

"Dry Peeling" after Steam Peeling

Skin Removing after Steam Peeling

(more correctly: behind the "steaming vessel" or behind the "steaming container")

by means of DORNOW Universal Skin Remover (SR) - Machines
(Types SR-60, SR-90, SR-110, SR-130, SR-150 to SR-250 with peeling rollers approx.
Ø 100 or approx. Ø 150 mm)

In reality, a „steam peeler“ does not „peel“, but it only steams or parboils the fruits by hot steam so that the skin can easily be removed through connected machinery.

Skin removing behind steam peelers (steaming vessels or steaming containers) is, as a rule, carried out by means of brushing machines or rod-drum machines.

There are two types of brushing machines: I. roller brushing machines and II. belt brushing machines.

The following arguments can be put forward against I.:

- I.I The brushes on the fast rotating rollers form, in the end, **one** surface (the desired „tooth-brush effect“ will not or hardly be achieved).
- I.II You have to reserve a high amount of money for replacing worn brushes.

The following arguments can be put forward against II.:

- II.I High investment sum (but also high performance).
- II.II The efficiency is not satisfying.
- II.III You have to pay a high sum of money for replacing the worn brush belts.

As to features and performance of the rod-drum machines: there are also two types: III. the horizontally working and IV. the vertically working rod-drum machines.

As to III.:

- III.I Positive aspects: There is hardly any wear of the rods. Long service life.
- III.II Low investment sum, low maintenance costs.
- III.III The working efficiency is good if you provide for a somewhat longer steaming time in the steam peeler (in the steaming container). The skin will then be more loose and can be removed more easily. However, a longer steaming time is tantamount to a higher waste rate.

As to IV.:

- IV.I and IV.II: see under III.I und III.II.
- IV.III: The working efficiency is satisfying or good.
But: The throughput of 1 to 2 tons/h should not be exceeded.

The **DORNOW Universal skin remover machines of the "SR"-series** - available in nearly all dimensions - mainly consist of rollers provided with special sections (profiles) and arranged in a trough-shaped way. A worm drive makes the tubers and roots pass over the fast rotating rollers with the special sections.

The parboiled layer is intensively abraded and, in the end, thrown down. By means of a worm drive the skins can, for instance, be conveyed to a pump for the further transportation of the peeling waste.

Advantages of the „SR“ machines:

1. The profiled rollers rotating at approx. 400 to 600 rpm touch the steam-peeled product very frequently and intensively at every side, providing for a **dry** abrasion of the skin with their sections.
2. The very intensive treatment of the fruits can mean shorter steaming times in the steam peeler (steam container) = less waste.
3. Due to their specially adapted shape, the rollers with the sections reach practically all sides of the tubers and roots (too narrow indentations will, however, not be reached; this also refers to the above described machine types).
4. There is virtually no attrition of the rollers or sections (profiles).
5. If intended or required, one can add water:
a) over the whole length of the 3-m long peeling rollers or
b) only over the last meter of the peeling rollers. In case b) the machine can serve equally as washing machine for the tubers and roots that have already been largely skinned.
6. To support the steam peeling, you can provide carborundum raining for the first meter of the peeling rollers or for further parts of the rollers. In years of very bad harvest one can coat the whole length of the rollers with carborundum or install standard carborundum peeling rollers. Thus, one has a carborundum roller peeler which removes - dry - the skin and a further layer of the tubers and roots! If you want to keep the peeling surfaces clean, you need the addition of water according to requirements. This way you can, even in bad times, peel tubers and roots properly and neatly. The machines serve, in this case, as „supporting peeling machines“ for the steam peeler or even as independent carborundum peeling machines.
7. The addition of water in case of sticky goods does not necessarily mean that waste water is produced. The peeling waste (skins) and the water can, for instance, be used for animal fodder.

Experiences and practical hints

- A. The author of this paper himself has frequently experienced, in years of bad harvest, that the steam-peeling systems - even provided with brush belts etc.- could not supply sufficiently clean products. In potatoes, it was very often „scurf“ and deep-lying eyes that brought about problems. If possible, a carborundum peeler was connected in such a case, if there was one available and would still fit in the line.
- B. If necessary, you can, by the way, coat the peeling rollers with carborundum during one week-end (the coating takes 24 hours for drying). The coating can, later, be removed partly or entirely (sandblasting might be necessary before). It is also possible to keep carborundum rollers for replacement which can be mounted in a couple of minutes (by means of a quick exchange device you can rapidly replace the rollers). This is recommendable.
- C. The last meter of the peeling rollers can be coated with such a fine graining that, in spite of the carborundum peeling, a smooth product surface will be achieved (micro fine-grain peeling).

As to DORNOW roller peeling machines working with carborundum we can send you, at request, the papers Q 25 (for the tinning industry), Q 26 (for industrial peeling plants and the potato processing industry).

- D. Thus, the described „SR“ machines can be used as carborundum machines, if there is no more need to use them in a steam peeling line. Example 1: In a tinning factory you don't want to have celeriac tubers passed through the steaming vessel, but only to peel by means of carborundum. In this case the line has to be rearranged. - Example 2: Cooked beetroot is to be peeled. In this case you can use very efficiently the DORNOW Universal - SR - peeling machine with a determined type of carborundum coating or with standard carborundum peeling rollers!
- E. The machines described above are multi-purpose machines: They can be used in steam peeling lines as machines for the dry removal of the parboiled layer, with optional washing facility, as additional supporting peeling machines in steam peeling lines and as independently operated carborundum peeling machines.
- F. The machines of the "SR"-series are optionally available with peeling rollers with a Ø of approx. 100 or with a Ø of approx. 150 mm.
- G. The biggest of these machines has an inner Ø of approx 2500 mm.

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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