

Self-Cleaning Hermetic Bactofuge BMRPX 714 HGV

Application

Removal of bacteria and spores from milk. Designed for continuous operation and CIP.

Working Principle

The Bactofuge has the following distinguishing features:

1. Hermetic, airtight design. Milk is fed into the Bactofuge bowl from the bottom through a stationary pipe and a hollow spindle. Axial seals at the inlet and outlets effectively prevent incorporation of air. This, in combination with smooth acceleration of the milk, ensures a gentle treatment of the milk as well as foam-free discharge of the bactofugate.

The inlet pressure is to be sufficient to force the milk under pressure through the Bactofuge to the outlets. The bactofugated milk is discharged under pressure by means of an outlet pump in the light-phase outlet. The diameter of the impeller can be dimensioned to give the exact pressure required for the subsequent line, which reduces power consumption.

2. Continuous discharge of foam-free bactofugate. During bactofugation, the heavy spores of, for instance, the *Clostridium* genus as well as other types of bacteria are sedimenting towards the outer periphery of the bowl, together with other foreign particles in the milk. The micro-organisms and a certain amount of milk, the bactofugate, are continuously led on the outside of the top disc up to the heavy-phase outlet and are discharged by means of an outlet pump in the outlet housing and an external, speed-controlled positive pump. The bactofugate amount is normally regulated to 3% of the feed.

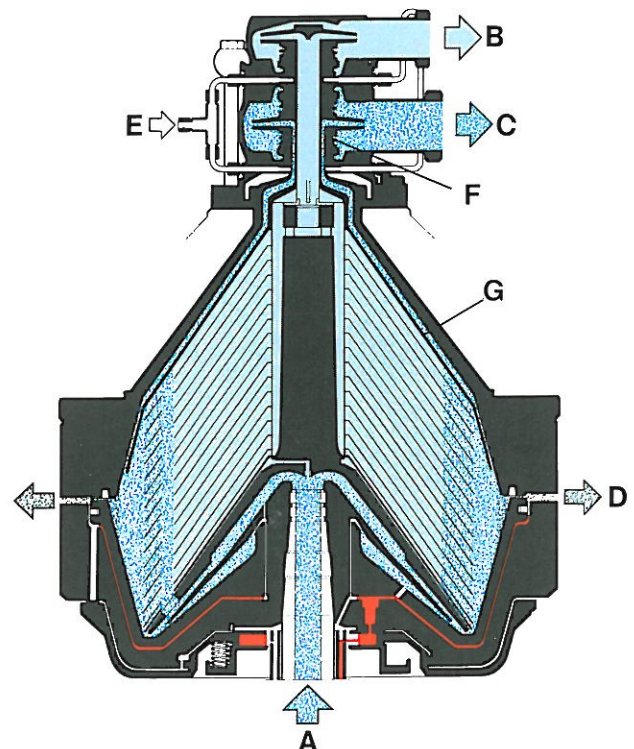
The bactofugate contains approx. 90% of the total bacteria in the raw milk and up to 95% of all spores. The bactofugation efficiency depends on the throughput. It is also influenced by the bactofugation temperature.

3. Automatic sludge discharge. Sludge collecting in the conical sludge space of the bowl is automatically discharged at preset intervals. This is achieved by the sliding bowl bottom dropping briefly (< 1 second) allowing the sludge to be ejected without disturbing the feed. The opening and closing of the bowl is done with water and controlled by a program unit. The bowl opens for such a brief instant that only a small, preset volume escapes. During cleaning, the bowl can be opened longer to give a bigger partial discharge.

4. Cleaning-In-Place. The machine is designed for CIP and should be incorporated in the plant CIP system. During the water rinsing phases of the cleaning cycle, big discharges are effected, while during the detergent phases, small discharges only are used in order to save detergent. All parts of the Bactofuge in contact with milk as well as the outside of the bowl, the inside of the frame hood, and the sludge outlet are cleaned perfectly without the need for any manual labour. An external system supplies cleaning liquid to the hermetic seals during the cleaning of the machine. This system is also used to flush the seals with water during starting, stopping, and production.

Basic Unit

Material. All parts in contact with product as well as motor casing and sludge cyclone are of stainless steel. The lower part of the frame is clad with stainless steel.



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|---------------------------------|----------------|
| A. Inlet | E. Seal water |
| B. Outlet for bactofugated milk | F. Outlet seal |
| C. Outlet for bactofugate | G. Top disc |
| D. Sludge ejection | |

Standard Equipment. Included are motor, foundation plate, automatic air brake, an operating water module, cyclone to absorb the kinetic energy of the ejected sludge, and external arrangement for seal cleaning and flushing.

Spare parts kit is supplied.

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Technical Data

Capacity. Removal of bacteria and spores from milk: 10,000–15,000 l/h (22,000–34,000 lbs/h). For capacities higher than 10,000 l/h (22,000 lbs/h), please contact Alfa-Laval.

Connections. Inlet 63.5 mm (2.5 in). Bactofugate outlet 63.5 mm (2.5 in). Bactofugated milk outlet 51 mm (2 in). SMS dairy unions.

Motor. 22 kW controlled-torque motor for 380/660 V, 50 or 60 Hz 3-phase AC. Other voltages on request. The motor drives the Bactofuge bowl directly via a worm gear.

Bowl Speed. 4,950 rpm.

Sludge Space. 9.6 l.

Water Consumption. Operating water: Intermittent flow of up to 1 l/s, max 3 seconds, at constant pressure of 400 kPa (4 bar or 60 psig) corresponding to 0.5–1.0 l per discharge. Sludge-flushing water: 25 l per discharge. Water consumption for cooling of hermetic seals, transmission oil, make-up water and inside frame hood: approx. 250 l/h.

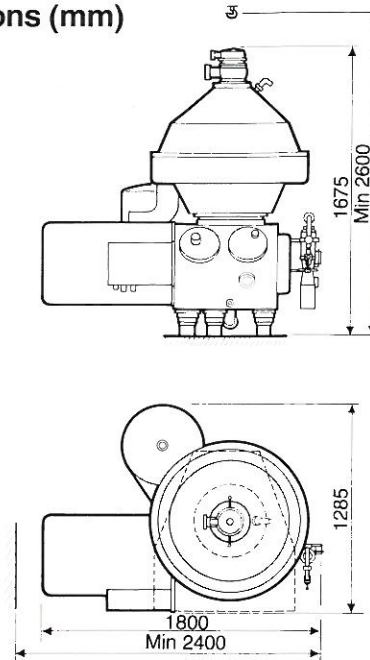
Air Consumption. For pneumatic brake 600 kPa (6 bar or 85 psig).

Inlet Pressure. 300–600 kPa (3–6 bar or 40–85 psig) dependent on capacity and required outlet pressure. For the higher inlet pressures, an external inlet pump is added.

Outlet Pressure. Up to 600 kPa (6.0 bar or 85 psig) in bactofugated milk outlet. Outlet for bactofugate is regulated by a positive pump with variator.

Overhead Hoist for 10 kN (1,000 kp or 1.0 ton) is required.

Dimensions (mm)



Shipping Data

	Basic unit without motor	Motor only
Net weight, approx.	1,450 kg	360 kg
Gross weight, approx.	1,750 kg	440 kg
Volume, approx.	4 m ³	0.6 m ³

Auxiliary Equipment necessary for operation

Item No.	Description	Cannot be combined with item No.	Requires item No.	See PD No.
1	Set of tools			
3	Positive pump with variator on heavy-phase outlet (Not necessary if inlet pump is included in sterilizer, PD 62344.)		18	
4	Flow controller			60687
5	Pressure switch for positive pump on heavy-phase outlet (Not necessary if switch is included in sterilizer, PD 62344.)			
6	Bactofugate flow meter			
9	Inlet pressure indicator			
16	Constant pressure unit on light-phase outlet (Not necessary when light phase is directly connected to sterilizer, PD 62344.)		18	60692
18	Control panel type ALSEC			
23	Y/D starter		18	
26	Inlet valve SRC-SMS-63.5-20-20			

Optional Equipment

Item No.	Description	Cannot be combined with item No.	Requires item No.	See PD No.
2	Inlet flow meter			
24	Tripping device			
28	Extra spare parts (for 6,000–9,000 hours running)			