Continuous Conche

HCC 125 HCC 250 HCC 375 HCC 500

The newly developed continuous conche HCC allows the continuous conching of refined chocolate masses and the preparation of the final recipe for the production of high-quality chocolate masses with good rheological and sensory properties.

The conche is available in 4 models with different capacities. The basic model is the HCC 125 with a capacity of 1250 kg/h.

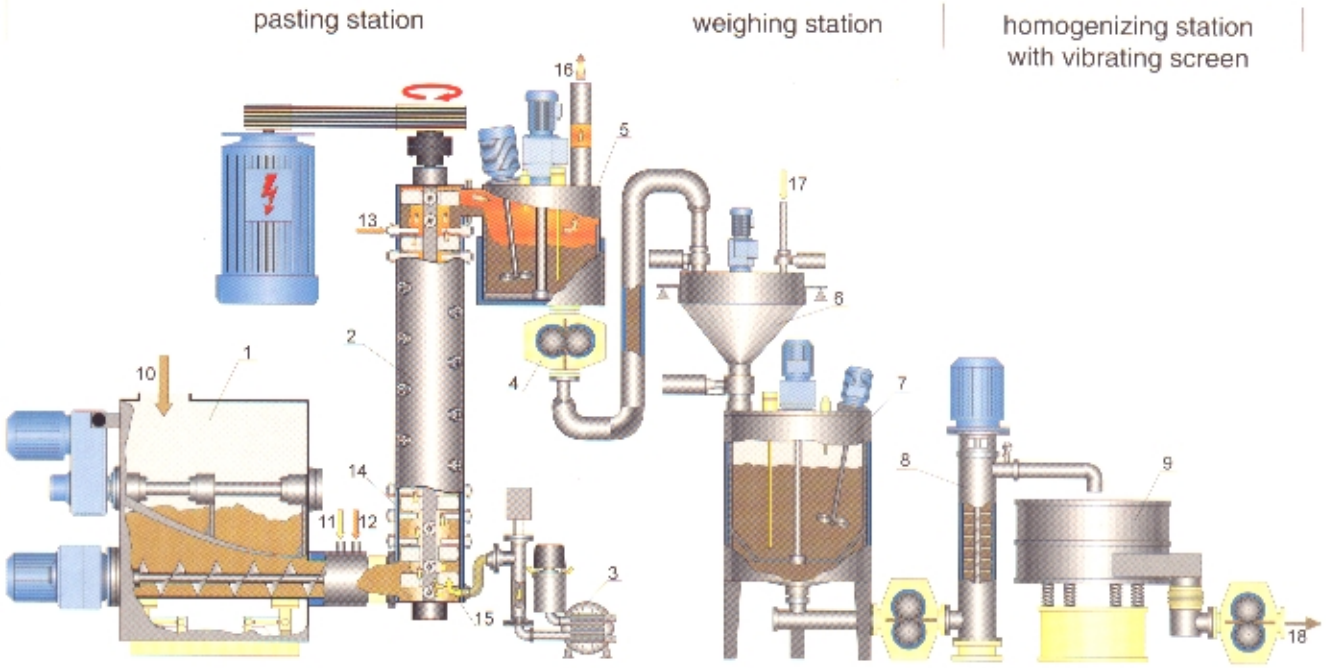
Owing to its modular design it can be extended in steps of 1250 kg/h up to the largest model, the HCC 500 which has a capacity of 5000 kg/h.

For small outputs of 650 kg/h and for test purposes we recommend the HCC 65.

Technical Data

		HCC 125	HCC 250	HCC 375	HCC 500
Output capacity, depending on the mixture	kg/h	appr. 1250	appr. 2500	appr. 3750	appr. 5000
Weight, without control cabinet net gross	t t	8,6 11,6	15,1 20,0	21,7 28,0	28,2 36,4
Connected load	kW	148	282	416	550
Cooling water	bar max. ° C max.	5 15	5 15	5 15	5 15
Hot water	bar max. ° C max.	5 50	5 50	5 50	5 50
Compressed air (conditioned)	bar min.	6	6	6	6

Technological Schematic



1 feeding hopper
2 paster (2 pasters form one pasting station)
3 blower with air filter and air heater
4 mass pump
5 intermediate tank
6 weighing tank
7 collecting tank
8 dynamic flow mixer
9 vibrating screen
10 refined chocolate mass
11 cocoa butter (optional)
12 lecithin (optional)
13 lecithin
14 temperature regulating medium
15 conditioned air
16 outgoing air
17 liquid components for completion of recipe
18 final chocolate

Technical Features

- The plant consists of:
  1 up to 4 pasting unit(s) - depending on the capacity
  1 weighing unit
  1 homogenizing unit
  1 control cabinet with operating panel
- Fully automatic operation
- Minimum specific power consumption and minimum space requirement
- Stored programme control with video-assisted operation
- Automatic adaptation of the plant's capacity to that of the roller refiners
- An integrated temperature equalizing system ensures that the selected process temperature is kept constant and guarantees a steady quality of the conched chocolate mass
- Optimal dehumidification of the chocolate mass and reduction of the volatile low molecular compounds through the conditioned air which is supplied to the paster containers
- Weighing of the chocolate mass and ingredients in batch quantities in the plant's weighing unit guarantees a high accuracy
- Intensive homogenizing of the completed chocolate mixture
- CE conformance (meets EU machinery guideline), if required UL or CSA guideline possible

Functioning

The functioning of the continuous conche is based on the patented high-grade shearing method, the prerequisite for a continuous conching process.

The refined chocolate mass is transported from the feeding hopper to the paster via a variable speed intake worm, where it is subjected to intensive shearing.

Small amounts of cocoa butter or lecithin can be metered to the refined chocolate mass where this is necessary to optimise pressing. In the pasters the chocolate mass passes a dry phase, a glutinous phase and, following the addition of lecithin, a fluid phase. The process temperature is infinitely variable. After being discharged from the pasters the chocolate mass is pumped intermittently to the weighing unit, where the recipe is completed with the addition of appropriate fluid components.

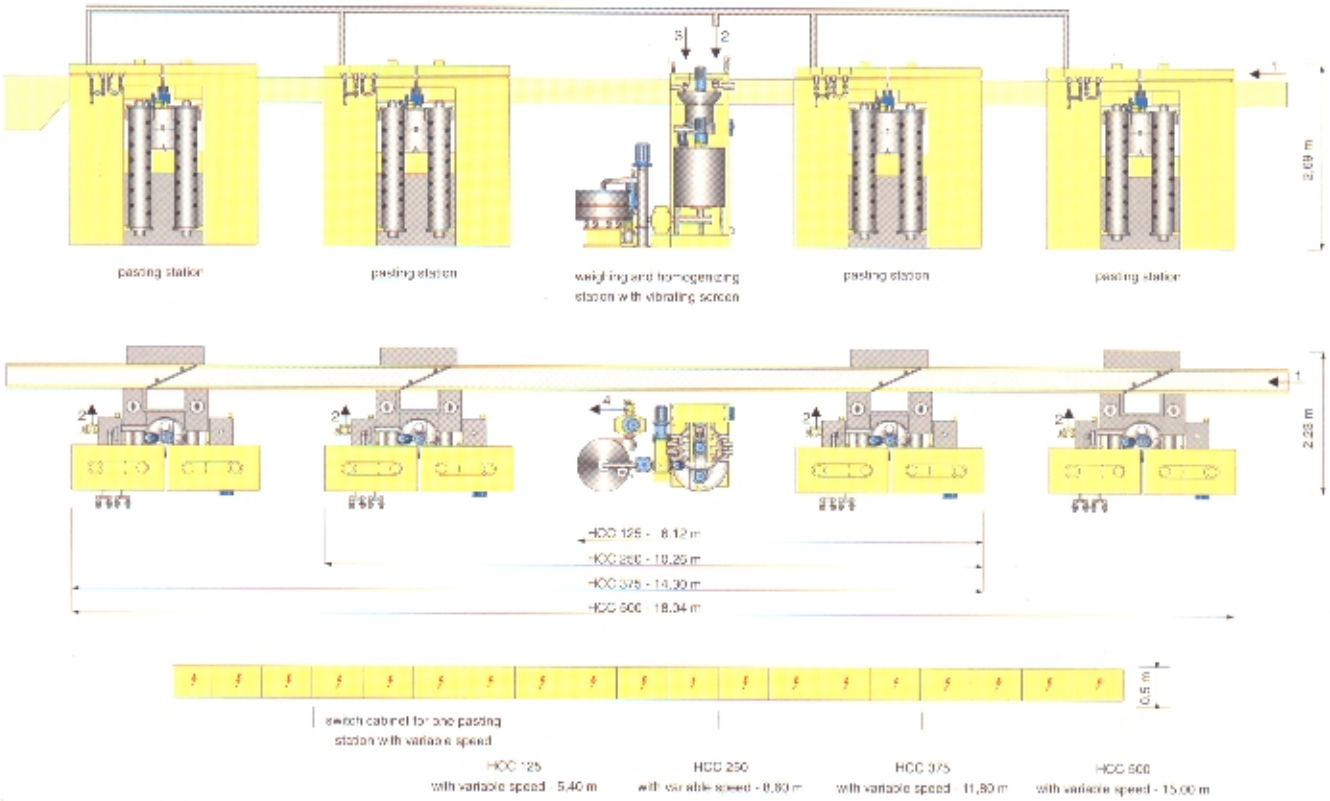
In the collecting tank of the weighing unit the recipe-true chocolate mass is mixed and cooled, and subsequently pumped to the vibrating screen through a dynamic flow mixer. The dynamic flow mixer provides for intensive homogenization. After passing the vibrating screen the finished chocolate mass can be taken for further processing, with intermediate stirrers acting as buffer tanks.

Advantages

- Production of high-quality chocolate masses with good rheological and sensory properties
- Continuous processing of the chocolate mass ⇒ no process interruptions
- High flexibility when conching; the short conching times, especially;
  leave only small residues when emptying the machine (important for recipe changes)
- Low specific energy consumption, very low space requirements and an extremely favourable weight/power ratio
- Compact and hygienically favourable closed machine system; parts coming into contact with the chocolate mass are made of stainless steel
- Fully automatic operation

Example of the integration of the continuous conche HCC 125 into the production process

Erection Plan



1 refined chocolate mass
2 pasted chocolate mass
3 liquid components for completion of recipe
4 final chocolate

Electrical Equipment

The electrical equipment of the continuous conche is of the same modular design as the mechanical parts.

The basic control cabinet with the operating panel is supplemented by an additional cabinet for each paster unit. The control connections, both between the switch cabinets themselves and to the machine parts, are achieved with modern, reliable and inexpensive field bus systems.

The PLC in the basic switch cabinet is a multi-processor system which can be matched to the specific plant configuration.

It can thus be expanded at any-time, should an existing plant be extended.

Operation and Monitoring

Operation and monitoring of the fully automatic process is by means of an advanced industrial computer with monitor and complete keyboard.

The "In Touch" system is used for process visualisation.
All recipe-relevant data can be stored on one of 100 "recipe cards" and are simple to recall whenever needed. The process diagram guarantees full information on the operating states of the system, with either overall or detail views. By calling up a variety of control screens it is possible to monitor or print out consumption values, temperature curves, and existing or past disturbances, as well as all relevant plant parameters.

Subject to technical alterations!