14.3.8.6 The sump

The wire belt draws chocolate falling into the sump down to the bottom, where it can mix with freshly tempered masse.

14.3.8.7 Rollers

A licking roller is fitted under the wire belt both to remove excess chocolate from the underside of the product returning it to the coater tank and to help clean and support the belt.

An additional bottom scraping device can be fitted to remove more chocolate from the underside of the article. Three or four rollers are normally installed and the sweets pass over them just after leaving the curtain. The rollers usually turn in the same direction as the wire belt. Although depending on the structure and softness of the centre there is the option too of running them in different directions to achieve best results. The rollers rotate at varying speeds and are all fitted with a heated scraper. The speed is usually two to three times the speed of the belt and a unit with variable speed control is the better choice. The rollers are normally about 20 mm (0.8 in) in diameter and their number may vary according to the size of the items being enrobed. They can also be grooved such that the joints of the wire belt sit in the grooving and enable the cross wires of the belt to sit directly on the rollers. This reduces the gap between the product bottom and the roller allowing maximum chocolate removal. The licking rollers are most frequently used to remove excess chocolate when coating biscuits.

14.3.8.8 De-tailing

The de-tailing roller removes excess chocolate that would otherwise cause a tail to appear at the end of articles as they transfer from the enrober wire belt to the cooling tunnel belt. It is a roller of about 3 mm (0.1 in) in diameter mounted on a heated block which supports roller and provides a scraping action to keep it clean. The heating of the block maintains chocolate fluidity and prevents build up. The roller is held by clips in the block and needs to be absolutely straight! The clips and the scraper block can wear, and both need to be in good condition.

The best effect is achieved with the following settings:

1. Minimum spacing between the de-tailing roller and the cooling tunnel transportation conveyor. The tunnel belt should be adjustable in height and proximity to the wire belt to facilitate smooth transfers. The speeds of these two belts must be almost the same with any difference being due to optimise the transfer.
2. A gap between article bottom and de-tailing roller of about 2 mm (0.1 in).
3. The de-tailing roller should normally run in the opposite direction to the product, except for small items when it turns in the same direction as the belt: Failure to do this may result in pieces being retarded by the de-tailer, leading to a lot of rework.

4 The speed of the roller needs to be high (1000 rpm or more) to "wind up" the string of excess chocolate that naturally follows the product onto the cooling belt. A unit with individual drive and variable speed is therefore the better choice.

Very small items or those with arched bottoms can turn over when transferring from the wire belt to the cooling tunnel belt. To avoid this, the de-tailing device can be lowered and the nose bar of the cooling tunnel belt can be set lower and closer to the wire belt.

14.3.8.9 Hold-down devices

A holding-down grid enables half or shoulder coating, also called dipping or masking, to be carried out (Figure 14.20). It can also be used to completely dip articles into the bottoming bath chocolate without interfering with the curtain. By adjusting the bottomer, an upwards flow of chocolate between the wire belt and the holding-down device can be achieved, so that even articles with a very uneven and porous surface and overhanging pieces are completely covered with the chocolate. This process leads to a more complete coating for difficult articles than would be possible with only the curtain and bottoming bath system. The holding-down grid is installed between the bottoming tank and the curtain trough, though it can be extended forwards to prevent small articles moving around on the belt.

Biscuits may be coated top and bottom or only underneath. There are feed systems available to turn them over at the exit from the enrober (Figure 14.21), as well as the hold-down devices to control them whilst being coated.

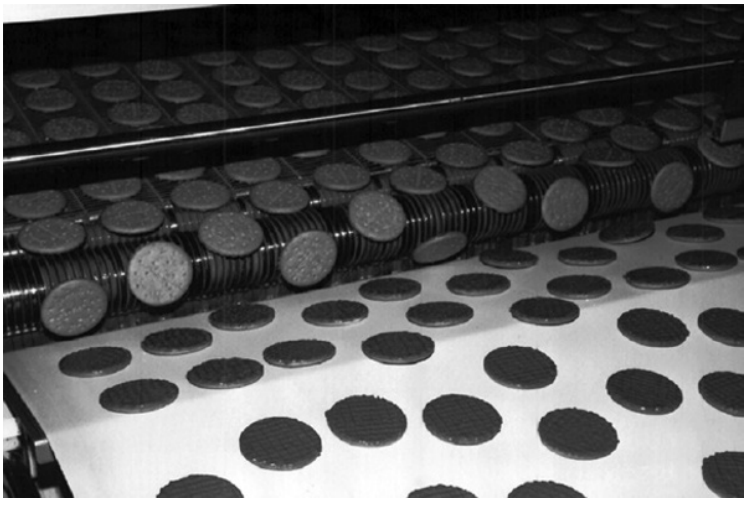

Figure 14.21 Picture of biscuit turn over device. Source: Sollich. Reproduced with permission of Sollich Germany.