High speed separators range with AirTight technology

Tetra Pak portfolio

Tetra Pak®
PROTECTS WHAT'S GOOD

AirTight technology for high profitability

We deliver reliable separation solutions that enable you to cost-effectively meet production demands for high food quality and safety, while also increasing your yield and operational efficiency.

Our separators harness flexible technologies that help you to grow your business as well as reduce your environmental impact.

They are available as complete standalone units or modularised systems that are easy to install and operate.

For over a century, our separators have set the standard for gentle and efficient separation. For modern dairies, our range meets the strictest performance requirements and covers a wide range of applications and capacities. The separators' unique AirTight technology delivers excellent product quality, superior separation efficiency and unmatched production flexibility.

Excellent product quality

Thanks to AirTight technology, our separators, clarifiers and spore removal units treat your products ultra-gently. Hermetic seals prevent damaging air intake and aroma loss, while smooth acceleration in the rotating hollow spindle preserves fat globule and particle size. The result: a cleaner dairy product with fewer impurities, no increase in free fat or free fatty acid, and excellent product quality.

Superior efficiency

No centrifugal separator on the market can match AirTight separators for efficiency. This technology delivers outstanding clarification and fat and impurity separation compared to other designs. How? The secret is gentle product treatment and product extraction from the bowl centre.

Low energy consumption

AirTight technology not only enables superior skimming efficiency but is also a real energy saver. The separator itself consumes up to 40%* less energy than conventional paring disc separators, reducing a separation system's energy consumption by up to 20%.*

Preservation of fat globule and particle size also means a lower rpm can be used to achieve desired separation efficiency. In addition, the centred outlet enables higher rotational energy recovery. The result is maximum separation and clarification efficiency with minimum energy consumption.

Clear advantages in clarification

In our clarifiers, sediment space emptying is hydraulically operated. Discharge of sludge takes place at pre-set intervals and is extremely accurate. At the outlet, a co-rotating pump efficiently discharges the clarified product from the centre. This gentle and efficient clarification process is made possible by AirTight technology.

Unmatched production flexibility

Each separator, clarifier and spore removal unit with AirTight technology can handle a wide range of capacities without mechanical modification. This means a single unit can efficiently handle many recipes and capacities.

The key to this unmatched production flexibility is the use of efficient product discharge pumps, a completely filled bowl and variable rpm control. For instance, the cream fat content in a hot milk separator can be increased to 60% with unchanged skimming efficiency.

Environmental advantages

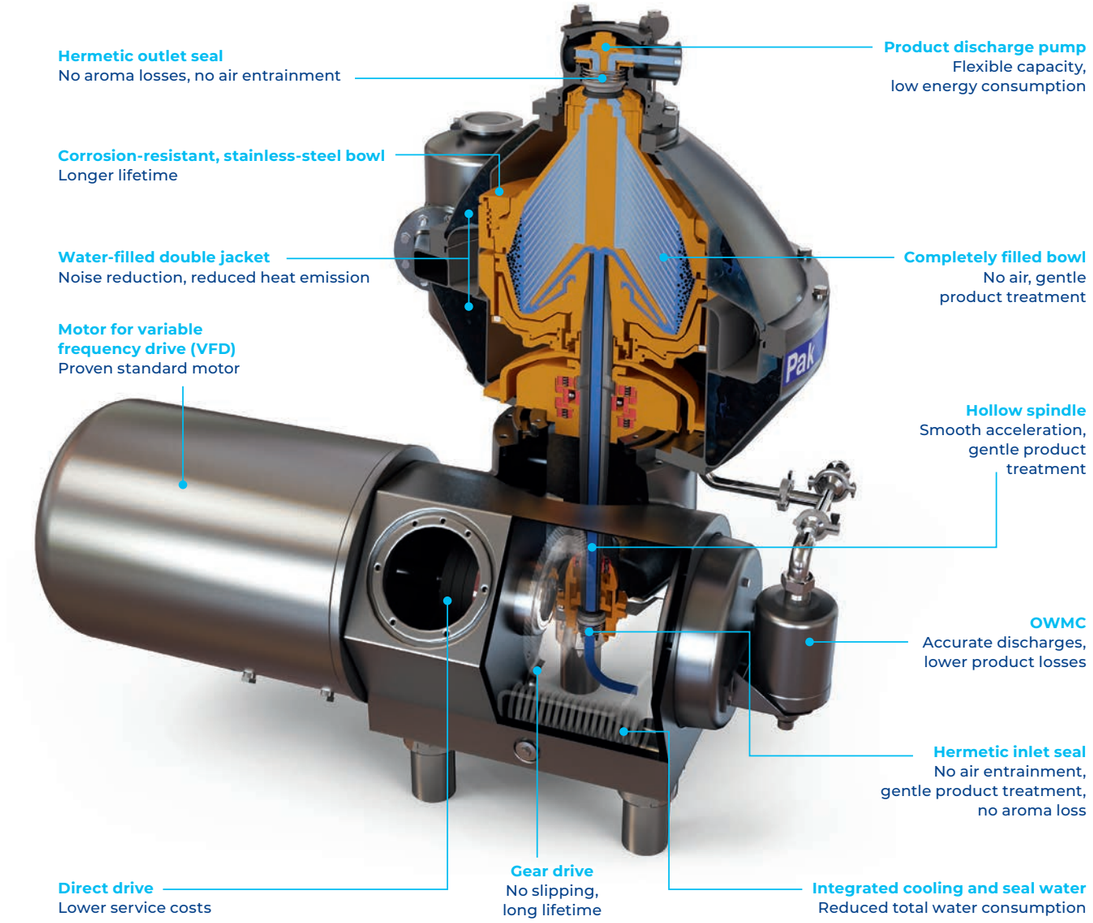
Our separators and clarifiers not only save money, they also reduce environmental load. The design reduces energy and water consumption – and minimizes food product loss:

- Low water consumption – Oil cooling water is reused as seal water.
- Accurate discharge gives lowest possible losses.
- Max. noise level approx. 78 dB(A) as per ISO 3744.

Reliable operation

AirTight separators, clarifiers and spore removal units perform year after year thanks to easy operation and service. Our skilled service engineers are available whenever they are needed, wherever the customer is.

** Data for machines with Encapt™ technology is presented separately.*



Range of applications

The y-axis represents production lines, e.g. “skim milk production.” The machines that could be included in each line are marked with a dot. For example, a clarifier is not always used to produce skim milk but can be part of a skim milk production line due to market regulations.

	Hot milk separation	Cold milk separation	Clarification	Bactofugation (bacteria/spore removal)	Beverage clarification	AMF/ buttermilk concentration	Fermented dairy separation/ concentration	De-oiling
Skim milk production (skimming)	●	●	●	●				
Standard consumption milk (standardization)	●	●	●					
Extended shelf life consumption milk	●	●	●	●				
Cheese production (standardized milk)	●	●	●	●				
Whey separation	●	●	●	●				
Fermented yoghurt	●	●	●				●	
Quarg production	●	●	●				●	
Tea/coffee clarification					●			●
AMF production	●		●			●		
Coconut water					●			●
Coconut milk/cream	●	●	●	●				

Dairy separators for every purpose

Milk clarification

The main purpose of milk clarification is to remove impurities. Many clarifiers can only be used for either hot or cold milk, but with Tetra Pak® Clarifiers, you can process both. The efficiency of the removal of smaller particles increases with the temperature, and the most efficient reduction of leucocytes and bacteria is achieved at 50–60 °C.

Model	Nomional flow rate l/h	Sediment space l	Motor size kW
D20	20,000	5	18.5
D25	25,000	5	18.5
D530	30,000	22.5	18.5
D535	35,000	22.5	22
D545	45,000	22.5	30
D845	45,000	38	30
D860	60,000	38	37
D870	70,000	38	45

Cold milk separation

When heating milk is undesirable and long run times are desirable, AirTight technology enables you to separate cold milk at 4–15 °C. The viscosity and characteristics of cream at low temperatures make AirTight technology the only feasible form of separation for this task – thus setting the industry standard. Please note that performance of a cold milk separator is highly dependent on milk quality, operational temperature, flow rate, process control and selection of separator size.

Model	Nominal flow rate l/h	Motor size kW
C10	10,000	15
C515	15,000	18.5
C520	20,000	18.5
C830	30,000	30
C835	35,000	30
C840	40,000	30
C845	45,000	30
C850	50,000	37
C855	55,000	37

60% fat with maintained skimming efficiency

Hot milk separation

The objective is to separate the globular milk fat from the serum, the skimmed milk. The separation process is normally incorporated into a pasteurization line and combined with a Tetra inline fat standardization system. The outgoing cream from Tetra Pak® Separators can contain up to 60% fat with maintained skimming efficiency.

The skimming efficiency of our hot milk separators has been optimized and the AirTight technology commonly produces skimming efficiency down to 0.04%. As in all separation, the result is influenced by a number of parameters.

Model	Nominal flow rate skimming l/h	Nominal flow rate standardization l/h	Motor size kW
H10	7,000	10,000	15
H15	10,000	15,000	15
H20	12,500	17,500	15
H614	15,000	25,000	18.5
H614 Plus	17,500	28,500	18.5
H525	15,000	25,000	18.5
H530	20,000	30,000	18.5
H535	25,000	35,000	22
H540	30,000	40,000	30
H845	30,000	40,000	30
H855	35,000	55,000	30
H865	45,000	66,000	37
H875	55,000	75,000	45
H885	60,000	80,000	45
H8100	65,000	85,000	45

Spore and bacteria removal

Tetra Pak® Spore removal units are traditionally incorporated in the pre-treatment of cheese milk, where typically butter acid spores (anaerobic spores) are removed. Spore removal units are also used to enhance the quality of powders, consumption milk and cream where typically aerobic spores *(e.g. Bacillus Cereus)* are removed.

The efficiency is stated as a percentage reduction of the incoming level of bacteria and spores. Generally, the efficiency can be as high as 99%. For installations with high efficiency demands, two or more units can be installed in a series.

Model	Nominal flow rate l/h	Max flow rate l/h	Motor size kW
BB10	5,000	10,000	15
BB714	15,000	25,000	22
BB835	25,000	35,000	30
BB845	35,000	45,000	37
BB855	40,000	55,000	37
BM714	10,000	15,000	22
BM830	25,000	30,000	30
BM840	35,000	40,000	37
BM850	40,000	50,000	45

Whey clarification

To maintain optimum fat separation and long run times, it is necessary to remove cheese fines from the whey before it reaches the whey separator. Installing a centrifugal clarifier upstream of the whey separator is the most efficient way to remove cheese fines. Clarification normally takes place at the same temperature as whey separation, i.e. at vat temperature.

Flow rate, fines content and production hours are important parameters in your choice of clarifier.

Model	Nominal flow rate l/h	Sediment space l	Motor size kW
D20	20,000	5	18.5
D25	25,000	5	18.5
D530	30,000	22.5	18.5
D535	35,000	22.5	22
D545	45,000	22.5	30
D845	45,000	38	30
D860	60,000	38	37
D870	70,000	38	45

Whey separation

The aim of whey separation is to recover fat and make the skimmed whey as free from fat as possible, to facilitate downstream treatment and enhance the value of the whey.

When pre-clarified, the whey separation becomes more efficient, resulting in a low fat content in the skimmed whey, down to 0.03%, depending on whey type.

Our whey separators with AirTight technology enable you to produce high-fat cream with a fat content above 30% even at temperatures below 35 °C.

There are two types of whey separators: the W type and the WD type. The WD type has a clarification section in the bowl that makes it possible to utilize pre-filtered whey (without using a whey clarifier first), which has a higher fines content. This enables longer run times with a slightly lower efficiency.

Model	Nominal flow rate l/h	Motor size kW
W10	7,000	15
W15	11,500	15
W614	16,500	18.5
W515	16,500	18.5
W520	22,000	22
W525	27,500	22
W830	30,000	22
W840	40,000	22
W850	50,000	22
W860	60,000	22
WD614	15,000	18.5
WD515	15,000	18.5
WD520	20,000	22
WD525	25,000	22
WD840	35,000	30
WD845	40,000	37
WD850	45,000	45

30%

fat content

Anhydrous milk fat

Anhydrous milk fat (AMF) is a product obtained from fresh raw material and has a milk fat content exceeding 99.8%. Milk fat is concentrated in several steps up to 99.5%, and is then vacuum treated. Butter oil is produced from raw material of varying age and contains a minimum of 99.3% milk fat.

The raw material, cream or butter (stored or fresh), determines the number of steps required. The table below indicates machine sizes recommended for the steps.

Please get in touch with us for a discussion of process and layout suggestions for your specific demands. We are the suppliers of the highest capacity AMF lines in the world and have experience from a large installed base.

Model	Nominal output capacity kg/h	Motor size kW
A2	2,000	15
A614	4,000	18.5
A504	4,000	18.5
A506	6,000	22
A508	8,000	30
A814	14,000	30
A816	16,000	37

99.3%
milk fat

Quark separation

Quark is a fresh cheese made from coagulated skimmed milk. In non-fat quark, the solids content normally ranges between 14% and 22%.

The customary separation temperature is 28 °C, and takes place immediately after fermentation. Additional heat treatment after fermentation and separation at about 40 °C increases the yield. Efficiency is calculated in terms of total yield between 3.7 and 4.2 kg milk/kg quark.

For separation of the acidified and fermented skimmed milk, nozzle-type separators are used, where the fresh cheese mass is discharged through the nozzles.

Model	Nominal output capacity kg/h	Motor size kW
Q735*	2,000	37
Q745*	3,800	45

** Not AirTight technology*

Buttermilk separation

For separation purposes, buttermilk derived from butter production is classified as either sweet or sour.

In the separation of sweet buttermilk, a standard hot milk separator is used at its nominal flow rate. Sour buttermilk contains unstable proteins. Consequently, the general guideline is to use a whey separator or cold milk separator and process at half the nominal flow rate.

A fat content of 0.2–0.3% in the separated buttermilk is expected after separation.

0.2%
fat content

Encapt™ technology for high-capacity separators

The combination of AirTight with our patented Encapt™ technology enables superior performance and end-product quality combined with a broad operational flexibility, while using up to 40% less energy than other separators [1].

40% less energy

Encapt™ technology is available as an option for Tetra Pak® Separator:

H865	BB845	A816
H875	BB855	H535
H885	BM840	H540
H8100	BM850	W525
D860	T835	WD520
D870	T845	WD525
XD870	W850	D535
C840	W860	D545
C845	WD840	T525
C850	WD845	T530
C855	WD850	

[1] **Production scenario:**
20 hours of run time/day; 340 production days/year; hot milk skimming at 55 000 l/h with including feed and booster pumps.

Beverage clarifiers with AirTight technology

Our separators offer excellent product quality, superior separation efficiency and unmatched production flexibility for a wide spectrum of applications. In our beverage clarifiers, the AirTight technology prevents aroma loss and delivers excellent product quality – all with the lowest power consumption on the market.

A modular design concept ensures easy integration, guarantees installation quality and provides future-proofing for updates.

Tea & beverage clarifier

Dimensions

Height (overhead hoist), mm	2,800
Length (service area), mm	2,800
Width (service area), mm	2,800

Auxiliary equipment

- Set of tools.
- Inlet components.
- Constant pressure unit on outlet.
- Flushing arrangement for axial seals.
- Connection set.
- Tetra Pak® Separator Drive (motor control).
- Tetra Pak® Separator Control (separator control).

Model	Nominal flow rate l/h	Sediment space l	Motor size kW
T10	7,000	5	18.5
T14	10,000	5	18.5
T16	15,000	5	18.5
T520	20,000	22.5	18.5
T525	25,000	22.5	30
T530	30,000	22.5	30
T830	30,000	38	37
T835	35,000	38	37
T845	45,000	38	37

Available options

Tetra Pak separators are available in two versions:

Basic separation unit

Includes hermetic separator and cyclone, base plate, tools and commissioning parts. Choosing the right peripherals* will further optimise performance:

- Auxiliary box.
- Pipework and connections.
- Starter panel and frequency converter.
- Control and safety system with HMI.
- Automatic or manual cream flow meter.
- Heavy phase control.
- Flow and pressure regulation (inlet/outlet).

A discharge recovery option is available for certain models. Please contact your local representative for details.

INSTAL module

Delivered as a complete unit and assembled and tested at a Tetra Pak site. Includes hermetic separator and cyclone, tools and commissioning parts, starter panel and control panel, and heavy and light phase control mounted on a robust frame. Easy to install, with no physical work required.

Plug and play concept

A Tetra Pak® Separator INSTAL module comes with full assurance on installation quality. The robust, safe and proven design is engineered for optimal performance and future-proofed for upgrades. The INSTAL module is assembled and tested as a unit by Tetra Pak, reducing installation and commissioning times – and ensuring no surprises. Best of all, it's easy to integrate in lines.

**Peripheral equipment to be assembled and tested on-site.*

Basic separation unit includes hermetic separator and cyclone, base plate, tools and commissioning parts

All functionalities on the INSTAL module are tested and verified in the workshop before delivery

Auxiliary box
Pneumatic and hydraulic components for controlling air and water supply

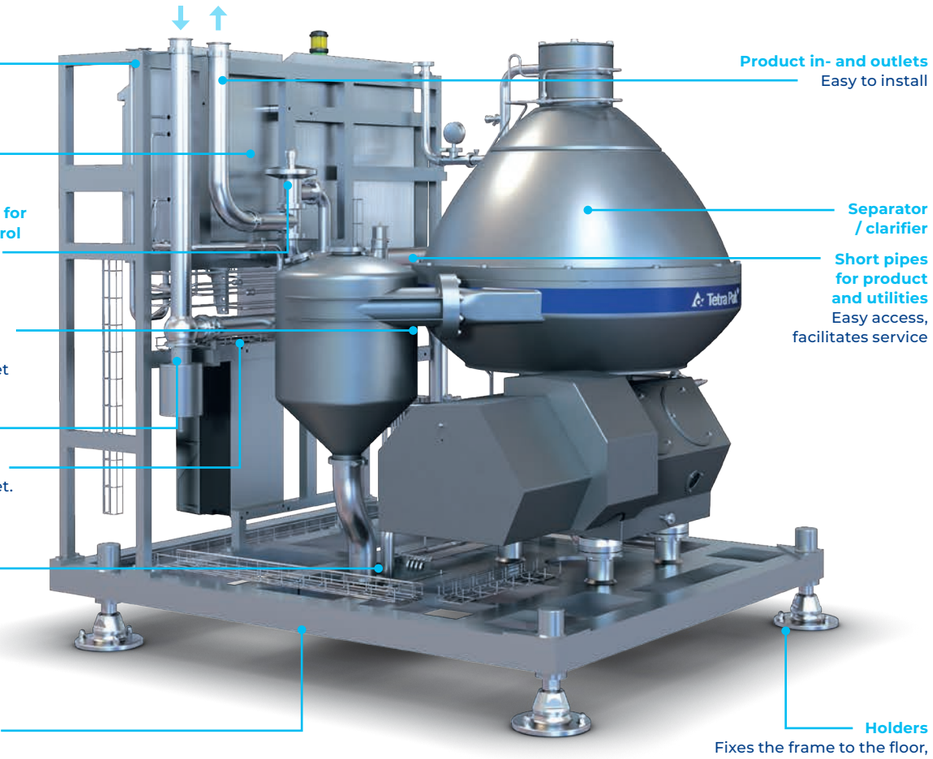
Tetra Pak® Separator Control
Control panel with HMI , pre-tested in the workshop

Tetra Pak® Separator Drive
Includes frequency inverter for soft start-up of the separator with minimum torque on the rotating parts

Air and water
Pre-assembled for quick installation and commissioning

Electrical cables
Pre-installed for quick installation and commissioning

Innovative features



Pre-assembled connection for product utilities

Tetra Pak®
PROTECTS WHAT'S GOOD