

Protein Recovery System (PRS™)

Introduction

A new generation REDA Separators are coming into the market when milk is processed.

The milk loss due to the discharge action can be reduced closed to zero with an important design modification jointed to a new software function.

The REDA upgraded its separator working on existing advantaged recognized design introducing the following modification :

- **Optimized sludge chamber (OSC™):**
 - The sludge chamber must be big enough to contain sludges separated from skimmilk outlet (discs outlet diameter) ; in this manner sludges can be ejected with a lower frequency
Since each discharge means a skimmilk (protein) loss , **bigger is the chamber less are the discharges number and therefore the skimmilk (protein) loss**
 - The sludge chamber must be not too big because when separator discharges it ejects the entire content of the chamber and not only the sludges (it means that the most of the skimmilk(protein) crossing through the chamber is lost) : **smaller is the chamber less is the product lost each discharge (protein loss).**

- **Stronger and faster discharge (FDS™)**
 - When the sludge is high concentrated into the sludge chamber, the ejection (discharge) is more critical : it is necessary washing chamber by some liquid contained into the chamber itself.
It means to lose skimmilk (protein) : it is as much as higher when the ejection is not perfect.
The best ejection needs to be fast and strong : only in this way the quantity of skimmilk (protein) lost together to the sludge can be reduced.
REDA new generation separator introduces a stronger and faster discharge because the bowl opens more in a shorter time : the big effort generated over the mechanical drive can now easily supported by REDA “**Soft shaft™**” system and by “**Freq-clutch™**” system.

Besides the above optimizations REDA now can offer the **PRS™** system that cuts closed to zero the milk and protein loss.

How to save protein (Zero protein loss) - PRS™ system

The PRS™ system supported by a software full control provides to empty the bowl by milk before each discharge , but letting the pasteurizing unit working without any problem of product default.

New generation separator with a OSC™ and FDS™ systems can be supplied together to the PRS™ system to cut the milk and protein loss due to the separator working.

Compare to normal separator operating into milk skimming or standardizing the gain is the following:

Type of machine : RE200T			
Feeding capacity	20,000	liters/hour	
Operating hours/day	10	h/day	
Operating days/year	350	d/year	
Results	Standard system	PRS™	units
Discharges per hour	3	1	numbers
Volume of discharge	15	15	liters
Milk lost/each discharge	5	0	liters
Milk lost/day	150	0	liters
Milk lost/year	52500	0	liters
Difference (milk saved)	Standard system VS. PRS™	52500	liters/year
Water/each discharge	30	45	liters
Water/day	3	0,45	m ³
Water/years	315	157,5	m ³
Difference (water save)	Standard system VS. PRS™	157,5	m³/year
Sludge+effluents/discharge	45	60	liters
Sludge+effluents/day	1350	600	liters
Sludge+effluents/year	472500	210000	liters
Difference	Standard system VS. PRS™	262500	liters/year

Payback time

REDA is introducing into the market the new generation separator with OSD™ and FDS™ and in the next future all the centrifuges will be equipped with the above systems.

For above reason the only extra cost for protein recovery system will be the **PRS™** system that can be payback in a very short time (much less than one year).

Moreover the total discharge quantity of effluents and water consumption decrease proportionally allowing an extra gain.

Competitors similar systems

On the market there are other systems to reduce the protein loss. But the cost to introduce the system is very high (more or less ten times of PRS™) with the same or worse result.

Press information done by competitors gives the gain compare to their normal system , but REDA normal system already gives advantages in the protein saving compare to the competitors.

Conclusion

Protein loss due to centrifuge working was always neglected in the past, but now the more attention to the increasing of plants efficiency focalizes the attention also in this field.

Moreover REDA always looks at environment problems ; less effluents, less water consumption add a very high value at **PRS™** system.

The PRS™ system can be included into the following applications :

- **Milk skimming**
- **Milk standardizing**
- **Milk clarification**
- **Milk bactofugation**

For any further information please contact :

Whey process : a new PRS™ application

In the whey process PRS™ system it can be introduced but in the past it seemed there is no big advantage due to the low value of the whey.

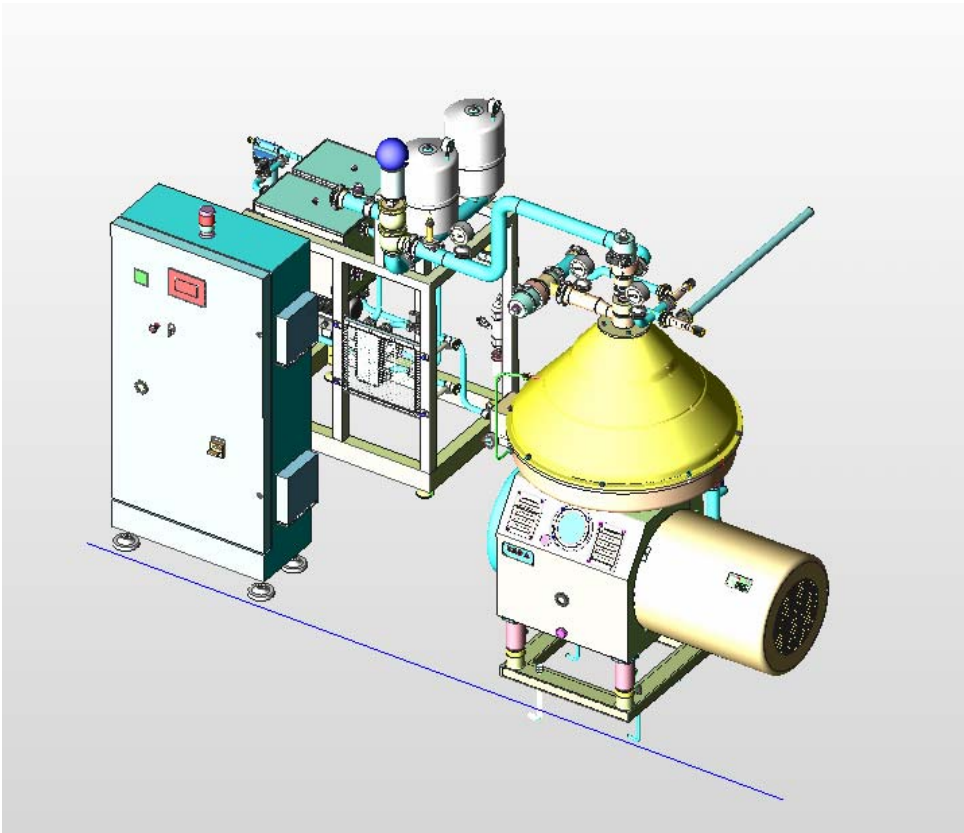
But recently whey price raised a lot caused an earthquake in the world market.

It has changed completely the perspective because now whey recovery is becoming important : the PRS™ can be set on whey skimming separator with a short pay-back investment.

Type of machine : RE150T			
Feeding capacity	20,000	liters/hour	
Operating hours/day	10	h/day	
Operating days/year	350	d/year	
Results	Standard system	PRS™	units
Discharges per hour	6	2	numbers
Volume of discharge	15	15	liters
Whey lost/each discharge	5	0	liters
Whey lost/day	300	0	liters
Whey lost/year	105000	0	liters
Whey powder lost/year	6800	0	Kgs

Whey powder has a cost of 1,200 Euro per tons, but to calculate the money saving for a cheese factory we have to consider the price of whey to sell : it can reach 600 Euros/tons

Profit	6,8 Tons	600 Euros/Tons	4080 Euros/year
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PRS installation

The PRS unit is pre-assembled on a skid : an extremely easy installation gives also to the Operator the capacity to control and adjust the system for the best product recovery.

The system can be set on existing unit, but for the best performing a separator modification should be set.

PRS description

The PRS unit has the following components :

- Pressurizing unit with balance water tank , high pressure pump, expansion tanks
- Brazed-heat exchanger for temperature control
- Pressure transmitters
- Temperature transmitters
- Inlet back-pressure valve

- Three-way pneumatic valve
- Solenoid valves for automation control
- PLC supervision to control the system

On the same skid it is assembled also the water unit system (balance-tank, pump, filter).