COMMERCIAL INDUCTION COOKTOPS

Induction cooktops offer a highly efficient alternative to electric resistance and natural gas cooktops in commercial kitchens.


Image courtesy of Vollrath.

HOW IT WORKS

On conventional cooktops, heat is generated by an electric element or gas burner, then transferred by thermal conduction to the cookware, which then heats the food. An induction cooktop eliminates the middle step of heating a burner. Instead, it heats the cookware directly through magnetic induction.

With induction cooking, a copper coil under the stovetop generates a high-frequency oscillating magnetic field. This field produces electrical currents called eddy currents in special magnetic cookware. The eddy currents encounter resistance in the cookware, causing it to heat directly, while the cooktop stays relatively cool. A glass ceramic cooktop surface protects the copper coil. Because the glass ceramic surface is a poor conductor of heat, it allows magnetic energy to transfer to the cookware without heating the surface.

An induction cooktop provides precise temperature control. The unit heats only the pots and pans containing food—not the area around them – so there is no heat loss or excessive energy use.

APPLICATIONS

Induction cooktops can be used in any cooking application, but are most commonly found in commercial settings, including:

- Restaurants
- Commercial food preparation operations
- Hospitals
- Schools
- Nursing or residential care facilities

DID YOU KNOW?

Induction cooking technology maintains high efficiency regardless of cookware size, while conventional electric cooktop efficiency drops dramatically with smaller cookware.

BENEFITS

- **Faster heating and cooking.** Induction cooktops heat food much faster-several manufacturers claim 50% faster-than traditional cooktops, thereby speeding up the cooking process.
- **Precise temperature control.** Induction cooktops respond more quickly when the temperature is either raised or reduced. They excel at simmering.
- **Highly efficient.** Today's induction cooktops contain sensors to determine pot size. They transfer to the pot only the amount of energy needed, so there is no wasted energy. U.S. Department of Energy research indicates an induction cooktop has an average efficiency of 72.2%, somewhat higher than other electric cooktops. Because the efficiency of other technology depends so strongly on cookware size, the energy savings potential of induction cooktops is dependent on the prevalence of cooking with vessels smaller than the electric element diameter.
- **Easier to clean.** With their clear glass top, induction cooktops are easier to clean than gas burners or electric heating elements. They do not heat the surface, so spills and splatters do not "cook" on the surface.
- **Safer to use.** An induction cooktop surface does not get hot. Immediately after cooking, the surface may be warm to touch due to heat transfer from the pot, but it cools down quickly.
- **Cooler kitchen.** There is no open flame or heating element, so the kitchen remains more comfortable for food preparation workers.

LIMITATIONS

- **Requires special pots and pans.** Special magnetic pots and pans which can transfer the electromagnetic energy are required for induction cooking. However, nonmagnetic vessels can be used if placed on a ferromagnetic disk, which then acts as a conventional hotplate.
- **Cost.** Induction cooktops are considered expensive cooking technology. Equipment costs vary, depending on size and features, from a few hundred dollars to several thousand dollars, depending on the size of the equipment.
- **Education and training is needed.** Because induction cooking heats food so quickly, cooks and kitchen workers need training on both the use of the equipment and how to cook on an induction cooktop.

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