

7<sup>th</sup> December 2018

**Updated Hot Water Efficiency results for Samsung Gen 5 A2W Heat Pump & Joule 200 litre High Gain Combination**

As part of Joule’s continuous dedication to improve products, we are proud to introduce our updated hot water efficiency figures in conjunction with Samsung Electronics.

The updated figures are a result of three months research & development with the combinations of both the Samsung 5 and 9 kW air source heat pumps with our Joule Cyclone 200 litre High Gain cylinder.

In line with the Eco Design Directive 813/2013, all updated results are available in the knowledge centre section of our website; <https://www.joule.ie/knowledge-centre/>

These updated results display the updated efficiency, reference hot water temperature and the load profile applicable. The combination labels have also been updated.

*The updated results come into effect in line with this technical bulletin.*

Examples of both the labels and results:

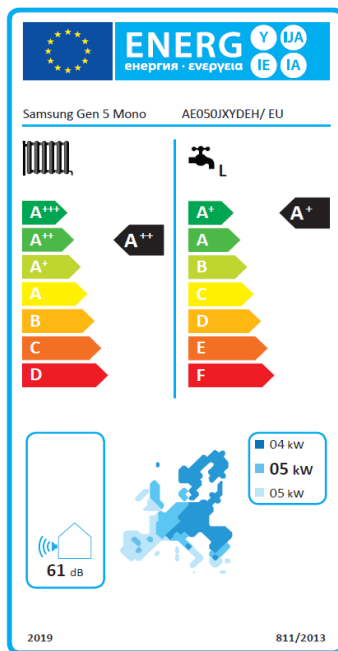


Figure 1: 5kW combination label

Information requirements for heat pump space heaters and heat pump combination heaters-813/2013

Model: Samsung AE050JXYDEH & Joule 200L H.G Cyclone

All-to-water heat pump: Yes  
 Water-to-water heat pump: No  
 Brine-to-water heat pump: No  
 Low-temperature heat pump: Yes  
 Equipped with a supplementary heater: Yes  
 Heat Pump combination heater: Yes

Parameters are declared for: average climate conditions  
 Parameters are declared for: low-temperature application

Item	Symbol	Value	Unit	Item	Symbol	Value	Unit
Rated heat output	$P_{rated}$	5	kW	Seasonal space heating energy efficiency	$\eta_s$	180	%
Declared capacity for heating for part load at indoor temperature 20°C and outdoor temperature $T_o$				Declared coefficient of performance for part load at indoor temperature 20°C and outdoor temperature $T_o$			
$T_o = -7^\circ\text{C}$	$P_{th}$	4.40	kW	$T_o = -7^\circ\text{C}$	COP <sub>pl</sub>	2.90	-
$T_o = +2^\circ\text{C}$	$P_{th}$	2.70	kW	$T_o = +2^\circ\text{C}$	COP <sub>pl</sub>	4.41	-
$T_o = +7^\circ\text{C}$	$P_{th}$	2.20	kW	$T_o = +7^\circ\text{C}$	COP <sub>pl</sub>	6.24	-
$T_o = +12^\circ\text{C}$	$P_{th}$	2.20	kW	$T_o = +12^\circ\text{C}$	COP <sub>pl</sub>	6.85	-
$T_o$ = operation limit temperature	$P_{th}$	5.00	kW	$T_o$ = operation limit temperature	COP <sub>pl</sub>	2.68	-
Bivalent temperature	$T_{biv}$	-10.00	°C	Operation limit temperature	TOL	-10	°C
Degradation co-efficient	$C_{dh}$	0.9	-	Heating water operating limit temperature	WTOL	55	°C
Power consumption in modes other than active mode				Supplementary heater			
Off mode	$P_{off}$	0.08	kW	Rated heat output	$P_{sup}$	5	kW
Thermostat-off mode	$P_{ts}$	0.011	kW	Type of energy input		Electricity	
Standby mode	$P_{stb}$	0.011	kW	Capacity control		Variable	
Circulate heater mode	$P_{ch}$	0	kW	Outdoor sound power level	$L_{out}$	61	dB
Other items				For heat pump combination heater:			
Declared load profile	L			Water heating energy efficiency	$\eta_{wh}$	128	%
Standby cylinder heat loss		2.064	kWh	Reference hot water temperature		50.85	°C
				DHW volume accounted for in test		200	L
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Figure 2: 5kW W35 A7 test results