

Figure 10.19 DRC-3 conche paddles (Thouet, part of Royal Duyvis Wiener Company). Source: Reproduced with permission of Royal Duyvis Wiener Company.

two-shaft machine with an additional third shaft on the bottom of the vessel. This moves the mass from the left to the right side and subsequently prevents the build-up of mass on one side.

10.4.9 Continuous conches

Petzholdt-Heidenauer (part of Hamburg Dresdner Maschinenfabriken GmbH) produces a continuous conche that can be used for both chocolate and compound masses. The principle involves using an intensive heat exchanger for a short processing time, thereby giving a low overall energy consumption (Figure 10.20).

During the process, high specific energy density is applied to a large surface area of the chocolate mass ensuring a constant and uniform treatment of the individual particles in a short time. This gives the degassing, deacidification and dehumidification that are responsible for the final rheology and flavour development. The external treatment is directly linked to flavour development by chemical reactions between amino acids and reducing sugars (Maillard reaction, see Chapter 8). In addition structural changes, important factors with respect to the final rheology, take place, such as de-agglomeration and wetting of particles with fat and emulsifiers. The most important processing parameters are: the process temperatures, the pre-charge of fat and/or emulsifiers (lecithin), the speed of the shaft of the pasting column, the addition of fat and/or emulsifiers in the pasting column or elsewhere and the gap adjustment of the wings and the baffles inside the pasting column (standard gap approx. 7 mm; range 6–13 mm). Different capacities are available

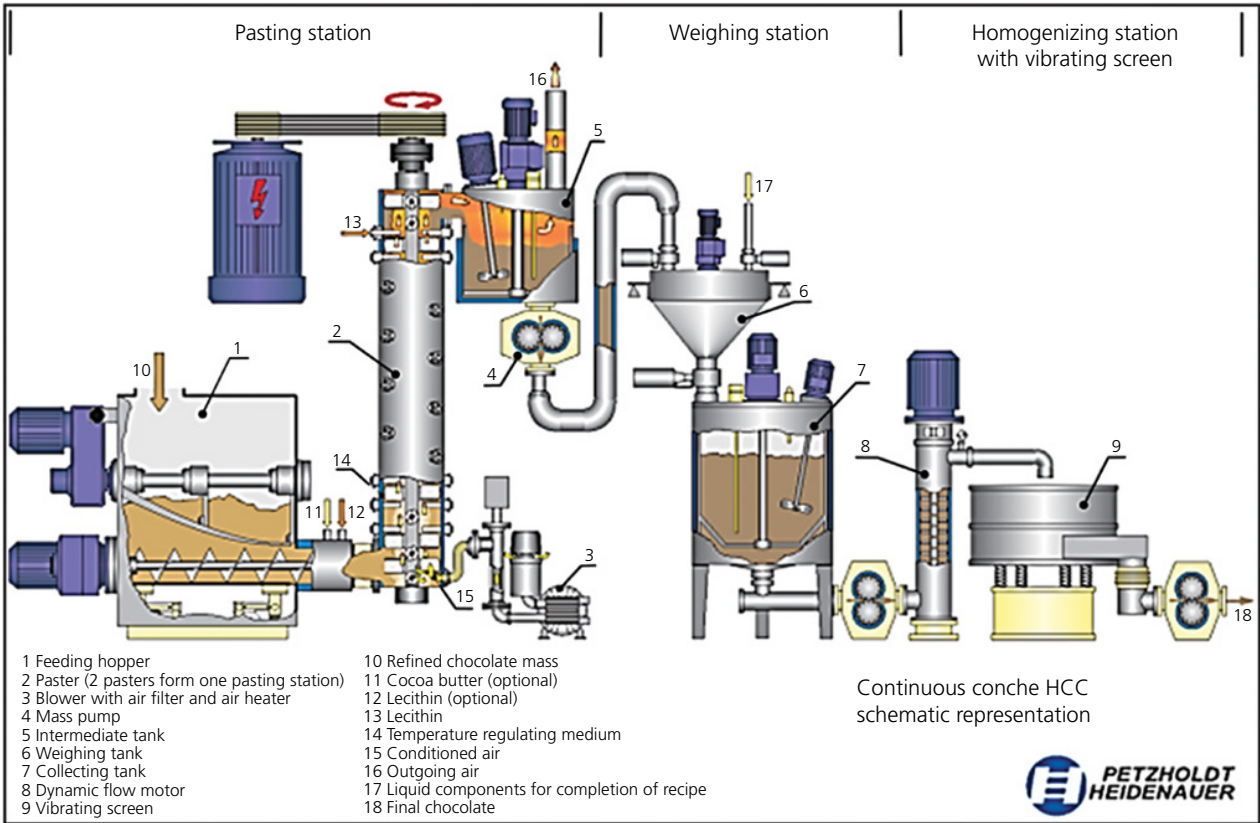


Figure 10.20 HCC continuous conche process scheme (Petzholdt-Heidenauer, part of Hamburg Dresdner Maschinenfabriken GmbH). Source: Reproduced with permission of Hamburg Dresdner Maschinenfabriken GmbH.