

## GENERAL TECHNICAL DESCRIPTION CHOCOLATE ENROBING MACHINES “FIX”

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### General

The Prefamac FIX enrobing machine has a chocolate tank that is fixed inside the machine.

The Prefamac SWITCH enrobing machine on the other hand, consists of a basic machine and a removable chocolate tank that, combined, operate as a normal enrobing machine. One such basic machine can be delivered together with several removable chocolate tanks. This can be interesting when you want separate tanks for separate types of chocolate or when you want to work continuously while being able to clean at the same time.

In the FIX enrobing machine cleaning and changing chocolate is possible by removing the second grill conveyor (removable).

Below a detailed overview of the FIX enrobing machine.

### Mechanical construction

1. Frame, chocolate tank, chocolate bath, dust cover, ... made out of stainless steel.
2. Upper side machine 4 polycarbonate foldaway sides, within stainless steel frame, which can be opened by means of gas springs.
3. Bottom side machine, pearled stainless steel doors, three at the front and three at the back of the machine, one door on the left and one on the right, every door with mortice lock.
4. All stainless steel used in the machine is type 304. Dairy couplings, taps, ... are type 316.
5. The whole construction will be pearled.
6. Approximate length machine : 2.000 mm or 2.100 mm (when option detailer).
7. Approximate covered length machine : 2.000 mm or 2.100 mm (when option detailer with heated hood).
8. Approximate width machine : width grill + 600 mm.
9. Approximate height entrance part : +/- 930 mm (or on demand).
10. Approximate height exit part : +/- 930 mm (or on demand).
11. The whole machine rests upon adjustable machine stoppers.

### Grill conveyor

12. Width grill conveyor : from 400 to 1.500 mm.
13. The two grill conveyors are connected to avoid pollution of the second grill conveyor.
14. Approximate length first grill conveyor : 1.100 mm.
15. Approximate length second grill conveyor : 900 mm or 1.000mm (when option detailer).
16. Removable second grill conveyor, to make an easy cleaning possible.
17. Diameter standard knife: 20 mm.
18. Knife in synthetic fibre.
19. Standard pitch grill 5.7 to 6.0 mm (depending on diameter knife).
20. In case of small or difficult products, a small plate or shaft is placed between the first and second grill conveyor. One grill is also possible.
21. Mechanical tensioning system to tighten the grill conveyor(s).

22. *Optional upper grill or upper cylinder, to cover light products only at the bottom side.*
23. *Entrance grill conveyor is optional (absolutely necessary for crumbly products) or exit grill conveyor (for example for decorative applications).*
24. *Approximate length entrance part (entrance grill conveyor) : 0 mm.*
25. *Approximate length exit part (exit grill conveyor) : 0 mm.*

#### Chocolate tank

26. *Content chocolate tank : from 30 to 355 litres dependant from grill width.*
27. ***The chocolate tank has a double jacket and is heated underneath and on the sides of the tank. Depending whether the machine is used with real or compound chocolate the tank will or will not be insulated.***
28. *Double jacketed chocolate tank with a small tap with flow meter and several bleeding nipples to fill up the water circuit of the machine and/or to bleed the machine.*
29. *Extra mouth at the bottom side of the chocolate tank to drain and/or fill the machine.*
30. *Optionally, on this mouth a heated double jacket stainless steel draining pipe with butterfly valve can be installed. This way and after cleaning, the drain water can be carried from the machine through this pipe.*
31. *Chocolate tank equipped with mixing arm.*
32. *Single jacket filling tube for chocolate with mouth at the upper side of the machine.*
33. *Optionally this filling tube can also be delivered with a double jacket (although this is not required because the tube is situated in the heated part above the grill conveyor).*
34. *On demand a single jacket or double jacket emptying tube can be installed on top of the machine. You will also need a second pump. This tube will allow you to work continuously.*

#### Chocolate pump and level detection

35. *Double jacket, heated, cast iron, gear pump to distribute chocolate (towards the curtain tray and/or to fill the chocolate bath).*
36. *When working with real chocolate, optional a second cog wheel chocolate pump or return pump. The first distribution pump (in the "real chocolate" option) will be replaced by a lobepump because a cog wheel pump will warm up the chocolate which might be a problem for real chocolate*
37. *The return pump can always be operated manually.*
38. *Optionally, the second pump (the return pump) can be replaced by a lobepump.*
39. *Stainless steel, double jacket or electrical heated piping.*
40. *With butterfly valves left and right of the pump(s) to execute simple pumping activities.*
41. *Machine is equipped with adjustable level detection without contact, that will determine the minimal chocolate level. When this detection should be broken, there is always an alarm through a vibrating limit switch (security detection).*
42. *When working with real chocolate, the feeding pump (of the tempering machine) will activate when reaching the programmed normal minimal level. Through a tensionless contact a command to the return pump (of the kettle) can be built in, in case the alarm level (vibrating limit switch) is reached. This connexion is done by the customer.*



43. When working with compound chocolate, a built in tensionless contact is can be used to ensure that a command is sent to the feeding pump (of the melting kettle) when the normal minimal level is reached. This connexion is done by the customer. Through a tensionless contact, a command can be sent to an alarm or sound signal when the alarm level (vibrating limit switch) is reached. This connexion is done by the customer.

#### Filter chocolate

44. Optional low pressure filter at the suction side of the chocolate pump to obtain a 100% clean flow of chocolate to the distribution tray and chocolate bath.
45. This filter unit consists of a double jacket heated 'box' with lid, with inside the removable filter.
46. The pattern of the holes of the sieve needs to be specified at confirmation.
47. The filter can be installed externally (when frequently cleaning is necessary) or internally (when modest waste).
48. It is also possible to install 2 low pressure filters in a bypass position to ensure a continuing production: while one filter is cleaned the 2<sup>nd</sup> filter takes over. This can only be installed externally.

#### Chocolate curtain or decoration lines

49. Distribution or curtain tray are fed by through a single jacket subdivided distribution pipe to insure a smooth distribution of the chocolate over the entire width of the belt.
50. With internal distribution stencil in the curtain tray to equally distribute the chocolate over the width of the grill conveyor.
51. With double chocolate curtain.
52. Thickness of both chocolate curtains can be regulated by means of adjustable curtain plates.
53. The distribution tray is adjustable in height.
54. The product can be covered with chocolate at one side (only the bottom of the product) or both sides (top and bottom), by means of a stainless steel 3 way tap (standard on enrobing machine). When covered at one side, the chocolate bath is filled from underneath while when completely covered, the chocolate comes from the chocolate curtain on top.
55. The 3 way tap is installed at the back side of the machine.
56. Optionally, for compound chocolate, the machine can feed both the chocolate bath and the chocolate tray simultaneously. This would allow to have a chocolate bottom and line decoration on top of the product.

#### Chocolate bath

57. Decentral filling of the chocolate tray to enhance the equal distribution of the chocolate al along the width of the belt.
58. Stainless steel cylinder in chocolate bath, adaptable by means of frequency regulator.
59. Valves to control chocolate bath, operated by locked, indexed rotary switches.
60. Draining valve to empty (and regulate) chocolate bath, operated by locked, indexed rotary switches.
61. Perfect regulation of the chocolate bath per product by means of the speed of the cylinder in the bath, position of the valves and regulation of the draining valve.

#### Rotation, vibration, blowing and detailer

62. At the end of the first grill conveyor, the excess chocolate will be vibrated or (optional) blown away.



63. *The position of the vibrated shaft, rotation, blower, ... are standard design. Other options possible.*
64. *Rotation system, which can be controlled manually, between the first and second grill conveyor in the enrobing machine.*
65. *A rotation plate must avoid products falling in the chocolate tank after rotating.*
66. *With adjustable vibration on the grill belt, by means of a frequency regulation.*
67. *Optional blower **LIGHT/POWER**, adjustable by means of frequency regulation.*
68. *The height of the blow mouth can be adjusted and/or aligned towards a certain angle.*
69. *Optional decoration for real or compound chocolate.*
70. *Optionally heated detailer with separate motor and speed regulation.*

#### Electrical execution

71. *Central electric panel at the front upper side of the machine.*
72. *At the service side, the grill conveyor moves from left to right (or on demand).*
73. *Electrical execution 400V 3ph+0 50 Hz or 200V-230V 3ph 50/60Hz.*
74. *Motors **3ph 400V 50Hz or 3ph 200V-230V 50/60Hz.***
  - *Motor for drive grill conveyor: 0,75kW Lenze (frequency contr. Lenze and IE2 for a lower energy consumption)*
  - *Motor for agitator/oscillator: 0,55kW Lenze (speed can't be adjusted)*
  - *Motor for bath cylinder: 0,27kW Groschopp (frequency contr. Lenze)*
  - *Motor for distribution pump: 0,75kW Lenze (frequency contr. Lenze and IE2 for a lower energy consumption)*
  - *Motor for optional 2nd pump: 0.75kW Lenze ( frequency contr. Lenze and IE2 for a lower energy consumption)*
  - *Motor vibration : 0,27 kW Groschopp(frequency controlled Lenze)*
  - *Motor optional blow unit: 0.75kW S&P **Light** / 1.1 kW S&P **Power** (frequency controlled Lenze and IE2 for a lower energy consumption)*
  - *Motor optional detailer: 0.063 kW Minimotor (frequency controlled Lenze)*
  - *Motor optional decoration: 0.27 Kw Groschopp (frequency controlled Lenze)*
75. *Speed of the whole grill conveyor can be controlled from “minimum” to “maximum” meters per minute by means of frequency regulator (reach 20 – 70 Hz).*
76. *Both entrance and exit grill conveyor turn at the same speed as the grill conveyors within the machine by means of sprocket wheel transmission, if this option has been chosen.*
77. *Control and signal units (switches).*
78. *Contactors.*

#### Heating

79. *Three digital thermostats with double screen ( for temperature of the water, upper space and chocolate) for demanded and actual temperatures.*
80. *Thermostats for upper space and for chocolate with day and night position, manually adjustable.*
81. *With mechanical safety thermostat for the temperature of the water.*
82. *Warming up of chocolate by means of a run through heating unit (thermoflu) 1ph **230/115/100V** with an electrical resistance.*



83. *When using real chocolate, there will be a separate heating for the chocolate tank and piping underneath the machine. This means that a second flow-through heating element (thermoflu) will be installed, also 1ph 230/115/100V (with built-in circulation pump) and equiped with an electrical resistance (cast aluminium casing) of 3.600 Watt and telltale.*
84. *With this second thermoflu an extra mechanical thermostat and bleed tray for this second water circuit, will be delivered.*
85. *Most of the piping and curves underneath the machine have a double jacket and are heated by the thermoflu.*
86. *All piping/curves/taps underneath the machine, that have no double jacket will be heated with heating wire which is regulated by a mechanical thermostat.*
87. *Heating upper space by 6 ceramic heating lamps, each 250 Watt 230/115/100V. Meant for the single jacket chocolate feeding/drain pipe, plus the single jacket distribution pipe to the curtain tray.*
88. *All ceramic heating elements have a stainless steel protection hood that has a pearled exterior.*
89. *The entrance and exit-side of the machine are equipped with a heated plate with a downward slope to the chocolate tank. The plate is heated by a flat resistance of 600W, with mechanical thermostat.*
90. *Optionally for real chocolate: heat exchanger and fitted with a connexion for cooling water, in order to accelerate cooling at the transition from night to the day position (3-way valve guided by chocolate thermostat).*

#### CE-documentation

91. *In English, available after delivery of the machine and agreement regarding the functionalities :*
  - *CE/EEC/ARAB declarations.*
  - *Brief technical description.*
  - *Safety and inspection rules.*
  - *User manual.*
  - *Electrical drawing.*
  - *Spare part list of all electrical parts*
  - *Optionally additional documentation available.*