



# High speed separators range with AirTight technology

Tetra Pak® Separators Portfolio



# AirTight technology for high profitability

We deliver reliable separation solutions that enable your customers to meet their production demands for high food quality and safety, and help you grow your business.

Our range of flexible separators combines high performance and gentle treatment with cost efficiency and low environmental impact.

All our separators are available as complete stand-alone 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 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. A gentle and efficient clarification process 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**

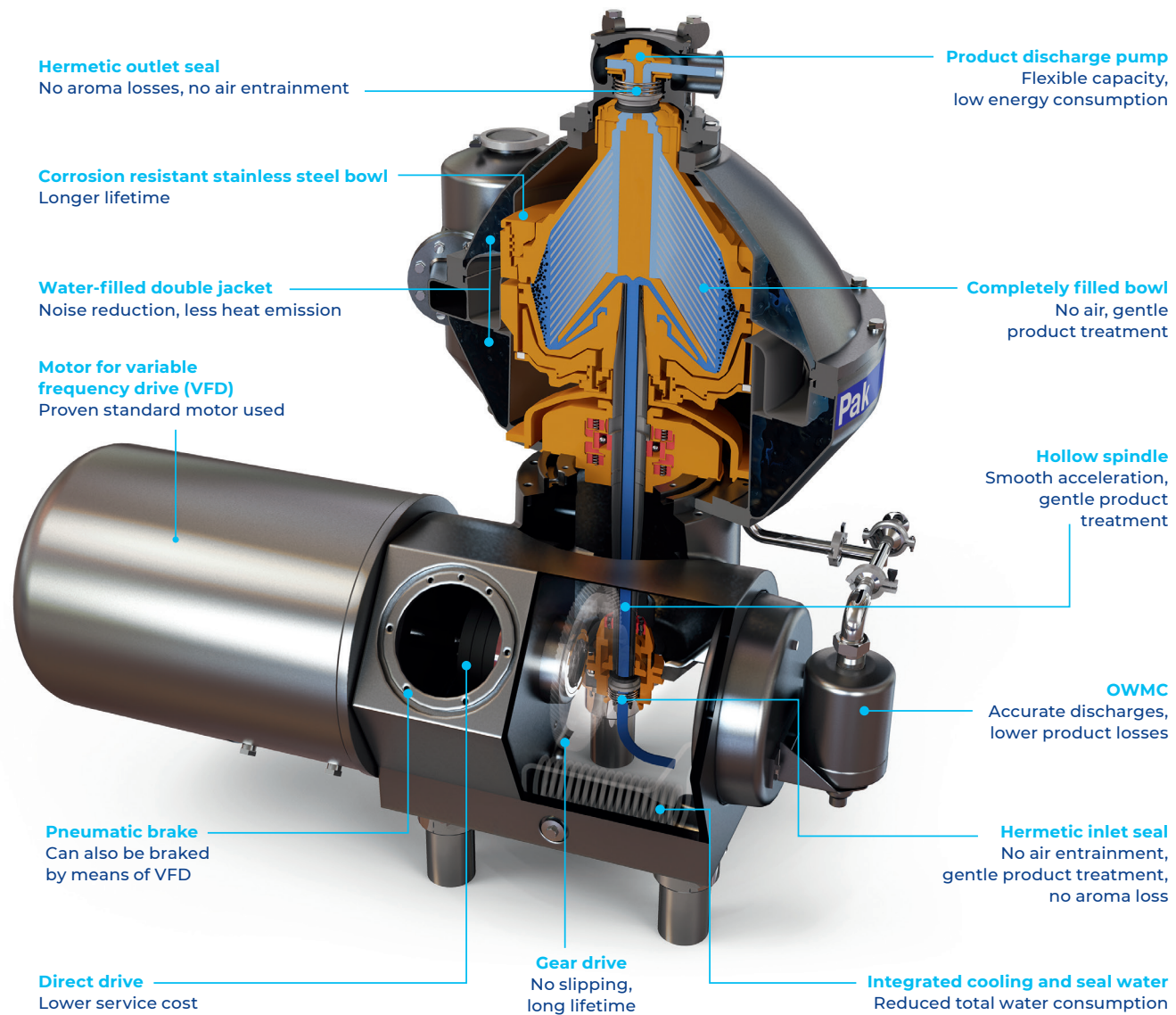
Our separators and clarifiers not only save money, they also reduce environmental load. The design reduces energy and water consumption and minimizes food product loss:

- Power consumption reduced by up to 40%
- No make-up water consumption – cooling water reused as seal water
- Accurate discharge gives lowest possible losses
- Noise level approx. 78 dB(A) as per ISO 3744

### **Reliable operation**

AirTight separators, clarifiers and spore removal units deliver sound performance 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

	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	Max flow rate l/h	Sediment space l	Installed motor power kW
D407*	10,000	4	11
D20	20,000	5	18.5
D25	25,000	5	18.5
D714	35,000	12	22
D45	45,000	35	37
D60	60,000	35	37
D70**	70,000	35	42

## 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. The performance of a cold milk separator is highly dependent on milk quality, operational temperature, flow rate, process control and selection of separator size.

Model	Flow rate skimming l/h	Flow rate max l/h	Installed motor power kW
C10	***	10,000	15
C714	***	20,000	22
C30	***	30,000	25
C40**	***	40,000	37
C50**	***	50,000	42

# 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	Flow rate skimming l/h	Flow rate max l/h	Installed motor power kW
SCap1	1,500	2,500	5.5
SCap2	2,500	3,500	5.5
SCap3	3,500	5,000	7.5
H407*	5,000	7,000	11
H10	7,000	10,000	15
H15	10,000	15,000	15
H614	15,000	25,000	18.5
H614 Plus	17,500	28,500	18.5
H714	20,000	30,000	22
H35	25,000	35,000	22
H40	30,000	40,000	25
H55	35,000	55,000	25
H60**	45,000	60,000	37
H75**	55,000	75,000	42
H80**	60,000	80,000	42

\* Not AirTight technology \*\* Also available with Encapt™ technology \*\*\* Depends on process conditions

## 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 go up to 99%.

For installations with high demand on efficiency, two or more units can be installed in series.

Model	Flow rate nominal l/h	Flow rate max l/h	Installed motor power kW
BB10	5,000	10,000	15
BM714	10,000	15,000	22
BB714	15,000	25,000	22
BM30	25,000	30,000	25
BB35	25,000	35,000	25
BM40**	35,000	40,000	37
BB45**	35,000	45,000	37
BM50**	40,000	50,000	42
BB55**	40,000	55,000	42

## 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	Flow rate nominal l/h	Sediment space l	Installed motor power kW
D407*	10,000	4	11
D20	20,000	5	18.5
D25	25,000	5	18.5
D714	35,000	12	22
D45	45,000	35	37
D60	60,000	35	37
D70**	70,000	35	42

## 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	Pre-filtred l/h	Pre-clarified l/h	Installed motor power kW
H407*	5,000	5,000	11
W10	7,000	7,000	15
W15	10,000	11,500	15
WD614	15,000	n.a.	18.5
W614	15,000	16,500	18.5
WD714	20,000	n.a.	22
W714	20,000	22,000	22
W25	25,000	27,500	22
W35	30,000	33,000	25
W40	n.a.	38,000	25
W50**	n.a.	50,000	37
W60**	n.a.	60,000	42

**30%**  
fat content

\* Not AirTight technology \*\* Also available with Encapt™ technology



## 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.

Line capacity kg oil/h	Preconcentration	Final concentration	Buttermilk reparation
2,000	H614	A2	H10
4,000	H40	A614	H614
6,000	H55	A714	H614
14,000	H55 + H55	A14	H35
16,000	H60 + H60	A16	H40

Line capacity kg oil/h	Preconcentration	Final concentration
2,300	From stored butter	A2
5,000	From stored butter	A614
8,000	From stored butter	A714
14,000	From stored butter	A14
16,000	From stored butter	A16

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	Feed max kg/h	Installed motor power kW
Q517*	10,000	37

## 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

\* Not AirTight technology



A close-up photograph of a person's hands holding a whole pineapple. The person is wearing a light blue shirt. The background is a soft, out-of-focus light blue. The pineapple is the central focus, showing its characteristic diamond-patterned skin and green crown.

# Beverage clarifiers with AirTight technology

For sound performance

Our separators with AirTight technology offer excellent product quality, superior separation efficiency and unmatched production flexibility for a wide spectrum of applications. In our beverage clarifiers, AirTight 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. A sound investment in sound performance and higher profitability.



# Tea & beverage clarifier

Energy consumption	T10	T14	T16	D714	T30	T35	T45	D407
At hydraulic flow rate, kW	16	16	16	16	22	27	37	9
Per 1,000 l product, kW	0.6	0.6	0.6	0.5	0.5	0.4	0.5	0.75

Water consumption	T10	T14	T16	D714	T30	T35	T45	D407
Per discharge, l	11	11	11	27	27	27	27	6
Cooling, l/h	120	120	120	120	120	120	120	N/A
Per 1,000 l product, l	5	5	5	3	3	2	2	N/A

Technical data	T10	T14	T16	D714	T30	T35	T45	D407
Flow rate, hydraulic, l/h	25,000	25,000	25,000	35,000	45,000	60,000	70,000	10,000
Motor rating, kW	18.5	18.5	18.5	22	37	37	42	11
Connections, inlet	63.5	63.5	63.5	63.5	63.5	63.5	63.5	51
Connections, outlet	63.5	63.5	63.5	63.5	63.5	63.5	63.5	51
Sediment space, l	5	5	5	12	35	35	35	4
Air pressure, kPa	600	600	600	600	600	600	600	400
Overhead hoist, kN	10	10	10	10	15	15	15	6
Inlet pressure, max kPa	600	600	600	600	600	600	600	40*
Outlet pressure, max kPa	600	600	600	600	600	600	600	350*

## Dimensions

- Height (overhead hoist), mm 2,800 (714: 2,600)
- 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)

\* Non-hermetic machine





# 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.

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

## 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.

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

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

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

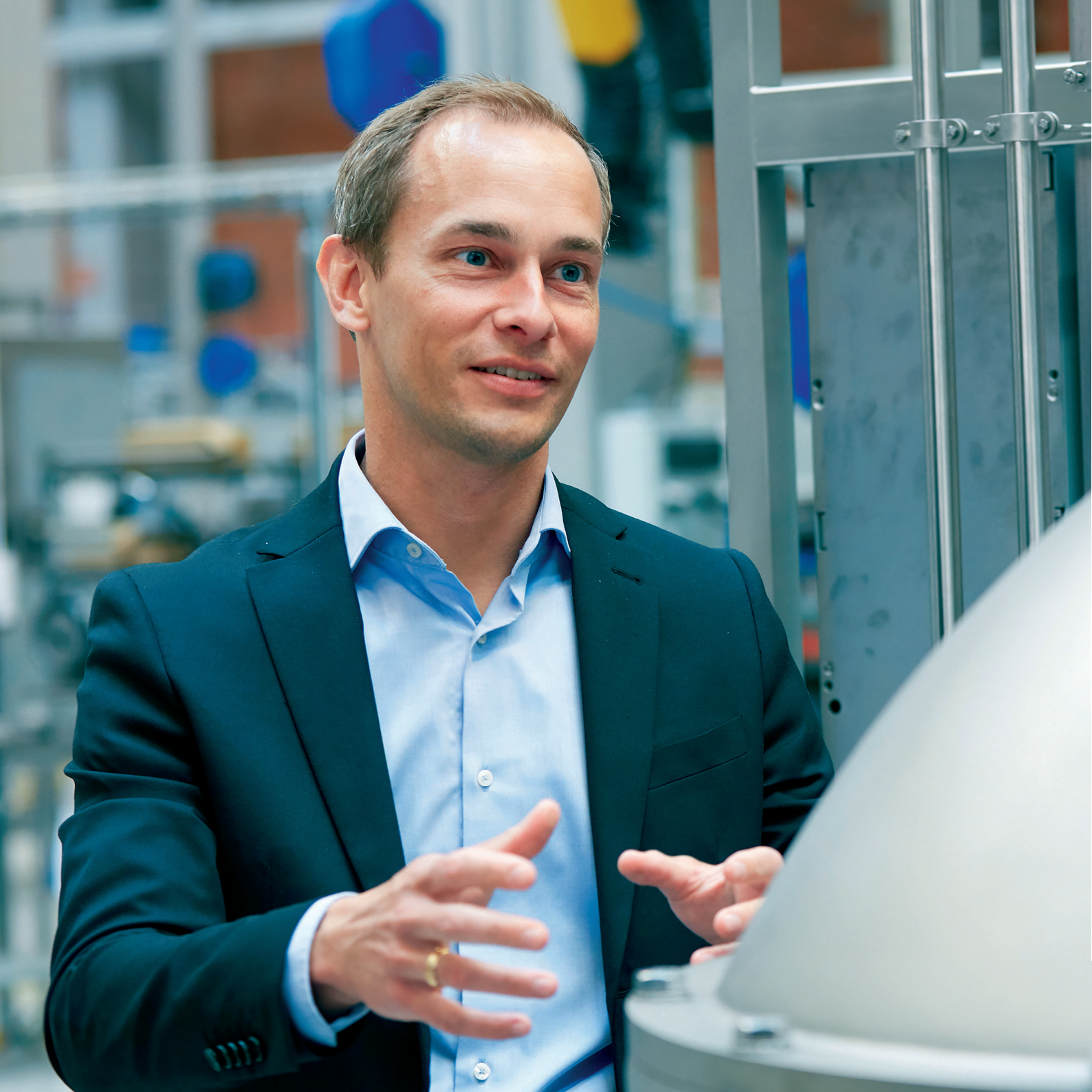
**Auxiliary box**  
Pneumatic and hydraulic components for controlling air and water supply

**Air and water**  
Pre-assembled for quick installation and commissioning

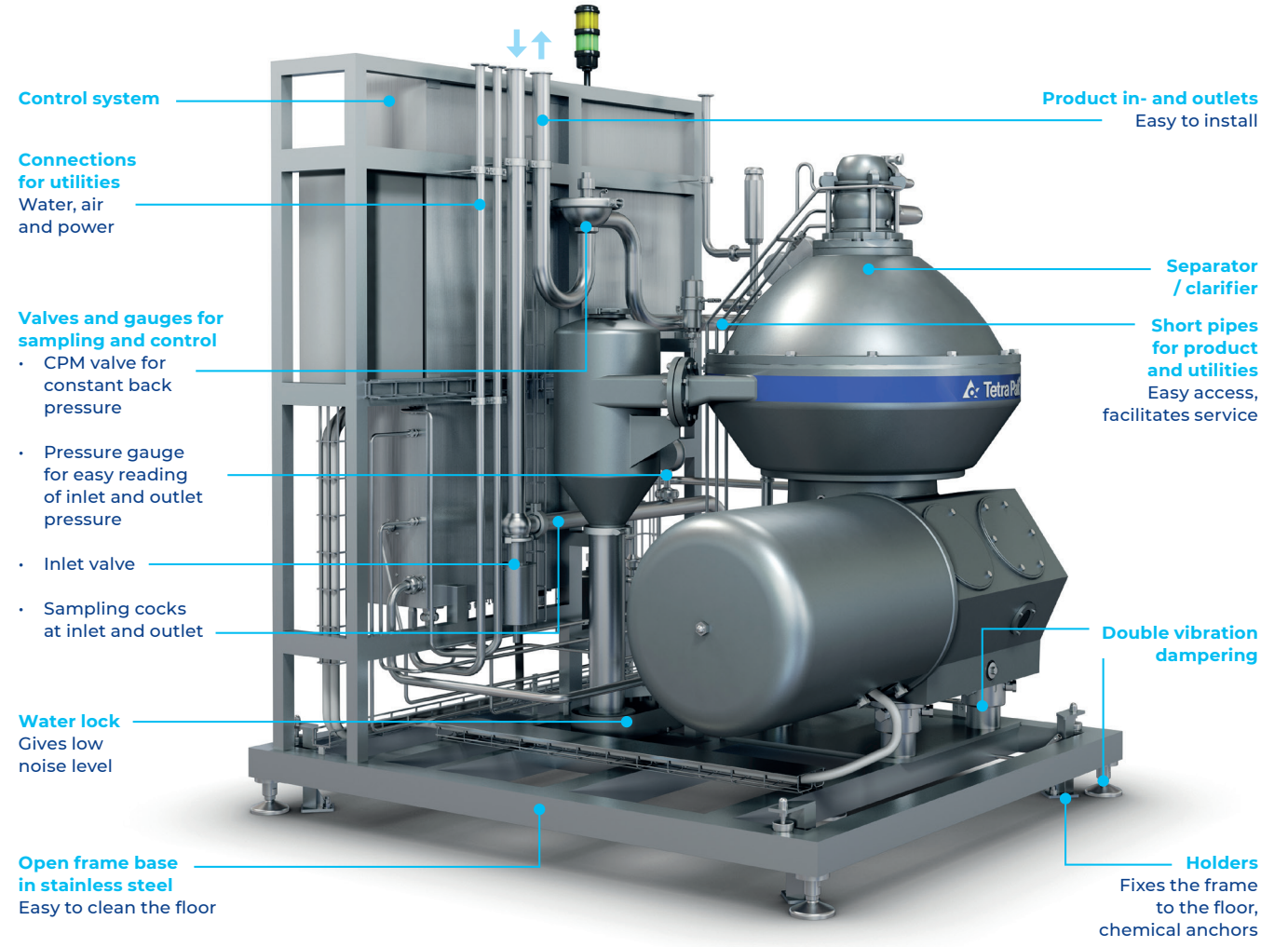
**Electrical cables**  
Pre-installed for quick installation and commissioning







# Great features



Pre-assembled connection for product utilities



# Offering you innovation excellence

With more than 130 years of separator experience, Tetra Pak is a market leader in technical innovation and a source of exceptional food know-how.

## Your success – at the heart of everything we do

We dedicate ourselves to understanding your needs, using our global presence and proven application expertise to help you fulfil your performance targets.

The Tetra Pak portfolio enables you to operate with premium performance and support throughout the whole lifecycle.

Having Tetra Pak as a partner gives you the portfolio, people, support and service to achieve your business ambitions.



## A world of expertise with a reliable portfolio

### Superior level of support

- Expertise & presence
- Everywhere at anytime
- Global & Local Service support
- Best Product selection based on application
- Support throughout the product's entire lifecycle

### One portfolio

- Wide portfolio manufactured by Tetra Pak
- Components sourced from leading suppliers
- Get value in sourcing components in single, bundled or complex orders

### Reliable & high quality

- Trustworthy partnership with reliable products
- Support throughout the product's entire lifecycle



# CONTACT



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