

## Separation Technology for Dairy Industry



**Disc stack separators and  
standardization systems**



# Innovation in separation technology

REDA self-cleaning automatic separators: a promise of quality and constant evolution.

The best choice in a sector that requires more and more reliability, quality and respect for the environment and human beings.

The entire range of REDA separators guarantees a short-term return on investment and very low operating and maintenance costs.

REDA strength lies in the deep knowledge of separation technology for over forty years in the dairy industry.

Thanks to its vast experience, REDA offers technical advice in order to find the best solution in the installation of centrifugal separators for all applications, products and by-products involved in the dairy processing industry.

**8,000** sq.m. of covered area | **> 100** global team workers | **> 2,000** separators sold worldwide



# General features

- Completely stainless-steel execution
- High-grade finishing both for wetted and external parts to ensure proper sanitization and ease of cleaning
- Automatic time-controlled solids ejections allowing precise adjustment of discharges
- Built-in manual back-pressure control
- Self-cleaning device
- Direct gear transmission system (or belt-drive system for large capacities) with **FREQ-CLUTCH™** device.
- Possibility of discharges in manual mode
- Vertical rotating shaft (**SOFT-SPINDLE™**) with flexible gear system that guarantees almost unlimited life to bearings and gears
- Oil bath lubrication without the need for an external lubrication circuit
- Stainless steel cabinet including VDF, power section, PLC and HMI system
- Minimum number of seals subject to wear and tear (**SERVICE-FREE™**)
- Ready for automatic CIP system in a closed cycle



## Options

- Automatic back pressure control
- Flow rate indicator (milk and cream)
- Support skid (up to 15,000 l/h)
- Sludge collecting vat with pump
- Vibration sensor
- Oil temperature probe
- Operating water feeding unit
- Automatic cream concentration control
- PRS-Plus System (protein recovery device at discharge)
- MRS System (milk recovery device at discharge)
- Communication modules for signals exchange

# Protein recovery with **PRS™ System**

The new generation REDA separators are supplied with a standard PRS™ system that is conceived to reduce milk losses to a bare minimum at the time of discharge.

Much progress has been made in the studies of recovering milk and proteins that are inevitably lost during the separators' automatic discharges.

During production, the dirt contained in the milk (sludge) accumulates on the inner peripheral part of the bowl. When ejecting the

sludge, it is natural that a small quantity of milk is expelled from the bowl together with the sludge.

REDA milk separators of the latest generation are all supplied with the standard PRS™ system that is specially conceived to reduce milk losses to a bare minimum at the time of discharge.



The PRS™ guarantees a full control of the separation process without any product damages: in fact, the centrifuge will perform highly effective ejections with an extended discharge time.

This is the result of important design modifications in comparison to previous models with simpler bowl design, combined with optimized sludge chamber dimensions and a stronger and faster discharge system, which allow the bowl to open in a shorter time.

## Main benefits

- Undeniable reduction of milk losses during discharges
- Less discharges with a higher solid concentration in the sludge
- Less water consumption
- Longer intervals between one ejection and the following
- Less quantity of discharged effluent
- Very short payback time

# Milk separators

The new generation separators of the RE-T/TE series guarantee top performance in milk skimming results, delicate treatment of fat globules and operating efficiency in absolute hygienic conditions.



- A special hermetic design of the inlet / outlet flow system makes the product enter the bowl smoothly and gradually accelerates it to the separation speed. This system, which avoids the entry of air into the flow, ensures a gentle handling of the product while respecting the quality of the fat globules.
- Mechanical innovation in gear transmission: direct gear transmission connected to a soft-spindle vertical shaft. No recovery pump needed.
- The product comes out of the separator through two rotating pumps, one for skimmed milk and one for cream, in order to optimize energy efficiency.
- PRS system included as standard. New solids room design with larger volume to allow for fewer discharges and therefore less product losses during each discharge.
- The direct drive system has a specially developed motor mounted directly on the centrifuge shaft. This minimizes energy loss, allows for a more compact footprint, and because there are fewer moving parts, reduces maintenance.
- The strengths of this series: optimized energy consumption (thanks to the special VDF), extremely quiet operation and economical maintenance.



## RE-T/TE Series

model	milk	standardization	cleaning	whey	transmission	PRS™	motor kW
RE15T	1,500	2,500	2,500	2,500	gear drive	✓	5.5
RE25TE	2,500	3,500	3,500	3,500	gear drive	✓	7.5
RE35TE	3,500	5,000	5,000	5,000	gear drive	✓	7.5
RE50T	5,000	7,500	7,500	7,500	gear drive	✓	11
RE70TE	7,000	10,000	10,000	10,000	gear drive	✓	15
RE100TE	10,000	15,000	15,000	10,000	gear drive	✓	15
RE120T	12,000	18,000	18,000	13,000	gear drive	✓	18.5
RE150TE	15,000	20,000	20,000	15,000	belt drive	✓	22
RE150T	15,000	22,500	22,500	22,500	gear drive	✓	22
RE200T	20,000	30,000	30,000	25,000	gear drive	✓	30
RE250T	25,000	35,000	35,000	30,000	belt drive	✓	30-37
RE350T	35,000	50,000	50,000	35,000	belt drive	✓	37-45
RE400T	40,000	50,000	50,000	40,000	belt drive	✓	44-55

(\*) Feeding capacity in l/h

Cream separation from whey is a key process in the dairy industry. The full skimming mode serves the purpose of recovering the valuable residual fat, which remains in the whey after cheesemaking.

## Whey separators

### Features

The separators of the RE-W series are specifically designed to recover the residual fat in the whey after cheesemaking.

The very high rotation speed of the bowl, combined with the special design of the discs stack, ensures a high-level separation efficiency of the fat globules that still remain in the whey.

A soft inflow system puts the whey at the inlet under pressure and accelerates it up to the separation speed without damaging the fat globules.

The wide working surface, high centrifugal force and extremely fast expulsion of the sludge guarantee an outstanding skimming efficiency.

No recovery pump is necessary after the process because the skimmed whey and cream exit the separator under pressure.



All REDA whey separators feature a special inlet/outlet flow system with a back pressure valve placed at the product outlet.

### Options

- Automatic control of cream concentration
- Vibrating screener for the pre-filtration of curd-fines
- Pre-filtration system on skid for curd-fines separation before processing



### RE-W Series

model	fresh whey	acid whey	transmission	PRST <sup>™</sup>	motor kW
RE15W	2,500	1,500	gear drive	✓	5.5
RE25W	3,500	2,500	gear drive	✓	7.5
RE35W	5,000	3,500	gear drive	✓	7.5
RE50W	7,500	5,000	gear drive	✓	11
RE70W	10,000	7,000	gear drive	✓	15
RE120W	13,000	10,000	gear drive	✓	18.5
RE150W	22,500	15,000	gear drive	✓	22
RE250W	30,000	20,000	belt drive	✓	30-37
RE350W	35,000	25,000	belt drive	✓	37-45
RE400W	40,000	30,000	belt drive	✓	44-55

(\*) Feeding capacity in l/h

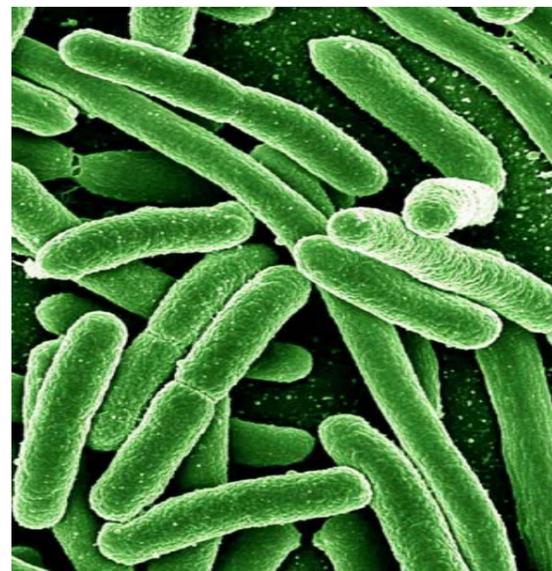
# Bacteria separators

Bacteria removal contributes significantly to higher quality and longer shelf life of fresh milk, making it a key addition to milk pasteurisation or thermization



Bacterial removal plays a significant role in milk processing as it allows to extend the shelf life and increase the quality of the milk in order to produce fresh pasteurized milk, long-life (UHT) milk, milk powder, cheese, as well as whey products (such as whey proteins) for baby food industry. More recently, the application of bacteria separation for the production of ultra-pasteurized milk (Extended Shelf Life - ESL) has generated new interest as this process can meet the needs of the modern distribution market which requires a longer shelf life than that of traditional fresh pasteurized milk.

This mechanical separation process is specially designed to separate microorganisms from milk using the centrifugal force of separators. Undesirable effects, often caused by bacteria and spores, are acid fermentation, cheese blowing and a reduction in the shelf life of milk and its by-products. Since bacteria and spores have a significantly higher density than milk, the mechanical effect of bacteria separation makes it a particularly effective application for their elimination. As these spores are also resistant to heat treatment, their removal becomes a very useful adjunct to thermization, pasteurization and sterilization of milk.



# Working system

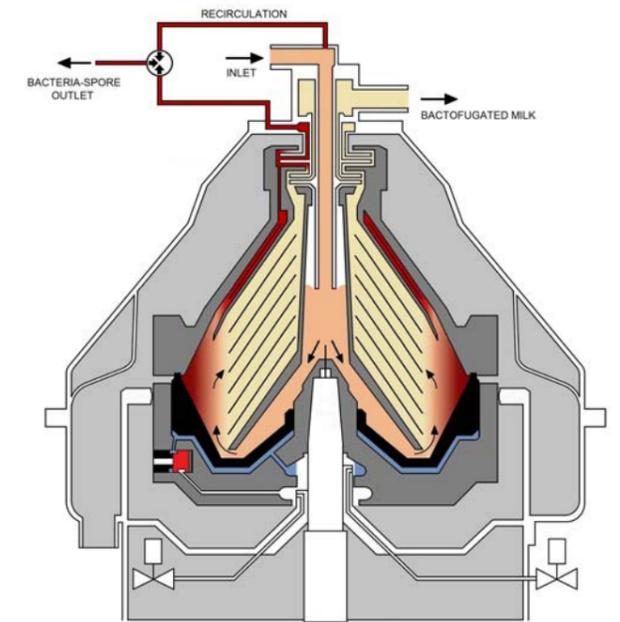
## Traditional system (maximum reduction of bacterial load)

With this system the separator is equipped with two outlets at the top and no-recirculation: one for the continuous discharge of the heavy bacteria phase (2-5% of the flow), and one for milk with reduced bacterial load. The heavy bacteria phase can then be remixed after an appropriate sterilization treatment.

## One-phase system (recirculation)

This system works like the traditional one, with the difference that the milk with bacteria phase is reintroduced into raw milk. In this way the bacteria and spores are concentrated in the sludge chamber inside the separator and discharged as sludge.

The separator requires a greater frequency in discharges but the total loss of product is reduced compared to the system without recirculation.



**REDA bacteria separators can run both with One-phase system (Recirculation) or with traditional system (no recirculation). A by-pass valve allows the operator to choose the most suitable working system and set it directly from the HMI of the control panel.**

# RE-B Series

model	capacity	milk cleaning	transmission	PRS™	motor kW
RE50B	5,000	8,000	gear drive	✓	11
RE70B	7,500	10,000	gear drive	✓	15
RE100BE	10,000	12,000	gear drive	✓	15
RE120B	12,000	15,000	gear drive	✓	18.5
RE150B	15,000	20,000	gear drive	✓	22
RE200B	20,000	30,000	belt drive	✓	30
RE250B	25,000	35,000	belt drive	✓	30
RE300B	30,000	38,000	belt drive	✓	37
RE350B	35,000	40,000	belt drive	✓	37

(\*) Feeding capacity in l/h

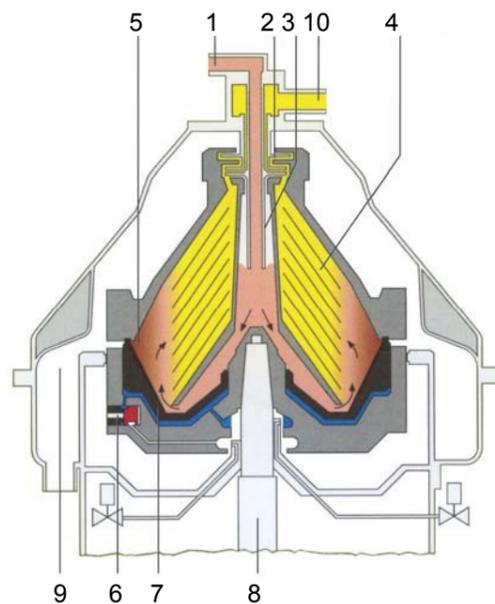
# Milk clarifiers

Milk clarification represents a very important step in milk processing when aiming at high-quality dairy products.

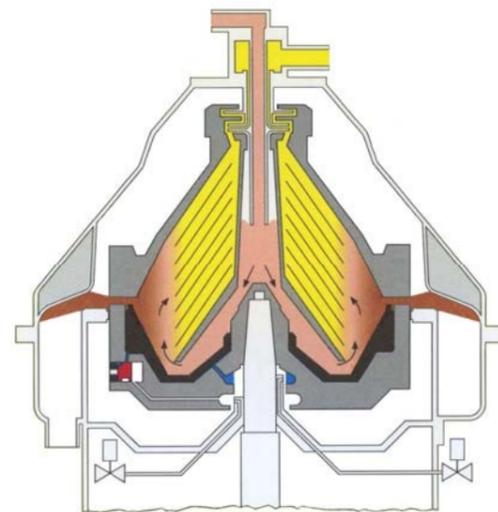


Usually the raw milk that arrives at the dairy must be cleaned to eliminate solid impurities that may be present in the milk. Examples of unwanted components in raw milk are dirt particles, straw, hair and sand particles, blood residues, udder cells and many somatic cells, bacteria and spores.

RE-P series REDA clarifiers are designed and built specifically to clean milk (cow, sheep, goat, etc.). Actually, a cream separator can also be used as a milk clarifier, but its cleaning efficiency is lower than that of a dedicated clarifier.



- 1 Product feed
- 2 Centripetal pump
- 3 Distributor
- 4 Stack of discs
- 5 Solids space



- 6 Bowl valve
- 7 Mobile piston
- 8 Vertical shaft
- 9 Sludge drain
- 10 Cleaned product

The removal of impurities, therefore the clarification efficiency, depends on the quality and temperature of the product. Cold milk can be easily processed without any problem by slightly reducing the bowl speed. The feeding pressure passes through a soft flow inlet system which allows the product to reach the proper speed for clarification,

without compromising its characteristics: this is very important to preserve the quality of sheep and goat milk.

The wide working surface and the extremely rapid expulsion of sludge ensure a high-level clarification efficiency and also a significant reduction in the bacterial load.



## RE-P Series

model	milk	cold milk	sheep milk	whey	motor kW
RE50P	5,000	3 000 - 4,000	3 000 - 4,000	4,000	7.5
RE70P	7,500	4,000 - 5,000	4,000 - 5,000	5,000	11
RE100P	10,000	6,000 - 8,000	6,000 - 8,000	8,000	15
RE150P	15,000	9,000 - 12,000	9,000 - 12,000	12,000	15
RE200P	20,000	12,000 - 15,000	12,000 - 15,000	15,000	18.5
RE300P	30,000	18,000 - 24,000	18,000 - 24,000	25,000	30-37
RE400P	40,000	24,000 - 30,000	24,000 - 30,000	35,000	37-45

(\*) Feeding capacity in l/h

# Automatic standardization system RTM

Top solutions for automatic milk and cream standardization

Designed to perform a precise control of the fat content in the cream coming from the skimming separator as well as an accurate standardization of the fat content in the milk



## RTM Working system

The RTM and RTV systems are automatic milk and cream fat standardization devices designed to achieve both precise control of the fat content in the cream coming from the skimming separator, and an accurate standardization of the fat content in the milk.

The RTM direct in-line standardization system guarantees a very high level of precision in standardization thanks to the automatic adjustment system that takes into account the real operating conditions.

At any time, the system recognizes the level of fat in the incoming milk and calculates the milk and cream flows, acting on the automatic adjustment valves accordingly. Special options are available when the RTM automatic standardization device is integrated into a new or existing pasteurization plant, with or without a homogenizer, in order to ensure the correct flowrate in the system (especially when producing low-fat cream).

## Main features

- Adjustment of parameters during operation without interrupting the process
- Key addition to upgrade an existing milk skimming separator
- Possible integration into existing systems or new installations
- Electrical panel with PLC and HMI
- Completely made of stainless steel
- Standard version mounted on skid
- Easy to install and operate
- User-friendly



# Automatic standardization system RTV

The RTV automatic standardization system is based on the same operating principles as the RTM version, but it requires manual entry of the raw milk fat content and the flow capacity of the system in the HMI of the unit.



## Benefits

- Maximum accuracy and precision
- Constant quality
- Fast adjustment speed
- Non-influence of seasonal variations in fat content
- Constancy in the result
- Energy and time saving
- Increase in volumes to be processed
- Diversification of the product range

## RTM Series

model	capacity
RTM50	5,000
RTM100	10,000
RTM150	15,000
RTM200	20,000
RTM250	25,000
RTM300	30,000
RTM350	35,000

## RTV Series

model	capacity
RTV30	5,000
RTV50	7,500
RTV100	10,000
RTV150	12,000

(\* ) Feeding capacity in l/h (acceptable accuracy of ±20%)

# After-sales Service

## Specialists at your side

The great reliability of REDA separators, their top separation efficiency, ease of use and very low maintenance costs, have considerably contributed to the success of REDA brand in separation technology for the dairy industry.

All this would not be possible without a fast and precise technical service designed to support and help the customers with any questions and requests regarding operation and maintenance.

Remote control and production check-up through the latest technologies is now available on all our models to further reduce intervention costs and optimize scheduled maintenance times when necessary.



We are able to provide spare parts to all our customers around the world and arrange on-site technical assistance when needed.

REDA Separation's intralogistics partners ensure short delivery times with online tracking of shipments and fast deliveries to any location.

Whether you need spare parts, local service, repairs, upgrades or modernization of your equipment, REDA Separation is your trusted full service provider.

Tailor-made training courses can be held both at the customer's factory and at REDA headquarters, with the aim of helping customers to optimize the performance of the plants during the production phases, while reducing management costs.

REDA Service mix package with KARE formula (Kit Assistance Reda Equipment) is a new integrated service born to support our customers in taking care of their equipment.

The purpose of the KARE formula is to provide our customers with preventative maintenance of their machinery by supplying original spare parts and monitoring the machines in order to extend the trouble-free life of the equipment and relieve our clients of any service concerns.

We are always looking for ways to minimize downtime and increase the predictability of operations while promoting overall production efficiency.



# Separation Technology for Dairy Industry



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