

Measures for reducing your energy costs

Acquisition and positioning of devices

Energy consumption preliminary depends on the kind of fridge/freeze equipment (type of furniture, model, etc.) chosen. Therefore it is worthwhile to specify the exact purpose of the device and to examine further possibilities for energy savings, like e.g. heat recovery.

With the acquisition of new fridge-, freeze equipment the following energetic order should be considered generally:

"minus furniture": upright freezer with glass doors → island- or chest freezer without glazings → combination of island and chest freezer with glazings

"plus furniture": Cooling shelves with glass doors → cooling island/chests without glazings → open cooling shelves

Besides the determination of type, size and number of the fridge-, freeze equipment, the positioning of the devices is an important aspect, because via the suitable grouping of the devices cooling zones can be formed and much energy can be saved.

During usage

Not only the procurement and positioning of devices has much influence on the actual energy costs but also the correct adjustment and use of the device. Therefore it is important to take into account the following rules:

Correct adjustment and regularly controlling of cooling temperature

Though this should be self-evident, it is often not practiced very conscientiously.

Draught in front of the cooling furniture

Draught in front of the cooling furniture causes an increased flow of warm ambient air into the cooling zone, which leads to an increased energy consumption.

Do not block air ducts!

Improper filling of the fridge/freeze device often blocks the air ducts causing an interruption of the cool air veil leading to an increased flow of warm ambient air into the cooling zone, causing an increased cooling load as well as intensified icing. Moreover the necessary product temperature may be exceeded and unsatisfactory food quality as well as higher energy costs may result.

Do not exceed maximum stacking heights!

By exceeding the maximum stacking heights in chest- and island- fridge/freeze devices the cold air veil is disturbed or even interrupted. The penetrating warm air causes an increased cooling load.

Dimension evaporators correctly!

An under-dimensioned evaporator leads to an unnecessarily high energy consumption.

Regularly clean evaporators and condensors!

Dirt on evaporators and condensors worsens the heat transfer significantly and leads to lower efficiency. The regular cleaning of both components thus reduces the energy consumption of the devices and saves costs.

Use existing covers (or retrofit if missing)!

Ambient air and infrared radiation remarkably influence the cooling load of the fridge/freeze device. Also large furniture openings ease the heat entry.

During the store opening times glass lids, stripe curtains or double cool air veils can prevent needless energy losses.

After closing time the heat entries can be minimized remarkably by night covers or shutters. Than the cooling temperature should be reduced accordingly.

Place lightings outside of the cooling zone! Use reflectors!

In the cooling zone lightings lead to an increased cooling load. Direct light also causes a "greenhouse effect" in food packages covered with transparent foils. Thus the food temperature may rise above the mandatory cooling temperature.

A positioning of the lightings outside the cooling area can avoid these effects. In addition the cooling load can substantially be reduced by the use of reflectors (i.e. a reduced number of lamps required).

Retrofit infrared-reflecting screens and/or canopies!

Via the furniture openings infrared radiation of the reefer cargo and the warm environment is exchanged. The brought in warmth must be "cooled away" by the cooling system.

The attachment of infrared screens and/or canopies can reduce this heat exchange noticeably. Beyond that the cooling devices should be set up in groups - if necessary in a separate shop zone -, in order to ensure a cooler environment. In addition drought and direct sun exposure should be avoided.

Retrofit and/or adjust dew point regulation!

To avoid condensed water and foggy glass plains many markets operate with continuous framing and glass heaters. Besides the additional energy consumption the arising heat leads to higher loads of the cooling system.

A dew point regulation can reduce the additional energy consumption substantially.

Defrosting only as required!

The humidity of the room air attains into the furniture and leads to the freezing of the evaporator which is therefore frequently defrosted with circulating air (only plus furniture) or electrically. But the warmth brought in thereby must eliminated from the cooling system again.

With modern automatic controllers the starting point and the duration of the defrosting can be adapted to the effective freezing level.