

## Induction Cooking

Over the past few years, induction cooking has been gaining popularity for use in domestic households and commercial restaurants. The principle of operation of induction cooking is that electrical energy is input to the induction cooker to generate a high frequency alternating magnetic field which in turn induces currents, called eddy current, in the ferrous bases of utensils thus creating required heat for cooking. The excellent feature of this energy transfer is instantaneous, efficient and with minimal heat dissipation during the transfer process. In conventional cooking including flame cooking, extra heat dissipation could make cooking uncomfortable because of the higher temperature rise in the kitchen. On the other hand, induction cooking dissipates heat only within the cooking utensil thus achieving a higher thermal efficiency, a lower fuel cost and a more quiet/cleaner environment. The power rating of the induction cooker ranges from 2 kW for domestic cooking to 38 kW for commercial use. For an induction wok of 38 kW rating, it can easily cook food of 10 tables for use in a Chinese banquet.

From the safety point of view, all induction cookers have an automatic cut-off feature which can limit the maximum temperature to 250<sup>0</sup> C thus protecting the cooking oil to reach the flash point at around 300<sup>0</sup>C. Hence, fire risks due to overheating can be significantly reduced. Besides, induction cookers are equipped with a utensil detection system to ensure no small metal objects such as watches and rings could turn on the cookers. The major applicable national standards for residential induction cookers are IEC60335-2-6, IEC60335-2-9 and EN50366. Other new applications of induction cooking include induction rice cooker, commercial fryers and griddles. Hence newer, safer and more energy efficient induction cooking technology is now commonly available to enhance the quality of life.

---

The Electrical Blog is contributed by the Electrical Division. If you would like to know more about this topic, please contact the Division Hon Secretary, Ir Simon Chung at [simon.chung@arup.com](mailto:simon.chung@arup.com)