Electrolux offers the integrated solution for the best efficiency

Our specialists follow the customer throughout the entire process to determine the most efficient and integrated solution…right up to after-sales support.
Meal Distribution System

The most advanced system for the production and distribution of personalised meals. It covers the entire process from food preparation and portioning to distribution with the Meal Distribution System trolley, guaranteeing conformity to HACCP rules. A specific solution for hospitals, elderly homes and catering companies serving both.

Food quality
The quality of the food, during distribution, is guaranteed by the “Smart” temperature control, a gentle heating or cooling system which is able to preserve the food’s original taste and properties by single dish according to the food type and quantity. The last patient is served with the same care as the first one. It does not matter if the trolley doors are open or not, dish temperatures are regulated independently on each tray.

Hygiene
• The tray is handled only during the assembly phase. There is no need to rehandle food during distribution in the ward, thus ensuring better hygiene, less labour costs and eliminating mistakes
• For the whole production process, from tray assembly to delivery, the respect of HACCP rules is guaranteed. With the “Smart” trolley the temperatures of the single meals can be controlled on the display and, with a special program, the data referring to the last 5 cycles can be downloaded, highlighting each plate history
• All the products feature IPX5 water protection level to speed up cleaning operations

Money saving
• The same rectangular dish can be used for all types of meals, thus optimising logistic operations and reducing investments
• Low power consumption transport trolley (only 0,9 kW installed power for model with 16 trays)
Energy saving

- **Saves up to 60% on electricity bills** compared to traditional competitors which are using forced air convection systems
- MDS trolleys have maximum 1.35 kW installed power compared to the average 8 kW of competitors (thermoconvection models) and consume 0.59 kWh per cycle (including battery re-charge and an average connection time of 20 min.) in comparison with 2.6 kWh of its competitors (thermoconvection models)
- The power management precisely controls the temperature on each plate to avoid overheating and, at the same time, reduces consumption of energy

![Comparison of installed power (kW)](image1)

Comparison of absorbed power per cycle (kWh)

This table provides a general view of how much electricity you can save when using the Electrolux Meal Distribution Trolley, compared to traditional competitors. Hospitals using 40 trolleys can save up to 61,000 kWh/year on the electricity bill.

<table>
<thead>
<tr>
<th></th>
<th>Electrolux trolley</th>
<th>Thermoconvection trolley</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average installed power</td>
<td>1.35 kW</td>
<td>8 kW</td>
</tr>
<tr>
<td>Average electrical connection of trolley (before transporting to wards)</td>
<td>20 min</td>
<td></td>
</tr>
<tr>
<td>Absorbed power per cycle (1 trolley)</td>
<td>0.59 kWh</td>
<td>2.65 kWh</td>
</tr>
<tr>
<td>Daily consumption per trolley (3 cycles/day - lunch and dinner)</td>
<td>1.12 kWh</td>
<td>5.3 kWh</td>
</tr>
<tr>
<td>Daily consumption for an installation with 40 trolleys</td>
<td>44.8 kWh</td>
<td>212 kWh</td>
</tr>
<tr>
<td>Annual consumption (365 days) for an installation with 40 trolleys</td>
<td>16,352 kWh</td>
<td>77,380 kWh</td>
</tr>
<tr>
<td>Annual savings</td>
<td>61,028 kWh/year</td>
<td></td>
</tr>
</tbody>
</table>

Micro-biologically safe

The Electrolux Meal Distribution Trolley **keeps bacteria proliferation under control**. Certified by the Food Science department of the University of Udine which guarantees that during transportation, from a microbiological point of view, there is no alteration of the food properties.
Distribution in hot link

Hot link is the food distribution system based on preparation, cooking and immediate distribution of the meal. The temperature is maintained during the entire transport.

- Transport is the most critical point for temperature control in meal distribution. The innovative Electrolux system guarantees a continuous automatic adjustment of each single plate temperature to the set parameters, thanks to the energy supplied by the on-board battery and to the innovative technology used. Hot and cold plates are heated or refrigerated during transport according to their actual needs.
- With Electrolux MDS (see blue line in the above graph) even if the trolley is unplugged, the temperature is safely controlled and maintained during the entire transport phase. On the contrary, food in the traditional method of transport is heated just before the transport phase starts, thus, resulting in a sudden and dramatic lowering of the temperatures, as shown in the above graph (yellow line).

Each meal is managed separately, so any combination of food (hot, cold and neutral) is possible. Each tray will be distributed with cutlery, condiments, drinks, etc. (i.e. some examples of food combinations).
Personalised menu

Customised meal for every person, chosen from a specialized menu selected by dieticians. Everything in the same trolley.

Up to 100 g *
Up to 120 g *
Up to 125 g *
Up to 170 g *
Up to 175 g *
Up to 180 g *
Up to 250 g *
Up to 270 g *
Up to 300 g *
Up to 310 g *
Up to 350 g *

* If a double-size plate is used the capacity will double
Transport in hot link

Possibility to offer non traditional meals thanks to the innovative transport trolley that guarantees food safety.

Transport
Once the trolley is connected and the trays are inserted, each dish will be kept at the right temperature even during transport, thanks to the Peltier cells which are battery operated for more than 40 minutes (more than 60 with optional battery).

Distribution
Trays are kept at the right temperature until they are distributed. Food temperatures are not affected by the opening and closing of the doors.

Meal delivery verification
Dish temperatures can be memorized; with this system it is possible to verify the dish temperatures, the time the tray is placed in the trolley and its delivery; this data can also be downloaded to a computer. If the person is not present during the distribution phase, the tray can be re-stored within 2 minutes and the trolley will continue to maintain the meal according to the previously stored programme. In this way, when the person is served, he will receive high quality food.

Ergonomics
• The compact dimensions (only 148 cm high), light weight and optimised wheels position allow easy trolley handling
• Retractable connection is available for queue transport
• It features a large space on the top for any additional items
• Safety bumper is incorporated to avoid damage to the unit during transport

Personalised trolley
(on request)

Additional space to place items during transport

Safety bumper

Swivelling wheels with brake
Fast and easy cleaning

The trolley’s particular structural shape, both inside and out, complies fully with the requirements necessary to ensure thorough cleaning at the end of each service session. Internal structure in AISI 304 stainless steel. All corners are rounded and there is no need to remove parts for cleaning. The materials are waterproof and resistant to the chemical components normally used as detergents. The trolley is classified IPX5.

Innovative technology

• **Peltier cells:**
  The “Peltier” element is a solid double function component able either to heat or cool down.
  **Heating:** energy passes through the Peltier cell, absorbing the heat from the bottom and transferring it to the top.
  **Cooling:** by inverting the polarity, the upper side of the cell absorbs heat from the plate, and releases it to the lower side.

• The **HACCP** hot or cold temperature control is automatically activated for each single plate
• The **automatic temperature control** respects the organoleptic food quality standards
• Electronic control panel **includes data logger**
• **Battery operation** grants longer and safer temperature control

---

![Easy to use control panel](image)
How it works

**Gentle temperature maintenance**
During transport and distribution, even with the doors opened, the trolley provides a continuous energy supply, guaranteeing the right temperature for every single dish, inside the isothermal trays.

**Automatic identification of single dish temperature**
The trolley is able to identify the single dish temperature level (hot, cold, neutral) thanks to the 3 sensors placed on the shelf where the tray is inserted. There are 4 holes in the tray, corresponding to the rectangular plates. The probe, placed under each plate, perceives if the plate is hot or cold and the “Peltier” cell placed in the shelf provides the required energy.

**Temperature control**
The high quality of food is the result of a perfect balance between moisture and food temperature. Peltier cells allow the natural development of heat from the bottom to the top. Thanks to the precise thermostatic temperature ±1°C every plate receives the correct quantity of energy to be carried during transport and necessary to reach and maintain the ideal temperature, thus avoiding thermal stress to food. The correct temperature control and the thermal lids create an inner microclimate, preventing food from drying out.

**Energy consumption**
The high technology of the MDS system guarantees low energy consumption: only the plate will be heated with no further dispersion of energy. In addition, avoiding food from overheating implies a reduction in energy consumption and better quality results.
Electrolux - the complete solution

Food safety and food quality are the results of the overall well-structured wide range of products – conveyors, hot and refrigerated portioning trolleys and accessories as well. Electrolux provides the complete solution.

Tray conveyors

The MDS range offers two models – with either cord or belt conveyors – available in different lengths (4, 6, 8 m or greater on request). The conveyor, constructed in AISI 304 stainless steel, has IPX5 water protection and is equipped with:

- Protection bar on both sides to avoid bumping
- Emergency switches at both ends
- End belt sensor to stop the machine if there is no operator present
- Electronic control panel with speed control function
- Soft start/stop of belt to avoid drops
- Standard CE plugs for connecting the appropriate trolleys
- Waste collection drawer
- HACCP plugs to control food temperature (on request)

The units can be equipped with a side table, placed near the end, to be used as an additional working surface (on request).
Hot units

The bain-marie trolleys - 2 and 3 GN models - are available with 1 single well or 2/3 separated wells (depth 210 mm). The units are made in AISI 304 stainless steel with an internal heavy-duty 40 x 40 mm frame. They have IPX5 water protection and they are equipped with:
- Comfortable and safe handles
- Ergonomic knobs
- High efficiency heating elements
- Rounded corners and hand-finished welding of well
- 4 side bumpers
- Drainage on each well with dedicated valve

Heated lowerators

The heated lowerator trolleys are suitable for plates and 550 x 550 mm containers. The units are made in AISI 304 stainless steel, with double insulated side panels and IPX5 water protection. The lowerators are equipped with:
- Self-levelling removable platform, standing on a ball-bearing runner system
- Comfortable and safe handle
- Ergonomic knobs
- Ventilated heating system
- Integrated lid
- 4 side bumpers

Neutral lowerators

The neutral lowerator trolleys – closed version – are suitable for trays and baskets. The units are made in AISI 304 stainless steel and equipped with:
- Self-levelling removable platform, standing on a ball-bearing runner system
- Comfortable and safe handle
- Integrated lid
- 4 side bumpers
- Drainage for easy cleaning
- One basket (also available as optional accessory)

A completely open version is available, made in AISI 304 stainless steel, suitable for 550 x 550 mm or Euronorm containers (available as accessory).
Cold units

The refrigerated well trolleys (+2/+10°C) – 2 and 3 GN models – are available with static or ventilated well (210 mm depth). The units are made in AISI 304 stainless steel with IPX5 water protection level and equipped with:

- Comfortable and safe handle
- Ergonomic knobs
- Digital temperature display controller
- Self-defrosting and automatic water evaporation
- 4 side bumpers
- Drainage on well with valve

Refrigerated lowerators

The refrigerated lowerator trolleys are suitable for plates and containers. The units are made in AISI 304 stainless steel with IPX5 water protection level and equipped with:

- Self-levelling removable platform standing on a ball-bearing runners system
- Comfortable and safe handles
- Ergonomic knobs
- Digital control temperature display
- Self-defrosting and automatic water evaporation
- Integrated lid
- 4 side bumpers

Complementary units

Service trolley

This is the service trolley for the start-up line position so that the operator can have all the meal items available in one place. The upper structure can host a cutlery container. The shelves, completely welded to the framework, are seamless, sound-absorbing, with double-folded edges and fitted with plastic bumpers. In 304 AISI stainless steel and completely welded.

Diet Trolley

The pre-portioned meal trolley, ideal for portioning, is equipped with 4 heated drawers to hold 11 pre-portioned plates for each drawer. It is thermostatically controlled with temperature regulation from 30° to 90°C. Its structure, panels, top and handles are all made in stainless steel with side protection bars, 4 swivelling anti-track wheels and 4 integrated bumpers.

Open trolley for trays

This trolley is the storage unit for holding tray bases and lids during the assembly and drying operations. Structured in stainless steel with side protection bars, 4 shelves with rounded edges for 56 trays and 4 swivelling anti-track wheels, two with brakes. 4 integrated bumpers assure reliability and functionality to the user.
Range

- Trolley for 16 trays
- Trolley for 20 trays
- Trolley for 24 trays

Optional accessories

- Standard porcelain plate
- Lid for standard plate
- Tray/lid for standard plates
- Double-size porcelain plate
- Lid for double-size plate
- Tray/lid for 1 double-size and 2 standard plates