

SE 13X

MILK SKIMMING, CLARIFICATION
AND STANDARDIZATION
WHEY SKIMMING



CENTRIFUGAL SELF-CLEANING SEPARATOR

SEPARATION

The milk (or whey) flows into the bowl through feed pipe (1) and into the distributor (2) it undergoes acceleration until it reaches the bowl rotating speed. The distributor (2) conveys the milk (or whey) to the disks stack (3) where the separation between cream and skim milk takes place. The cream flows to the centre of the bowl and skim milk flows to the bowl outer diameter. They rise in the disks stack and reach the two upper chambers of the bowl. Here two fixed centripetal pumps (4-5) convey them under pressure to the outlet pipe lines (6-7).

SOLIDS DISCHARGE

The heavy solids particles, inside the milk, follow the way of skimmed milk to the external edge of disks stack and then are collected in the peripheral part of the bowl (8). The separated solids are periodically discharged through the discharge holes (9) to maintain the required separation efficiency.

With milk and whey usually the solids discharge of partial type is performed; it does not involve the stopping of the separation process but it takes place at the rated revolving speed and without interrupting the product flow (the discharge causes only a slight slow-down).

The solids discharge of total type, with bowl complete emptying, requires a prolonged bowl opening and involves the stop of product feeding for a time sufficient to the pickup of the nominal speed; the total discharge produces a bowl slowing down not negligible. The discharged solids are collected into an outer anular chamber connected to a damping sludge tank where they are drained away by gravity through a pipe.

The pressure produced by water in chamber (11) keeps the hydraulic operated ram (10) in closed position. By feeding with water the opening pipe line (13), the opening valve (12) let the water in chamber (11) to flow away; the milk pressure push down the hydraulic operated ram and the solids are immediately ejected through the discharge holes (9). By stopping the water feed (13) and filling the closing water line (14) into chamber (11), the hydraulic operated ram goes back to the closed position.

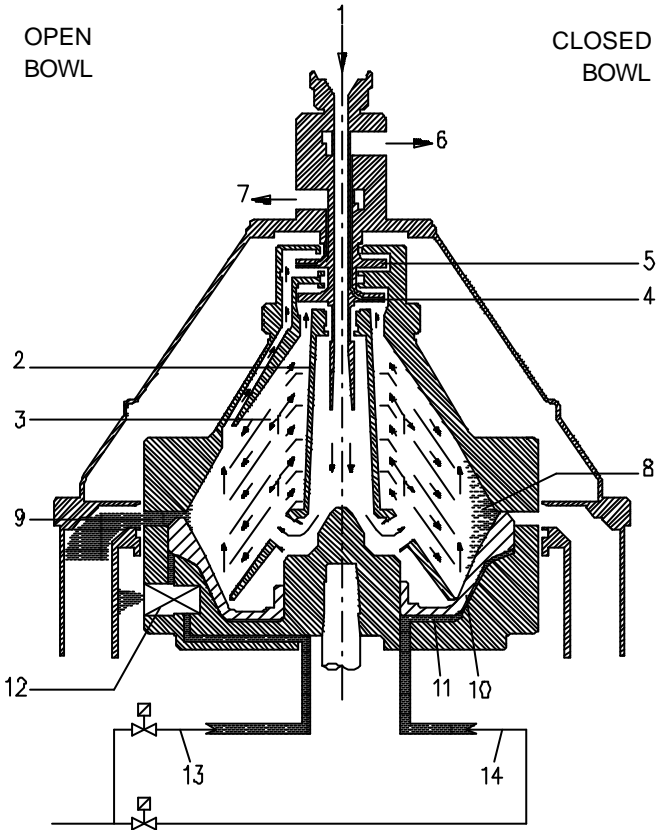


AUTOMATIC CONTROL

The periodical solids discharge is carried out automatically by means of a cycle timing unit which controls the opening and closing water solenoid valves.

By setting the timers it is possible to adjust the discharge quantity and the time between two following discharges.

The cycle timing unit controls as well the following functions: automatic closing of the bowl during the start-up; rinsing of the bowl external surface and of the protection cover internal surface, before and after the discharge; semiautomatic realization of discharges.



INLET-OUTLET FLOW UNIT

Bowl feeding is carried out through a closed pipe line with skim milk (or whey) and cream outlets under pressure and without foam; skim milk and cream are conveyed outside the bowl by means of two centripetal pumps and without seal gaskets between fixed parts and rotating parts.

A sanitary pressure gauge is installed on skim milk outlet. Three micrometric valves, allow the regulation of skim pressure, cream density and eventual remixing of cream with skim milk (standardization). This remixing takes place in a special device that guarantee the maximum turbulence.

FRAME

The separator frame is constituted by a cast iron structure externally coated by a stainless steel liner. To the cast-iron frame is flanged the three-phase electric drive motor (IP 55 protection). The bowl shaft is driven by means of a centrifugal clutch, a horizontal shaft and helical gear pair with orthogonal axes. Gear and bearings are splash lubricated.

The frame is complete with a manual brake, a sight glass to check the machine is standstill and oil level, a device for the injection of operating water in the bowl.

The frame is fixed to the floor by a foundation plate with interposition of special shock absorbers. On the frame upper part is fixed the annular chamber for solids collection and discharge and over it, the protection cover equipped with inlet-outlet flow unit.

STANDARD EQUIPMENT

- Electric control and power panel with stainless steel cabinet
- Inlet-outlet flow unit
- Solenoid valves unit and surge tank for operating water
- Foundation plate with shock-absorbers
- Set of special spanners for the bowl
- Set of spare parts
- Lubricant oil for first charge

ACCESSORIES AND OPTIONAL EXECUTIONS

- Electric feeding pump
- Micrometric valve for flow-rate regulation
- Constant pressure pneumatic valve for skim milk and cream
- Balance tank with basket filter
- Flow-meter for milk and cream
- PLC with touch-screen operator
- Vibrations monitoring system
- Pneumatic brake
- Execution on base frame - preassembled unit

MATERIALS

All parts in contact with the product and with the discharged solids are made of stainless steel.

CLEANING (C.L.P.)

No disassembling is required for cleaning the machine. At the end of production the chemical cleaning takes place in close circuit with the machine operating at rated speed.

OPERATING DATA

Milk skimming capacity (*)	2.000 l/h
Clarification and standardization capacity	3.000 l/h
Whey skimming capacity (*)	3.000 l/h
Sludge chamber capacity	1,7 l
Bowl speed	9.600 rpm
Electric motor power	5,5 kW
Max required feeding pressure	1,5 bar
Max outlet pressure	4,0 bar
Min. pressure of operating water line	2 bar

WEIGHTS AND DIMENSIONS

Length	1.100 mm	Net weight	470 kg
Width	800 mm	Gross weight	630 kg
Height	1.150 mm		

(*) The skimming capacities given above has been obtained with normal milk and whey at a temperature of 30-60 °C with a residual fat content lower than 0,03% (Gerber system).

SEITAL reserves the right to modify any technical data given in this brochure without prior notice.



SEITAL S.r.l. - 36014 SANTORSO (VI) ITALY

Via delle Prese, 14. Tel. +39 0445 540232

Fax +39 0445 540214

http: www.seital.it - e-mail: seital@seital.it

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