-water heat pump
Low-temperature heat pump	☐ Yes ☒ No
Equipped with a supplementary heater	☐ Yes ☒ No
Heat pump combination heater	☒ Yes ☐ No
Climate	☐ Average ☒ Colder ☐ Warmer
Temperature application	☒ Medium (55°C) ☐ Low (35°C)
Applied starndards	EN14825 / EN16147

Item	**Symbol**	**Value**	**Unit**
Rated heat output	**Prated**	**13**	**kW**
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = - 7°C	Pdh	7.8	kW
Degradation coefficient	Cdh	0.99	-
Tj = + 2°C	Pdh	4.4	kW
Degradation coefficient	Cdh	0.98	-
Tj = + 7°C	Pdh	2.9	kW
Degradation coefficient	Cdh	0.96	-
Tj = + 12°C	Pdh	3.3	kW
Degradation coefficient	Cdh	0.96	-
Tj = bivalent temperature	Pdh	10.4	kW
Tj = operation limit temperature	Pdh	6.7	kW
T j = – 15 °C (if TOL < – 20 °C)	Pdh	10.4	kW
Bivalent temperature	Tbiv	-15	°C
Cycling interval capacity for heating	Pcych	-	kW

Item	**Symbol**	**Value**	**Unit**
Seasonal space heating energy efficiency	**η_s**	**118**	**%**
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = - 7°C	COPd	2.55	-
Tj = + 2°C	COPd	3.71	-
Tj = + 7°C	COPd	4.61	-
Tj = + 12°C	COPd	5.02	-
Tj = bivalent temperature	COPd	1.82	-
Tj = operation limit temperature	COPd	1.06	-
T j = – 15 °C (if TOL < – 20 °C)	COPd	1.82	kW
Operation limit temperature	TOL	-22	°C
Cycling interval efficiency	COPcyc	-	-
Heating water operating limit temperature	WTOL	65	°C

Power consumption in modes other than active mode			
Off mode	P_{OFF}	0.025	kW
Thermostat-off mode	P_{SB}	0.025	kW
Standby mode	P_{TO}	0.025	kW
Crankcase heater mode	P_{CK}	0.025	kW

Supplementary heater			
Rated heat output	Psup	6.3	kW
Type of energy input	Electric		

Other items			
Capacity control	variable		
Sound power level, indoor / outdoor	L_{WA}	-/68	dB
Annual energy consumption	Q_{HE}	10373	kWh

Rated air flow rate, outdoor	-	5015	m^3/h
Rated brine or water flow rate, outdoor heat exchanger	-	-	m^3/h

For heat pump combination heater			
Declared load profile	**XL**		
Daily electricity consumption	Qelec	9.164	kWh
Annual electricity consumption	AEC	1924	kWh

Water heating energy efficiency	**η_{wh}**	87	%
Daily fuel consumption	Qfuel	-	kWh
Annual fuel consumption	AFC	-	GJ

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Model	**AG4HP163PH**
Type of heat pump	☒ Air-to-water heat pump ☐ Water-to-water heat pump ☐ Brine-to-water heat pump
Low-temperature heat pump	☐ Yes ☒ No
Equipped with a supplementary heater	☐ Yes ☒ No
Heat pump combination heater	☒ Yes ☐ No
Climate	☐ Average ☐ Colder ☒ Warmer
Temperature application	☒ Medium (55°C) ☐ Low (35°C)
Applied starndards	EN14825 / EN16147

Item	**Symbol**	**Value**	**Unit**
Rated heat output	**Prated**	**15**	**kW**
Declared capacity for heating for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = - 7°C	Pdh	-	kW
Degradation coefficient	Cdh	-	-
Tj = + 2°C	Pdh	14.6	kW
Degradation coefficient	Cdh	1.00	-
Tj = + 7°C	Pdh	8.8	kW
Degradation coefficient	Cdh	0.99	-
Tj = + 12°C	Pdh	3.9	kW
Degradation coefficient	Cdh	0.97	-
Tj = bivalent temperature	Pdh	14.6	kW
Tj = operation limit temperature	Pdh	14.6	kW
T j = – 15 °C (if TOL < – 20 °C)	Pdh	-	kW
Bivalent temperature	Tbiv	2	°C
Cycling interval capacity for heating	Pcych	-	kW

Item	**Symbol**	**Value**	**Unit**
Seasonal space heating energy efficiency	**η_s**	**159**	**%**
Declared coefficient of performance or primary energy ratio for part load at indoor temperature 20 °C and outdoor temperature Tj			
Tj = - 7°C	COPd	-	-
Tj = + 2°C	COPd	2.31	-
Tj = + 7°C	COPd	3.29	-
Tj = + 12°C	COPd	5.47	-
Tj = bivalent temperature	COPd	2.31	-
Tj = operation limit temperature	COPd	2.31	-
T j = – 15 °C (if TOL < – 20 °C)	COPd	-	kW
Operation limit temperature	TOL	2	°C
Cycling interval efficiency	COPcyc	-	-
Heating water operating limit temperature	WTOL	65	°C

Power consumption in modes other than active mode			
Off mode	P_{OFF}	0.025	kW
Thermostat-off mode	P_{SB}	0.025	kW
Standby mode	P_{TO}	0.025	kW
Crankcase heater mode	P_{CK}	0.025	kW

Supplementary heater			
Rated heat output	Psup	0	kW
Type of energy input	Electric		

Other items			
Capacity control	variable		
Sound power level, indoor / outdoor	L_{WA}	-/68	dB
Annual energy consumption	Q_{HE}	4801	kWh

Rated air flow rate, outdoor	-	5015	m^3/h
Rated brine or water flow rate, outdoor heat exchanger	-	-	m^3/h

For heat pump combination heater			
Declared load profile	**XL**		
Daily electricity consumption	Qelec	7.036	kWh
Annual electricity consumption	AEC	1475	kWh

Water heating energy efficiency	**η_{wh}**	113	**%**
Daily fuel consumption	Qfuel	-	kWh
Annual fuel consumption	AFC	-	GJ

Contact details	**ARGOCLIMA S.p.A.Via Alfeno Varo, 35, 25020, Alfianello (BS), Italy**