Electricity consumption of minibars

Accounts for up to 10% of a hotel's total electricity costs, according to a new Danish study, offering a guide for buyers.

■ By Stine Rasmussen, HORESTA and Per Henrik Pedersen, Danish Technological Institute

HORESTA (organisation for hotels and restaurants), Danish Technological Institute and ELFOR have collaborated to produce a list of energy data for the most widely used minibars in Denmark. The list contains 6 minibars tested by Danish Technological Institute. The minibars are listed according to energy efficiency.

HORESTA and ELFOR recommend to buy the most energy-efficient minibars in energy class A or B. Besides information about the electricity consumption and energy efficiency index

Stine Rasmussen HORESTA

of the minibar, the list also contains information about noise, cooling principle and net volume. In connection with the preparation of this list, a purchasing guide was also produced, which can be useful to read before investing in a new minibar.

The list and guide are available at www.horesta.dk

Why and how?

Minibars are expensive to run in terms of electricity, as they are switched on 24 hours a day, all year round, and usually in all rooms. The electricity consumption of minibars accounts for up to 10% of a hotel's total electricity costs. By considering that aspect before purchasing a minibar, it is possible to reduce running costs significantly without compromising the cooling performance of the minibar.

Minibars are tested according to the EN153 test standard at Danish Technological Institute in Taastrup. Such tests are accredited. The test is conducted in accordance with the specifications for testing refrigerators and the energy test is conducted at an ambient temperature of +25°C and a temperature of +5°C in the refrigerator, as specified in the standard.

Similarly, there is a definition of the net volume of the refrigerators - also according to the standard. The noise level and cooling capacity are also measured.

The relative energy efficiency index is then calculated on the basis of the EU directive on energy labelling of domestic electric refrigerators and freezers, and the energy label is defined on the basis of the same directive. The procedure is completely identical to corresponding procedures for domestic refrigerators and freezers.

The buyers' tools

At present, there is no compulsory energy labelling for minibars and therefore this list has been prepared as a guide for buyers. The list gives the minibar buyer a tool to help focus on electricity consumption and to make it easier to choose the most energy-efficient appliances. In the past, it was difficult for buyers to make an energy-efficient choice, as there were no corresponding summaries of energy-efficient appliances.

Why take an interest?

Minibars are expensive to run in terms of electricity. By considering that aspect before purchasing a minibar it is possible to reduce running costs significantly without compromising the cooling performance of the minibar.

The figure shows three examples of the cost allocation over a number of years for an energy-efficient minibar, an average minibar and a high-energy minibar.

The figure shows that the most energy-efficient and most expensive minibar has paid for itself after three years. As minibars have a useful service life of eight to ten years, it makes economic sense to take an interest in the energy consumption of a minibar.

Good advice when purchasing

The minibar's capacity to cool (= cooling time) does not depend on energy consumption. Danish Technological Institute has tested a number of minibars and, as it appears from the list of minibars tested, there is no relationship between energy consumption and cooling time. Test results have shown that the minibar with the lowest energy consumption actually also had the best cooling time.

The cooling time depends on the kind of cooling system used in the minibar. Three different cooling systems are used in minibars: compressor, thermoelectric and absorption. In very general terms, the different cooling systems can be described as follows:

Compressor: low energy consumption, makes a little more noise but has good cooling performance.

Thermoelectric: high energy consumption, is quiet and has good cooling performance.

Absorption: high energy consumption, is quiet and has reduced cooling performance.

In some places guests will unintentionally use the minibar as a normal refrigerator. If you want a minibar that can also be used as a refrigerator, then the compressor system is the most suitable choice.

Definitions

Energy consumption: Low energy consumption is less than 0.5 kWh/24h and high energy consumption is more than 1.00 kWh/24h. Under the minibar's normal operating conditions, energy consumption will be evenly distributed around the clock.

Cooling performance – or cooling time, is an expression of how quickly products placed in

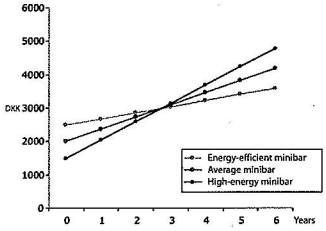
Per Henrik Pedersen Danish Technological Institute

the minibar will cool down to the desired temperature. Normally, it is not possible to find such details in information material.

Noise: Perceptions of noise are individual and therefore only guideline noise limits exist. Noise from the minibars tested lies between 27 and 39 dB.

The tested compressor minibar can be programmed to run the compressor during daytime, which means that it makes no noise during night time. Doing night time a small ice bank keeps the content cool.

If you are interested in more information, please find a purchasing guide at www.horesta.dk



Three possible examples: Electricity price: 1 DKK/1 kWh excl. VAT. High-energy minibar costing DKK 1,500 with a consumption of 1.5 kWh/day, average minibar costing DKK 2,000 with a consumption of 1 kWh/day and an energy-efficient minibar costing DKK 2,500 with a consumption of 0.50 kWh/day.

Contact us

If you are interested in finding out more about the actual test or in having a new product tested, then please contact Danish Technological Institute, Centre for Refrigeration and Heat Pump Technology, on tel. +45 7220 2000.
If you are interested in obtaining hotel-specific information, then contact HORESTA's environmental department on tel. +45 3524 8080.

Brand	Cooling principle	Energy consumption kWh/24h	Net. Vol. 1	Energy efficiency index	Energy label	Cooling performance/ cooling time	Noise dB
IndelB K50	Compressor	0.45	31	65.7	B	5h 09min	39
Dometic Hipro 4000	Absorption	0.78	33	112.2	F	5h 35min	27
Dometic RH448	Absorption	1.03	30	148.4	G	6h 06min	30
IndelB CT40	Thermoelectric	1.13	36	162.7	G	5h 35min	33
Vibocold TM40	Absorption	1.19	30	172.2	G	6h 21min	29
IndelB A50	Absorption	1.47	32	212.2	G	10h 49 min	30