

Understanding Deep-fat Fryers

While called a deep-fat fryer, all food floats in hot oil, cooking in the top two inches of the fryer. This can lead to a kitchen having a fryer which is too big and heating up more oil than needed.

Another mistake is to take a particular day when frying capacity is high, such as fish and chips being popular on a Friday, and buy a fryer as if demand were that high every day.

The industry-wide performance measure of a deep-fat fryer is usually given in weight of chips per hour the fryer can cope with. On face value, that sounds a level playing field, but it is not. Pounds of chips per hour assumes an even demand throughout the day, which seldom happens. For many caterers there is a huge burst of demand for chips at midday, so basing fryer needs on what the output of chips is over an hour doesn't reflect what the kitchen actually has to produce in a much shorter time than an hour.

Another point to consider when looking at chips-per-hour ratings between different fryers is to ensure that the same type of chip is being rated by each manufacturer. Fry times will vary considerably between frozen chips, chilled chips, blanched chips and the size of chips. The best way of finding out the size and power of fryer needed is to ask a manufacturer to calculate the capacity based on your weekly throughput of fried foods.

Gas or electric power?

There is no clear answer to which is better, both have their own distinctive advantages. The general rule of thumb is that electric fryers are cheaper to buy and suitable for low to medium volume needs. If the kitchen is churning out high volumes of fried product, particularly chips, then gas-powered fryers may be dearer to buy, but will be cheaper to run. However, there have been advances in the technology of electric fryers and the operation cost and performance between gas and electric can be negligible.

Servicing costs on gas fryers may be slightly more expensive because of the need to check the gas system.

If the inclination is towards gas fired fryers; there are three heating systems with no clear choice on which is the best option. Tube burners have wide tubes running across the lower inside of the fry tank. Inside the tubes are gas jets which transfer the heat into the oil through the tube wall.

The second gas system is to have a big bank of gas jets concentrated on the exterior of the fry tank while the third, is a system using infra-red heaters, which give a high output of heat.

Good frying practice

A problem common to all gas-fired deep-fat fryers is that the rapid transfer of heat into the oil through a metal wall can lead to oil burn in the base of the fry tank. This happens when food debris falls to the base of the tank and carbonises because of the intense heat. This leads to oil taint and a breakdown of the oil.

The way to get around this used by most manufacturers is a feature called the cool zone. This is normally a sharp depression in the base of the tank which is below the level of the gas burners. Food debris drifts down through the oil and collects in this cool depression, which can often be up to 30 deg C below that of the cooking area of the fry tank. A recent development has been a high-performance flat-bottomed gas fryer without a cool zone.

In a busy operation it makes sense to have at least two deep-fat fryers, once kept exclusively for chips, the other frying anything else.

Electric-powered fryers which have heating elements in the tank have less of a need for a cool zone, but some do still have them on the bigger models.

Oil filtration

With some fryers or small counter-top models, the usual method of oil filtration is the traditional one of a bucket, a sieve with a tea-towel in it and pouring the oil into the bucket through the sieve. This can be both dangerous and inefficient. It is better to buy a freestanding oil filtration system. Either way, oil should be filtered daily.

Some fryers solve the oil filtration issue is using in-built filtration systems. Commonly, the oil is released through the bottom of the tank while still hot through a system of filters and pumped back into the fry tank. The whole process takes between three and five minutes and since the most the operator does is press buttons and open a valve, the safety risks are almost non-existent.

Look after it!

A deep fat fryer is one of the workhorses of the kitchen and has almost no moving parts and has a low maintenance cost. But that does not mean that kitchen staff should not look after it.

The biggest maintenance job of a deep-fat fryer is the cooking oil. Cared for, it will last many sessions without the need for changing. Used carelessly with too high a temperature, a failure to clean and filter food debris at the end of every kitchen session and oil can be degraded within a couple of days.

While oil is the big maintenance issue in a deep-fat fryer, it does not mean the fryer itself can be neglected. Oil can quickly solidify and become baked onto the frying baskets. This is not just unsightly, but can taint the oil. Regular passing of the baskets through the dishwasher will keep the build-up down, if not totally eliminate it.

Baked-on oil is also a problem in the fry tank and periodic degreasing with a strong detergent during oil changes will soften the fat and a non-abrasive kitchen scrubber or plastic bowl scraper will remove much of it. The fry tank will want thoroughly rinsing after the use of detergent and if there are electric element or tubes in the tank, care must be taken not to damage them.

A build up of sticky grease will happen over time around dials for power control making them move slower. This puts stress on what are often plastic fittings and can lead to the dial shearing on the control pin. If the control dial pulls off, then do so on a regular basis and clean around the dial. As part of a regular maintenance cycle by a service engineer, the dials may be stripped down, cleaned underneath and lubricated with a long-lasting grease able to withstand high heat without dribbling away such as lithium grease.

If there are auto-lift baskets on the fryer, then the lift mechanism should also be kept clean, but this is another job that can be done thoroughly on a routine service call.

It is an engineer's job to ensure that any item of equipment serviced is left in a clean condition as well as a good working condition. If the deep-fat fryer has been allowed to become very dirty with a high build-up of congealed oil on the casing, the engineer may well

remove it, but this is going to reflect in the cost of servicing. Far Better that a member of the kitchen staff do the cleaning before the service engineer arrives.

But do not allow kitchen staff to use abrasive scrubbers or powders on control dials which could eventually remove the dial setting marks and bring about the need for a replacement dial.

In brief

Do

Remove food debris from oil as directed by the manufacturer
Keep fry baskets clean
Use an oil filtration system
Check for a build-up of grease at the rear of the fryer

Don't

Clean stainless steel fry tanks with harsh abrasives
Overload
Allow a build-up of grease on control dials
Damage tank heating elements during cleaning
Allow staff to knock off excess oil with the size of the fry tank

How to find out more about fryers

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