



Professional Procurement of
Energy-Efficient
Refrigerators

Recommendations for Restaurants, Take-away,
Retail Stores and Hotels

- What to consider when purchasing new equipment
- Selecting the proper equipment – save energy and money
- Choosing equipment with environmentally friendly refrigerants

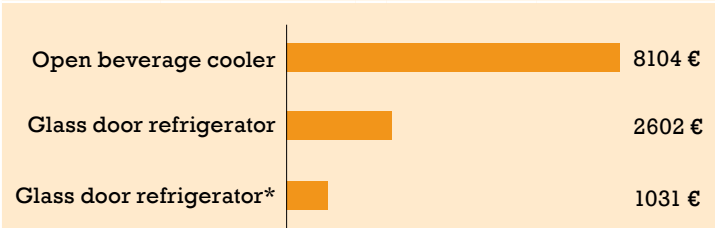
Refrigerated display cabinets

Store owners that have a refrigerated display cabinet in use, often notice it in their electric bill: A few hundred to over a thousand Euros per year is quite common. The reason is simple: The refrigerated goods should be visible and accessible therefore the machine is transparent and open. Open cabinets is transparent and open. Open cabinets are not energy efficient. To maintain the required temperatures it is necessary to use high amounts of energy. And consumers are becoming more and more aware of this. A survey of 1,000 people in Germany was conducted and results showed that over 80% of consumers would find it beneficial if the

currently open refrigerated display cases for food, in the future, would be fitted with transparent doors. As the following examples show, making this change would significantly decrease electricity costs.

Beverage and Snack Coolers

Electricity costs over an 8 year service life (15 € cents/kWh)



Equipment	Open beverage cooler	Glass door refrigerator	Glass door refrigerator*
Efficiency	Very Bad	Bad	Very Good
Refrigerants	R404A (harmful to the climate)	R134a (harmful to the climate)	R600a (climate neutral)
Net Capacity	324 Liter	350 Liter	346 Liter
Energy Consumption	6753 kWh/year	2168 kWh/year	859 kWh/year
Electricity Costs	8104 €	2602 €	1031 €

* Model listed by www.topten.eu



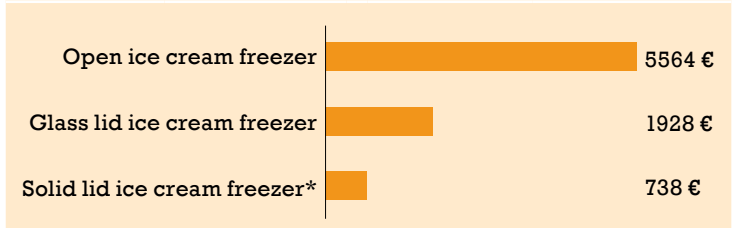
Open beverage cooler



Glass door refrigerator

Ice Cream Freezers

Electricity costs over an 8 year service life (15 € cents/kWh)



Equipment	Open ice cream freezer	Glass lid ice cream freezer	Solid lid ice cream freezer*
Efficiency	Very Bad	Bad	Very Good
Refrigerants	R404A (harmful to the climate)	R290 (climate neutral)	R290 (climate neutral)
Net Capacity	151 Liter	183 Liter	224 Liter
Energy Consumption	4636 kWh/year	1606 kWh/year	615 kWh/year
Electricity Costs	5564 €	1928 €	738 €

* Model listed by www.topten.eu





Open ice cream freezer





Solid lid ice cream freezer

Refrigerated storage or service cabinets

With an efficient storage refrigerator you can save over 1000 Euro in electricity costs during its life cycle. And with freezers the lifetime savings can be over 2000 Euro. Purchasing equipment from the best product line is worth it (the equipment is more expensive because it's of a higher quality but cheaper to operate because it is more efficient). This should be taken into consideration when buying new equipment. The buyer not only benefits from significantly lower electricity costs but also knowing they purchased high quality equipment that will last.

Storage Refrigerators		
Electricity costs over an 8 year service life (15 € cents/kWh)		
Storage Refrigerator		1618 €
Topten Model		527 €
Equipment	Storage Refrigerator	Topten Model
Efficiency	Bad	Good
Refrigerants	R134A (harmful to the climate)	R290 (climate neutral)
Net Capacity	450 Liter	449 Liter
Energy Consumption	1348 kWh/year	439 kWh/year
Electricity Costs	1618 €	527 €




Storage Freezers		
Electricity costs over an 8 year service life (15 € cents/kWh)		
Storage Freezer		4428 €
Topten Model		2022 €
Equipment	Storage Freezer	Topten Model
Efficiency	Bad	Good
Refrigerants	R404A (harmful to the climate)	R290 (climate neutral)
Net Capacity	450 Liter	449 Liter
Energy Consumption	3690 kWh/year	1685 kWh/year
Electricity Costs	4428 €	2022 €



Storage Freezer

Hotel-Minibars

Although minibars are only 30 to 40 liters in volume, the electricity costs are three times as high as a normal size household refrigerator rated in the best energy efficiency class A+++. Silent operation is a key feature of minibars. That is why absorption and peltier cooling technologies are common. Compressor devices (ordinary cooling technology for household refrigerators) are much more energy efficient. To guarantee a quiet stay for hotel guests the compressor turns off in their presence – thanks to an intelligent control, combined with cold storage (eutectic cold plates).

Hotel-Minibars			
Electricity costs over a 10 year service life (15 € cents/kWh)			
Absorption		443 €	
Peltier		329 €	
Compressor*		83 €	
Equipment	Absorption	Peltier	Compressor*
Efficiency Class	E	C	A+++
Refrigerants	Ammonia (climate neutral)	None (thermo-electric)	R600a (climate neutral)
Net Capacity	30 Liter	30 Liter	40 Liter
Energy Consumption	295 kWh/year	219 kWh/year	55 kWh/year
Electricity Costs	443 €	329 €	83 €

* Model listed by www.topten.eu



Compressor Minibar

What to consider when choosing equipment

Energy Efficient Equipment

- Avoid open cabinets. They consume up to eight times as much energy as equipment with a door or lid.
 - Choose equipment with insulated (solid) doors. They are the most economical. Appliances with glass doors or lids consume about 40% more electricity than models with solid door.
 - Minibars are labelled with the EU energy label: The most efficient models are in the energy class A+++.
 - Energy efficient professional refrigerators currently available on the market can be found at www.topten.eu.
- the standard with household refrigerators and freezers. More and more commercial equipment with natural refrigerants are entering the market.
- Additional advantage: Equipment with natural refrigerants is often 15 to 20 percent more efficient than conventional refrigeration equipment.
 - All energy efficient models on www.topten.eu have natural, environmentally friendly refrigerants.

Natural Refrigerants

- Hydrofluorocarbons (HFCs) today are the conventional refrigerant for commercial refrigerators and freezers (eg: R134a, R404A, R507). They have no ozone depletion potential like the internationally banned chlorofluorocarbons (CFCs), but still contribute to the greenhouse effect (global warming potential).
- Equipment that uses «natural refrigerants» (eg: R600a, R290) are better for the environment as they do not contain chlorine or fluorine and have very low global warming potential. These refrigerants are

Need help looking for the best equipment?

www.topten.eu makes the search for energy efficient and best quality equipment very simple: The products are sorted according to application and type, with product pictures, technical information and helpful purchasing guides. The most current and efficient models are just a mouse click away! Topten is neutral and independent of manufacturers and retailers.



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Download: www.topten.eu/documentation.html

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