

Airconditioner – Generator appropriate size and type selection

These appliances are designed to run from AC mains, but customers will also want to use generators. There is often confusion in the RV industry not only from consumers, but sometimes from dealer staff when it comes to understanding what generator is needed to run the RV airconditioner.

i.e. Just because an airconditioner is rated as a "3000-Watt unit", that does not mean that you need a 3Kva generator to run the airconditioner. The 3000 watts is related to the heating or cooling **output** of the airconditioner. You only need the power that the airconditioner <u>consumes</u> in creating the cooling or heating **output**, and this is always less than the output capacity of the airconditioner, and we call that the required <u>input wattage</u> for our purposes.

Generators Broad explanation:

kVA = Kilo-Volt-Amperes

kW = Kilowatts

In a 100% efficient system kW would equal kVA.

Most generators will have a power factor of 0.8kW. (In effect this means 80% efficiency) That means that a 2kVA generator may only be putting out 1600 watts (1.6kW) of actual or usable power.

In that above scenario - if the required **maximum** power **usage** (input wattage required) of an airconditioner is 1600 watts or less, then that 2kVA generator will run the airconditioner, **if only the airconditioner is running from that generator**.

If multiple electric appliances are running from the same circuit, the power consumption of these also needs to become part of the equation.

Output from the generator also needs to be stable, and with generators running electronic goods, it is important that the generator AC output is pure sine wave. Modern RV airconditioners are inverter equipped, which in broad terms means that the compressor speeds up and slows down rather than the older style airconditioner with which the compressor stopped and started.

Dometic recommend only using modern pure sine wave equipped generators of suitable capacity to run our inverter airconditioners. If an older technology generator is used, when the airconditioner compressor slows down, the generator also may reduce output and cause the air-conditioner to go into an alarm condition if it senses undervoltage.

Power required: 📃	(For the airconditioner alone – add other appliances = more watts required)				
Dometic Models	Input watts Cool	Input watts heat	Output cool	Output heat	Suggest' Generator size
Freshjet 4 Essential	1012	1005	2200	1000*	1.5kVA
Freshjet 7 lite	1529	1034	2537	2285	At least 2kVA
Freshjet 7 Pro	1623	1319	2910	2692	At least 2kVA
Freshjet 7 Plus	1748	1445	3400	2903	At least 2.4kVA
Harrier Plus	1535	1300	3000	3010	At least 2kVA
Ibis 4	1526	1438	2625	3017	At least 2kVA
Harrier Lite	1648	1150	2413	2421	At least 2kVA

*FJ4 is not reverse cycle – only has a strip heater to remove chill from air.

Author: Danny Newman June 2024