

Chips (GB: Crisps) Production

Technology of Potato Chips (GB: Crisps) Production

Chips Production Plants Supplied by DORNOW

1. Peeling

For the peeling of the potatoes carborundum (abrasive) peeling machines are used. According to the required throughput it is common to provide non-automatic or fully automatic peeling machines. DORNOW supplies peeling machines which can be operated without water, i. e. both discontinuously working batch peelers and continuous roller peeling machines.

In general, potatoes for the chips production are not normally peeled as accurately as that.

A total peeling waste of about 6 -10 per cent must be taken into account.

2. Cutting, Washing

The cutting size of the potato slices will be between 1.2 and approximately 2.5-3.0 mm. For potato chips (GB: crisps) produced in batch fryers one will normally choose a larger thickness of cut. A smooth cut is required in order that, during the frying process, the slices do not absorb more oil than necessary. A suitable cutting machine has to be used. In some cases the „ripple cut“ will be applied, too.

After the cutting process the starch sticking to the slices has to be stripped off by immersion in water. After that, the surface water has to be drained off or removed in some other way.

3. Frying

Subsequently the slices are fried in hot oil (between 160 and 180 degrees centigrade). Time: about 2 to 3 minutes. Residual moisture content in the produced chips: approx. 2 per cent.

By means of the beneath cited batch fryers (potato) sticks can be fried, too. They have the shape of thin-cut sticks and are treated like chips (potato crisps).

3.1 DORNOW batch fryers (= big fryers)

Here, the frying process is discontinuous. The operator has a direct influence on the quality of the final product. - In the USA and in the UK (crisps) these „hand made“ potato chips have been enjoying great popularity.

The batch fryers „Industry 151“ and „Industry 301“ are provided with bins by means of which the goods to be fried can be picked at a time and within seconds from the hot fat/oil. The time for removing is indicated by an audible signal. - In the batch fryers „Industry 150“ and „Industry 300“ there are no basket inserts. The fried product is taken out of the vat, manually by means of stainless sieve scoops, and put, as a rule, onto a conveyor belt which runs past, above the fryer(s).

Batch fryers are less expensive than continuously working fryers. They have, however, a considerably lower capacity.

When purchasing batch ovens it is of importance to calculate the heating correctly in order to avoid the oil being burnt by e. g. overheated heat transfer areas. In the batch ovens supplied by DORNOW the (vegetable) frying oil is not burnt. That means that colour and taste of the chips will not be affected by rancid oil.

In the cited DORNOW batch ovens you can also pre-fry or fry, in addition to potato sticks (see above), „fried potatoes“ (potato slices with a thickness of 6 to 10 mm), „Pommes carrées“ (dice potatoes, cut, for instance 10 x 10 x 10 mm), „Pommes parisiennes“ (small ball-shaped peeled potatoes) as well as some other fried products such as fried onions. For that, however, you must be provided with the suitable machinery. For instance, cooling conveyor belts have to be taken into account.

3.2 Continuously working fryers

There is a continuous feeding of the slices through the oil of the fryer. Special feeding and other attachments guarantee the slices are not only transported, but also regularly turned and kept floating. Thus, you will get a properly treated product.

In order to achieve a good quality, heating is especially important, here, too. External boilers are used to make sure that the heat transfer into the edible oil goes on as carefully as possible.

4. Cooling, Flavouring

The potato chips (GB: crisps) and sticks coming out of the fryers cool down pretty fast on conveyor belts. Flavouring and/or salting is done in special drums or on belts with adjustable dosing bins or manually in case of smaller throughputs.

5. Inspection

At the end of the production line the goods are checked. Slices of inferior quality are taken out of the product stream by hand.

6. Packing

Packing is done fully automatically in special plastic bags or manually in case of smaller throughputs.

Please read also the important papers:

- Q 50: „Advantages of manually operated batch fryers of the ‘Industry’ series, models ‘150’, ‘151’, ‘300’, ‘301’ as against fully automatic fryers of the same capacity“ and
- Q 39: „(Potato) chips, a product description“.

A list of interesting articles and essays regarding the topics of the preparation and processing of tubers and vegetables and associated specialist areas can be found at our Internet site at www.dornow.de, Treatises.

Review of your current peeling results or before the purchase of a peeling machine or system:

**Realistic test peelings with the most diverse peeling systems,
with the most diverse tubers and root vegetables, some fruit, with your raw
produce are possible in our Peeling Test Center!**

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