Understanding Fast Food Cooking Systems

Fast food is a huge sector of the catering industry with annual sales estimated to be more than £7 billion. Because of the high volume nature of fast food service, the equipment not only has to be quick, it has to be very robust. Heavy-duty equipment is the best choice, medium-duty is suitable where business is brisk, but not frenetic, but light-duty equipment is unsuitable in all but very small fast food operations.

Often equipment is designed and manufactured around a specific fast food concept or menu item where there are global volumes of equipment to be sold, but while designed with a specific purpose in mind, creative caterers are always finding additional uses.

This section of the guide is the specialist equipment. More general items of cooking equipment such as fryers and griddles have their own section.

Pressure fryers

Pressure fryers are most commonly associated with fried chicken restaurants. Coated chicken pieces are lowered into the fry tank and a lid closed and locked into place to form an airtight seal. Moisture is immediately released from the food which rapidly builds up the air pressure. The pressure causes rapid tumbling of the food and transfers heat faster from hot oil to the food.

Pressure has the effect of increasing the temperature of the food and oil and because the heat transfer is faster than in a normal fryer, the frying temperature is higher than in a normal deep-fat fryer. A further effect of the pressure is to rapidly seal the outside of the chicken, keeping moisture in and excess grease out. This along with the flavour coating is what makes southern-style fried chicken so crisp and moist compared to chicken cooked in a standard deep-fat fryer.

Because it is not possible to inspect the food as it is being fried, the fryers are computer programmed according to the product being cooked. The programme can do multi-temperature cooking during the pressure cycle, to a rapid seal of the food at first, then a gentler cooking temperature. In a typical chicken operation, the start oil temperature will be 180 deg C for the first burst of heat to seal the chicken, then will lower to 145 deg C to cook the chicken safely through.

Most pressure fryers have an automatic pressure release and audible signal at the end of the cooking cycle to tell the cook that the chicken is finished. More advanced models will also have automated basket lift.

Pressure fryers have in-built filtration systems and a cool spot to collect food debris from frying prior to filtration.

Conveyor ovens

Conveyor ovens are a cooking tunnel with heating elements above or above and below with a constantly revolving belt of steel mesh or slats passing through it. There will be a tray in front of the conveyor for loading foods and a tray at the rear for received the cooked food. While popular for high volume pizza production, they can do a wide range of foods, including steaks, chops, fish, ribs and can gratin dishes such as lasagne. They can also be used for a flame-grilled production of burgers. The heat is controllable, but usually it is the speed setting on the conveyor belt that controls the length of time the food is subjected to heat.

Power source can be gas, electric or infra-red and they come as double-decks or triple-decks for high volume production. The cooking tunnel can be as short as 50cm or more than twice that length on big ovens. Some also feature a split conveyor belt with individual speed settings for each half of the conveyor belt so that two cook times can happen during the same pass-through.

Impingers

An impinger is a conveyor oven with a difference. Pressurised hot air is jetted at food items on the conveyor as it moves through the oven. Because the jets are positioned to reach the top and bottom of each food item, the cooking temperature is uniform. The air nozzles apply hundreds of independent heat jets to the product and the movement of the conveyor spreads heat uniformly.

Manufacturers of impinger ovens say the food cooks faster and at a lower temperature because of the forced hot air. Moisture content is also increased as the hot air rapidly seals the surface of the food.

Rotisseries

Rotisseries are usually associated with chicken, but can also do rolled legs of lamb, pork and rib beef. They can be sited indoors in a well ventilated area in view of the customer powered from mains gas or electricity or outside through a power cable or LPG.

They are available in two configurations – the meat skewered horizontal or hung vertical. The horizontal is seen mostly in retail environments, while restaurants go for the vertical type. While the look to be energy inefficient with the heat radiating outwards, the curvature of the radiants is designed to focus the heat on the meat. This also makes for a cooler working environment for staff.

Profits are high on rotisserie chicken and the cooking smell of it is a huge selling point, but they are messy to clean and staff need a strict clean-down routine at the end of a shift.

Burger Grills and delivery systems

Burger grills are compact conveyor grills, usually upright with a gravity feed system, similar in design to vertical toasters. The table-top versions will run from a simple 13-amp socket, yet production on even the smallest grills will be at least one burger a minute.

There should be a means of adjusting the speed of the conveyor and for the thickness of burger. There should be a fat collection system and a catching tray. Because of the smoke and cooking smells that come from cooking burgers, adequate kitchen ventilation is necessary. Burger conveyor grills are only suitable for frozen burgers, not fresh or chilled.

They can be used in conjunction with burger bun toasters, which operate in much the same way, but can toast top and bottom of a bun in 18 to 35 seconds, depending on power.

When burgers have been assembled and put in colour coded containers, they can be held in burger box chutes. These are the working bridge between the kitchen and the service team front of house with back loading and front unloading. Burger chutes can have from five to 10 or more angled channels so that kitchen staff can keep every channel topped up for fast dispense at the counter and may be stacked. They should have heat and light lamps above for enhancing the display and keep the burger package warm and can have additional under-box heating.

How to find out more about Fast Food Cooking Systems

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