

TETRA PAK® UPGRADES

Extended value from your equipment



We maximize client operational life cycle performance.

Tetra Pak® Services cover every aspect of your food production, from daily routines to business insights. Our tailored service solutions improve performance, optimise costs and ensure food safety throughout the lifecycle of your operation.

With Tetra Pak as your partner, you get the people, portfolio and presence to achieve your performance goals.





TETRA PAK® UPGRADES

A complete portfolio of services for all your operational needs

Tetra Pak® Upgrades are retrofittable kits, pre-defined products or customised solutions that further improve the performance of your installed equipment.

We will support you in

- 1 Understanding the effect of changes from production demands
- 2 Enhancing upgrade solutions
- 3 Minimizing installation time and downtime
- 4 Maintenance across entire equipment life cycle

We provide services for a diverse range of industries to help you improve



Sustainability



Productivity
& Efficiency



Food Safety
& Quality



New Requirement
for your Line



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01 PROCESSING

We focus primarily on 5 different food applications, namely dairy, beverages, prepared food, ice cream and cheese. All our applications and technology have been developed primarily for processing these food categories.

Sustainability

Energy Management
for Heat Exchangers

Mix Phase Reduction

CIP Upgrades
and Optimization

Pasteuriser & UHT
Detergent Recycling

Water Recovery

Energy Recovery

Productivity & Efficiency

Improved Homogenising
Efficiency

Beijer TPOP "E" Series

Remote Pressure Setting
& Reading – Homogenizer

Automatic CIP and
Refill of Homogenizer
Dampers

Improved Running Time

Machine Control
Equipment – Homogenizer

Tetra Pak Separator
Disc Stack Upgrade

New Control System
– Tetra Therm, Alsafe
& ALCIP

New Control System
– Separator

01 PROCESSING



Food Safety & Quality

Differential Pressure
Supervision



New Requirement for your Line

Production
Capability Updates
– New Capacity

Production
Capability Updates
– New Application

Aseptic Line
Flexibility

Non-Aseptic Line
Flexibility

PROCESSING UPGRADES PRODUCT PORTFOLIO

Plant Level Upgrades

- Water recovery to rinse-water tank
- Product recovery systems
- Energy recovery systems
- CIP Station Upgrades
- Valve cluster & piping upgrades
- Key component upgrades
(Separator, Homogenizer, Pasteuriser)

Tetra Alcip®

- New Object Addition
- Capacity Expansion
- Replacement of Control Panel



Tetra Therm® Aseptic VTIS

- Aseptic Energy Hibernation
- Differential pressure measuring
- Conductivity switch
- New Control Panel
- E-Series HMI Upgrade
- Mix phase reduction
- Increased capacity & add new product

Tetra Alex Homogenizer

- Homogenizing Device, HD 100 & Energy IQ
- Eco Cooling Homogenizer
- Cross Head Seal Mushroom Valves
- Turnable Disk (TD)
- Valves Solid Ceramic Pistons
- Machine Control
- Remote reading 1st and 2nd stage

Tetra Alsafe®

- Low Fouling End Valve Cluster
- Aseptic Filling Flexibility, Single ISB Connection
- Aseptic Filling Flexibility, Double ISB Connection
- New Control Panel
- E-Series HMI Upgrade
- Full Aseptic Line Flexibility



Energy Management for Heat Exchangers

UG Name	Energy Management for Heat Exchangers
System/Machine affected	Tetra Pak® Plate Heat Exchanger Tetra Pak® Tubular Heat Exchanger
Value Category	Operational Efficiency & Cost
Implementation Time	~5 days



What does it do:

Energy management is an analysis and consulting service with the purpose of improving our customers' production economy.

For many heat exchangers, increasing the heat recovery level is a hidden source of substantial yearly cost savings.

We analyze the customer's heat exchangers and propose upgrades to reduce the customer's operational cost. The focus is on increasing the heat recovery level and reducing energy consumption.

Three possible upgrades can be suggested:

- Re-optimization (PHE & THE)
- Re-build (PHE & THE)
- Insulation (THE)

Benefits:

- Reduces operating costs by improved energy efficiency
- Minimizes environmental impact
- Improves occupational health and safety by decreasing heat loss

Mix Phase Reduction

UG Name	Mix Phase Reduction
System/Machine affected	Tetra Therm Family
Value Category	Operational Cost & Environment
Implementation Time	~5 days



What does it do:

Mix Phase reduction enables the customer to reduce product losses when switching between water and product and vice versa. Due to a very specific solution of the inlet valve arrangement of the balance tank, a reduction of the mixing phase can be realized. Other improvements apply to the inlet solution, which carries an electronic level control. The device controls the feed pump if cream is processed and the inlet valve if milk is processed. The frequency controlled product pump is also linked to this device. In addition, a frequency controlled pump will have a lower energy consumption.

Mix Phase Reduction is composed by*:

- Sensors
- Update of the existing software programs, PLC and local HMI
- Valves

*depending on existing version the scope will vary

Benefits:

- Reduced product loss
- Reduced operational cost
- Reduced environmental impact

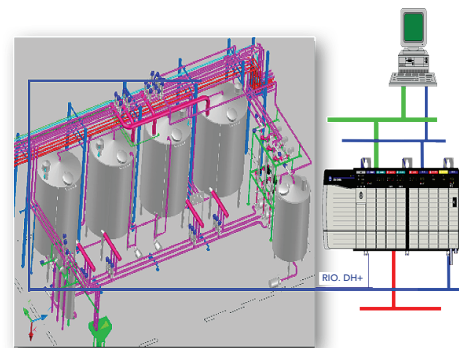
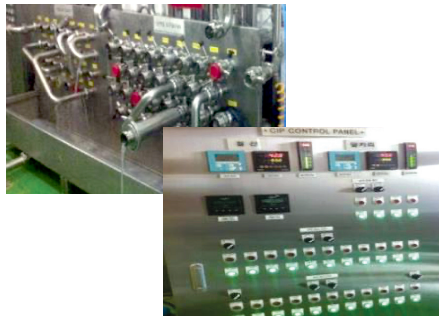


CIP Upgrades and Optimization

UG Name	CIP Upgrades and Optimization
System/Machine affected	Processing Units
Value Category	Operational Efficiency & Cost and Environment
Implementation Time	Depends on project size

Pasteuriser & UHT Detergent Recycling

UG Name	Pasteuriser & UHT Detergent Recycling
System/Machine affected	All Pasteuriser & UHT
Value Category	Operational Efficiency & Cost and Environment
Implementation Time	Depends on project size



Recovered Caustic before filtration



Recovered Caustic after filtration

What does it do:

There are many upgrades that can be done to the CIP station.

Following are some key upgrades:

- Upgrading CIP station from manual to automatic system
- Optimize CIP system to higher CIP functionality and improve performance
- Addition of new CIP circuits
- CIP optimization by CIP target re-arrangement and combination
- Flexible pressure lines and CIP target with valve cluster
- Higher level of automation in CIP control system

Benefits:

- Reduce the operational cost
- Ensure food safety
- Minimize waste of detergent and utility
- Shorten operation time
- Reduced environmental impact
- Increase CIP capacity

What does it do:

CIP solution can be recovered from a Pasteuriser or UHT plant, and it can be reused at other low risk areas

Current situation:

- High detergent & water waste
- Detergent drain after CIP
- Sewage treatment pressure

The improved scheme:

- Detergent recovery
- Flushing water recovery
- Reuse in low hygienic level area, such as milk reception trucks CIP

Benefits:

- Saving detergent, water and energy
- Lower operational costs
- Reduced environmental impact



Water Recovery

UG Name	Water Recovery
System/Machine affected	All
Value Category	Operational Efficiency & Cost and Environment
Implementation Time	Depends on project size



What does it do:

Recover water from process plant and reuse for other process.

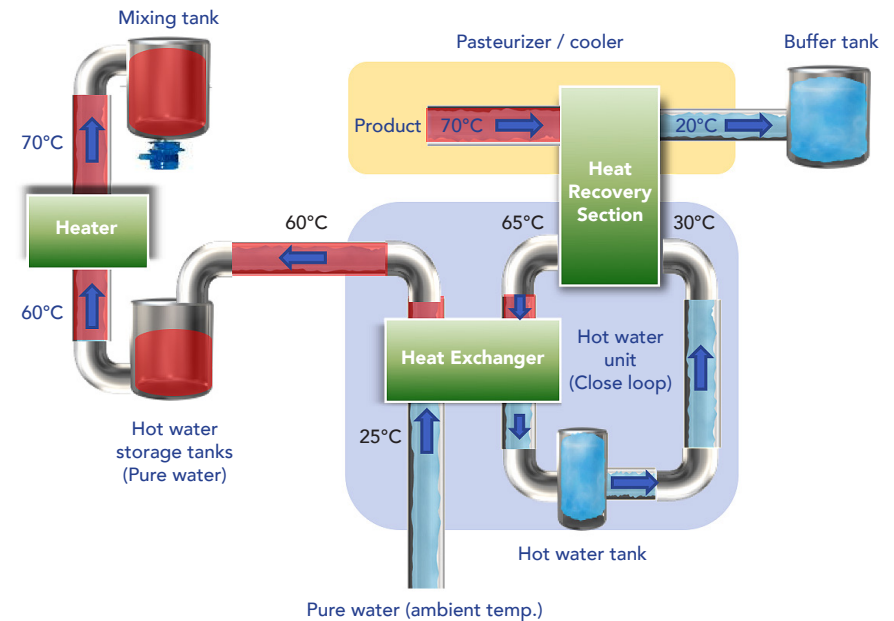
- Water recovery during start-up of plant
- Water recovery from Homogenizer
- Water recovery from cooling of deaerator
- Water recovery from rinse water tank
- Water recovery from Filling machine
- Water recovery from CIP station

Benefits:

- Reduce water consumption by recovery water from process
- Less risk of product contamination
- Lower operational cost
- Reduced environmental impact
- Reduced noise level, valid for water recovery from vacuum of deaerator

Energy Recovery

UG Name	Energy Recovery
System/Machine affected	All
Value Category	Operational Efficiency & Cost and Environment
Implementation Time	Depends on project size



What does it do:

Recover heating and cooling from heat transfer process and reuse them for other purpose.

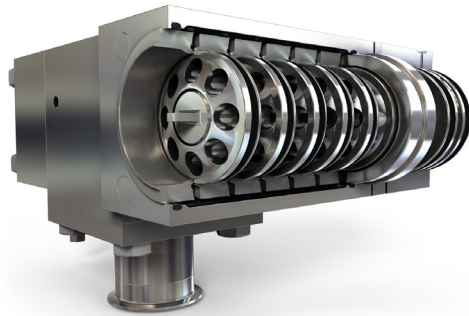
- Energy recovery with hot and cold-water tanks – collection & reuse of waste heat
- Energy recovery with hot water as steam complement – decreases heating by steam
- Energy recovery at mixing - Regenerative

Benefits:

- Reduce energy consumption by recover energy from process
- Lower water and chemical consumption
- Lower operational costs
- Reduced environmental impact

Improved Homogenising Efficiency

UG Name	Improved Homogenising Efficiency
System/Machine affected	Tetra Pak® Homogenizer
Value Category	Operational Efficiency & Cost
Implementation Time	5-10 days



What does it do:

The design of the homogenizing device has a significant effect on the amount of energy that is needed to reach the desired homogenization effect of milk.

As a result of decades of research and product development, we can offer efficient and durable devices as upgrades for your Tetra Pak® Homogenizers.

Based on an analysis of your present situation, we can suggest an upgrade solution that will improve the homogenizing efficiency, and reduce your operational cost.

Possible upgrade solutions:

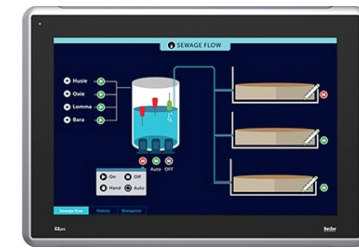
- From HD 1 to HD 100
- From HD 100 to HD EnergyIQ

Benefits:

- Reduces energy consumption
- Reduces the environmental impact
- Prolongs lifetime of wear and tear parts

Beijer TPOP “E” Series

UG Name	Beijer TPOP “E” Series	
System/Machine affected	Tetra Alsafe® Tetra Alcip® Tetra Therm® Lacta Tetra Therm® Drink	Tetra Therm® Flex Tetra Therm® VTIS Tetra Therm® Visco
Value Category	Operational Efficiency and Life Cycle Management	
Implementation Time	1-2 days	



What does it do:

The replacement is composed by:

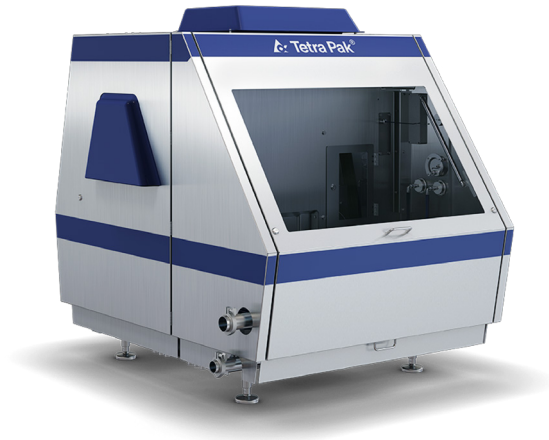
- X2 pro operator panel
- Electrical connection
- Update HMI program
- Update technical, operator and electrical documentation if applicable & available in electronic version
- Delivery and installation of the hardware
- Adapter plates for mounting
- Recommissioning

Benefits:

- Higher performance and responsiveness
- Improved process and parameter visibility (higher resolution)
- Extended Life time with hardware and software supported by Tetra Pak
- Ability to integrate new I4.0 technologies
- All essential functions you need are included, such as data logging, recipes, alarms, trends and audit trail

Remote Pressure Setting & Reading – Homogenizer

UG Name	Remote Pressure Setting & Reading – Homogenizer
System/Machine affected	Tetra Pak® Homogenizer
Value Category	Operational Efficiency
Implementation Time	1-3 days



What does it do:

This upgrade will equip the homogenizer with the feature to set the pressure remotely. The upgrade consists of two options : remote continuous setting and remote continuous setting with remote reading of pressure in first stage. The customer benefit is mainly when more than one recipe is used. With the feature of being able to set the pressure remotely the production can be more automated.

Remote reading of both 1st and 2nd stage pressure is possible through a separate Upgrade Kit. The main benefit is for customers who have a demand to have a specific pressure ratio between 1st and 2nd stage pressure.

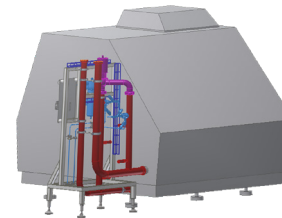
Benefits:

- Improve flexibility
- Less manual intervention during project change over
- Faster recovery & support in case of breakdown

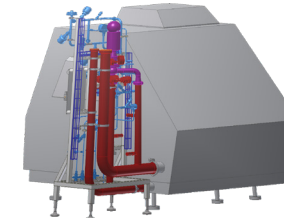
Automatic CIP and Refill of Homogenizer Dampers

UG Name	Automatic CIP and Refill of Homogenizer Dampers
System/Machine affected	Tetra Pak® Pasteurizer, Tetra Pak® Indirect UHT and Tetra Pak® Direct UHT (Tetra Therm Family)
Value Category	Occupational Health & Safety and Operational Efficiency
Implementation Time	5-10 days

Non-aseptic version



Aseptic version



What does it do:

This Upgrade allows for automatic filling of the homogenizer dampers with air during production, which enables good running conditions for the homogenizer. Automatic cleaning of the dampers means no manual dismantling and cleaning is needed. The feature is available in aseptic and non-aseptic version.

The automatic CIP and refill of homogenizer dampers upgrade consists of:

- A skid mounted module with inlet and outlet damper, air blow valve, level transmitter, bypass valve, back pressure valve
- Update of the existing software programs, PLC and local HMI
- Update of the technical, operator and electrical documentation

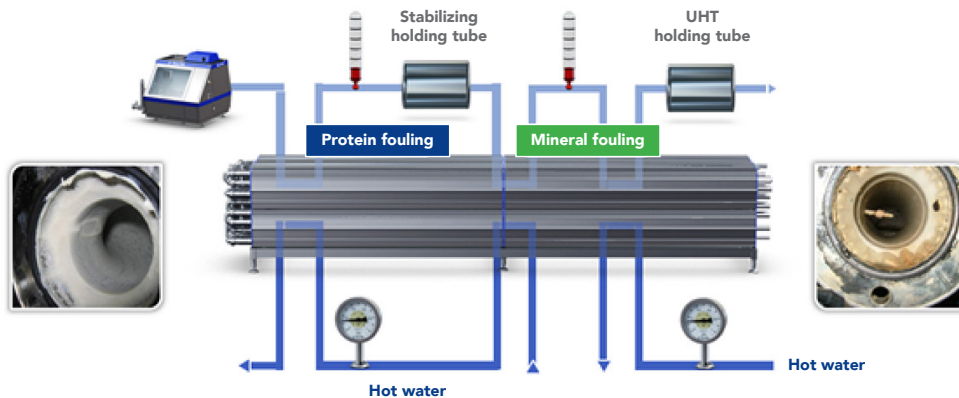
Benefits:

Homogenizer dampers absorb pressure variation and shocks before and after the homogenizer. Automatic air refill maintains the air cushion in the homogenizer damper to ensure smooth operation. Without the air cushion, vibration and cavitation would occur and shorten the running time. Fully automated CIP is included - increasing operator safety, improving hygiene and further optimizing the production cycle.

- Improved running conditions for the homogenizer thanks to automatic air filling of the dampers during production and longer running hours
- Automatic CIP, no manual cleaning is needed
- Increased Human Safety

Improved Running Time

UG Name	Improved Running Time
System/Machine affected	Tetra Pak® Indirect UHT (& Tetra Therm Aseptic Flex)
Value Category	Operational Cost & Environment
Implementation Time	Depends on level of upgrade



What does it do:

Improved running time is often an effective way to reduce operational cost. Depending on processed product mix and if the need for flexibility in production is low, extending production time between CIP/AIC is a good way to reduce operational cost. There are different options on how production time can be improved, from simply adding a protein stabilization holding cell without temperature control to adding heating surface and rearranging the tubular heat exchanger.

Improved running time is a concept which contains different options:

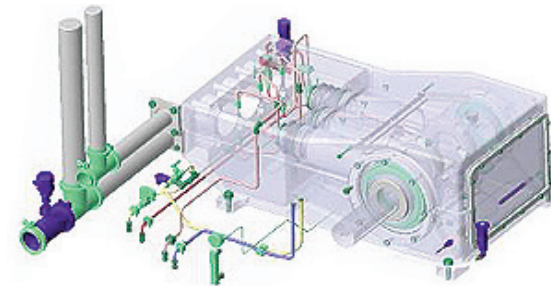
- Protein stabilization holding cell 60 – 120 sec (if not existing)
- Correction cooler/heater
- Additional heating surface
- Process & automation engineering

Benefits:

- Improved running time is a concept which contains different options:
- Reduced product losses
- Reduced operational cost and environmental impact

Machine Control Equipment – Homogenizer

UG Name	Machine Control Upgrade
System/Machine affected	Tetra Pak® Homogenizer
Value Category	Operational Efficiency & Protecting the Equipment
Implementation Time	2-4 days



What does it do:

This upgrade consist of:

- 1 Inlet pressure transmitter
- 2 Crank case thermostatic valve
- 3 Cooling water flow guard
- 4 Crank case oil level transmitter
- 5 Crank case oil temperature

Too low inlet pressure can create unwanted cavitation in the machine. Tetra Pak recommendation is 3-10 bar depending on viscosity. Higher the viscosity, higher the inlet pressure required. With the inlet pressure transmitter, the machine can be set up to shut off the hydraulic pressure if inlet pressure is found to be too low, in order to protect the machine.

With this upgrade the cooling water to the crankcase will be controlled. Only when the oil has reached its designated operating temperature will the cooling water start to flow. This will minimize the cooling water consumption and improve the lubrication in the crankcase. The oil level in the crankcase will also be controlled, enabling detection of leakage in or out of the crankcase.

Benefits:

- Protection of machine from unwanted cavitation
- Water saving
- Short payback time

Tetra Pak Separator Disc Stack Upgrade

UG Name	Tetra Pak Separator Disc Stack Upgrade
System/Machine affected	Tetra Pak Separator
Value Category	Operational Efficiency
Implementation Time	~1-2 days (requires a production stop of the separator)



What does it do:

Tetra Pak Separators can be upgraded with a new set of disc stack. This will allow for a better skimming/clarification efficiency or higher capacity with maintained skimming efficiency.

Benefits:

- Increased capacity
 - Without investing in a new separator, the production can be increased while maintaining the performance level
- Increased skimming efficiency
 - Without investing in a new separator, the yield can be improved while maintaining the same capacity
- Improve the separator performance

New Control System – Tetra Therm, Alsafe & ALCIP

UG Name	New Control Panel System
System/Machine affected	All Steriliser, Alsafe & ALCIP
Value Category	Operational Efficiency and Life Cycle Management
Implementation Time	10 days



What does it do:

The replacement is composed by:

- Latest solution on Rockwell / Siemens platform
- New electrical panel and electrical connection
- Update technical, operator and electrical documentation if applicable & available in electronic version
- Delivery and installation of the hardware and software
- Recommissioning
- Operator training

Benefits:

- Higher performance and responsiveness
- Advance automation system with higher life cycle
- Improved process and parameter visibility
- Extended Life time with hardware and software supported by Tetra Pak
- Faster automation support via the standardized Global User Interface
- Ability to integrate new I4.0 technologies
- Improved machine monitoring

New Control System – Separator

UG Name	New Control System
System/Machine affected	PX614, PX714, PX518, PX618, PX718, PX818, PX918
Value Category	Operational Efficiency and Life Cycle Management
Implementation Time	5-7 days



What does it do:

The replacement is composed by:

- Siemens ET200S controller or AB CompactLogix L43
- Siemens TP700 Comfort panel or AB PanelView plus 700
- New electrical panel and electrical connection
- Update technical, operator and electrical documentation if applicable & available in electronic version
- Delivery and installation of the hardware and software
- Recommissioning
- Operator training

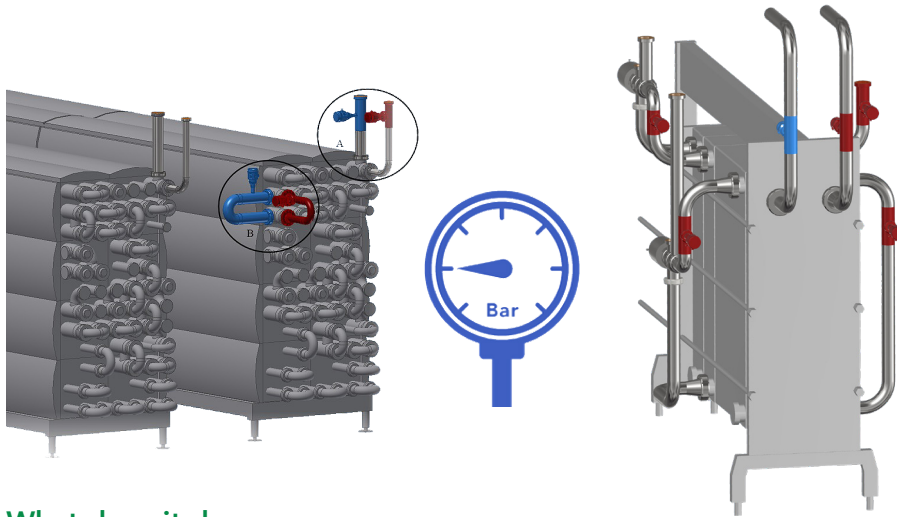
Benefits:

- Higher performance and responsiveness
- Improved process and parameter visibility
- Extended Life time with hardware and software supported by Tetra Pak
- Faster automation support via the standardized Global User Interface
- Ability to integrate new I4.0 technologies
- Improved machine monitoring



Differential Pressure Supervision

UG Name	Differential Pressure Supervision
System/Machine affected	Tetra Pak Indirect UHT Units Tetra Pak Direct UHT Units Tetra Pak Pasteurizers
Value Category	Food Safety
Implementation Time	4-6 days



What does it do:

Differential Pressure Supervision will, with added pressure transmitter, allow for measurement of the differential pressure between the product and water side, or in case of product to product regeneration, between treated and untreated product.

A number of options are available, depending on the solution and the Processing Unit. By ensuring a higher pressure on the treated side the food safety can be maintained in case of leakage as well.

Benefits:

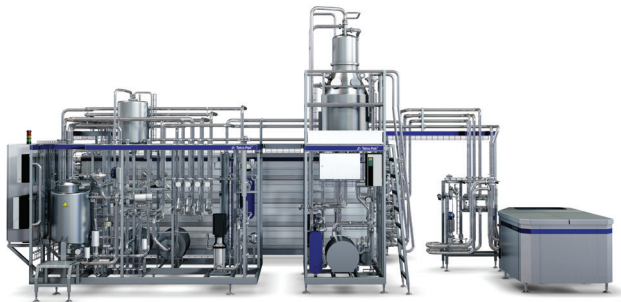
- Improved food safety
- Less risk of product contamination
- Follow legal and/or retailer requirements
- Protect and maintain trademark value
- Reduce risk of product failures being distributed to consumers



Production Capability Upgrades – New Capacity

UG Name	Production Capability Upgrades – New Capacity
System/Machine affected	Liquid Food Processing Units such as, Tetra Pak® Heating Units & Key Components
Value Category	Production Capability
Implementation Time	Depends on level of upgrade

**Meeting
Volume
Demand**



What does it do:

By re-designing the Tetra Pak Processing units and/or Key Components the capacity can be changed to customer's new requirements. Thus, enable you to tailor make your production schedule, making it easier to introduce new filling machines.

The configuration of the existing process design might need to be modified in order to get optimal production performance at the specified capacity. Depending on the capacity change, heat exchanger, holding tube, valves and pumps needs to be modified or changed to correspond to the changed capacity.

Production Capability Upgrades – New Capacity is composed by:

- Process Upgrade
- Automation Upgrade
- Update of the existing software programs, PLC and local HMI
- Update of the technical, operator and electrical documentation

Benefits:

- Increased Flexibility
- Improved Utilization
- Short Payback Time

Production Capability Upgrades – New Application

UG Name	Production Capability Upgrades – New Application
System/Machine affected	Liquid Food Processing Units such as, Tetra Pak® Heating Units & Key Components
Value Category	Production Capability
Implementation Time	Depends on level of upgrade



Dairy



Beverage



Prepared Food

What does it do:

Adding a new product or changing the product specification increases the product lines performance and optimizes the flexibility.

Various changes have to be made to the existing Tetra Pak Processing units and/or Key Components depending on the demand of the new product. By this upgrade the time to introduce a new product in the market is short, which improves business competitiveness.

Production Capability Upgrades – New Application is composed by:

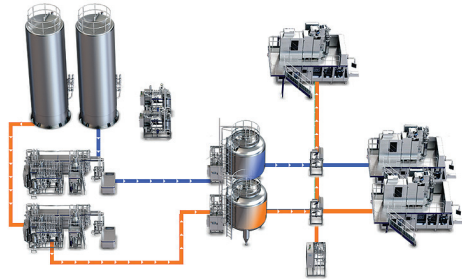
- Process Upgrade
- Automation Upgrade
- Update of the existing software programs, PLC and local HMI
- Update of the technical, operator and electrical documentation

Benefits:

- Increased Flexibility
- Improved Utilization
- Short Payback Time

Aseptic Line Flexibility

UG Name	Aseptic Line Flexibility
System/Machine affected	Tetra Pak® Aseptic tank (Tetra Alsafe)
Value Category	Operational Efficiency & Cost and Environment
Implementation Time	Depends on level of upgrade



What does it do:

Aseptic Line Flexibility – the line designed to meet the highest demands on flexibility. It enables UHT treatment with multiple lines feeding buffer tanks, based on an ALF (aseptic line flexibility) valve cluster that offers full flexibility for feeding to different tanks and filling machines under aseptic conditions. The ALF line concept does not require a production stop for CIP before changing filling machines.

The valve cluster upgrade consists of:

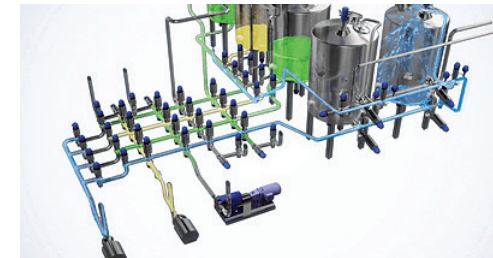
- Necessary components for the aseptic filling line valve cluster.
 - Main Air Valve Cluster (up to 20 connections)
 - Connection Valve Cluster
 - Line End Valve Cluster
- Separate control system including soft and hardware
- Assembly drawings
- Technical and electrical documentation

Benefits:

- Improving the operational efficiency, environmental impact & increasing uptime
- Aseptic line flexibility will increase the production efficiency due minimizing stops for CIP due to batch size, change of recipes etc.
- Possibility to maximize uptime of filling machines

Non-Aseptic Line Flexibility

UG Name	Non-Aseptic Line Flexibility (Valve Cluster)
System/Machine affected	All
Value Category	Operational Efficiency & Cost and Environment
Implementation Time	Depends on level of upgrade



What does it do:

Valve cluster can be designed with exact number of lines or row to match the exact requirement of the process. Multiple products from various resources can run to multiple destinations while other lines/tanks are being cleaned.

To optimise the valve cluster design, it is important to consider factors such as:

- Complexity of flow management
- Product viscosity
- Type of process
- Product & CIP sequences
- Complexity of flow management
- Separate control system including soft and hardware
- Assembly drawings
- Placement of pump before & after the valve cluster

Benefits:

- Improving the operational efficiency, environmental impact & increasing uptime
- Increase the production efficiency due minimizing stops for CIP due to batch size, change of recipes etc.
- Flexibility
- Reduce manual intervention in process

02 PACKAGING

Consumer trends around the world indicate a demand for more advanced food and beverages and our customers are actively staying ahead launching new products and product variations to meet market demand. As a result, the range and complexity of products filled in Tetra Pak packages has increased immensely over the last few years. To meet these evolving technology demands, our equipment will need to meet different and new requirements to secure performance when packing more complex products.



Sustainability

Replacement GE90-30

Replacement
DMC2 Servo Drive

Nordson ProBlue 4
TSA 22HS



Productivity & Efficiency

Replacement Flexbox VI

MaPS

EcoDot
CBP32 – TCBP70

Headspace Unit

Dust Remover A3/CF

U/P Transducer

ACHx 30 Slope
Chain Top

Jaw System
TS Inductor

OFU – Oil Filtering
Unit TP/A3

Jaw System
Cutting Knife

Improved Diagnostic
for Safety Sensor

Straw Quality
Improvement

02 PACKAGING



Food Safety & Quality

New Aseptic
Product Valve NAPV

Additional External
Cleaning for A3/S

Adhesive Detector

Glue Regulator
CAP30 Flex &
CAP30 Speed

Upper Filling Pipe
for A3/CF

Upper Filling Pipe
for TBA/19

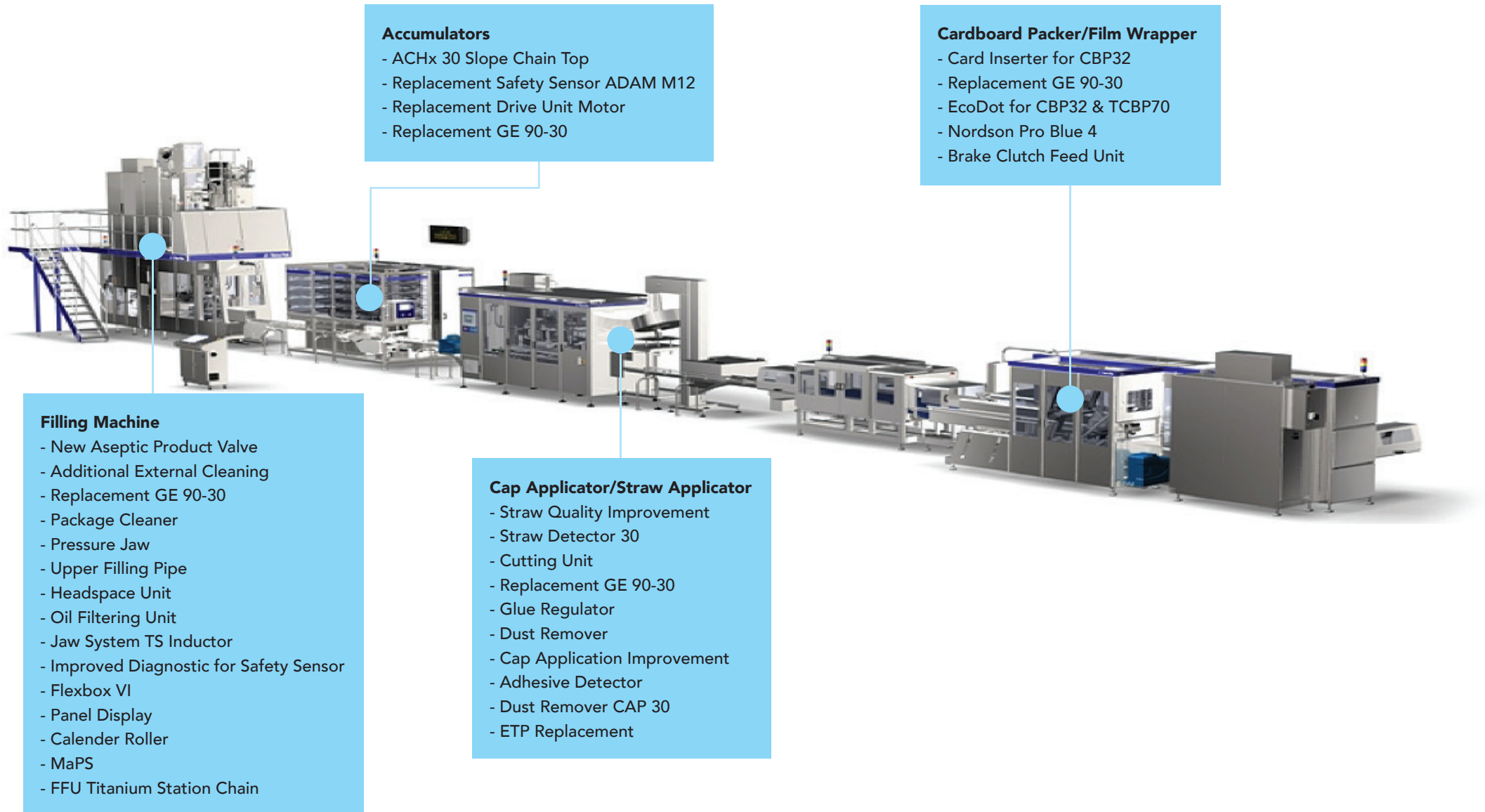
Card Inserter CBP32



New Requirement for your Line

Production
Capability Upgrades
– A3/S Up Speed

PACKAGING UPGRADES PRODUCT PORTFOLIO



Accumulators

- ACHx 30 Slope Chain Top
- Replacement Safety Sensor ADAM M12
- Replacement Drive Unit Motor
- Replacement GE 90-30

Cardboard Packer/Film Wrapper

- Card Inserter for CBP32
- Replacement GE 90-30
- EcoDot for CBP32 & TCBP70
- Nordson Pro Blue 4
- Brake Clutch Feed Unit

Filling Machine

- New Aseptic Product Valve
- Additional External Cleaning
- Replacement GE 90-30
- Package Cleaner
- Pressure Jaw
- Upper Filling Pipe
- Headspace Unit
- Oil Filtering Unit
- Jaw System TS Inductor
- Improved Diagnostic for Safety Sensor
- Flexbox VI
- Panel Display
- Calender Roller
- MaPS
- FFU Titanium Station Chain

Cap Applicator/Straw Applicator

- Straw Quality Improvement
- Straw Detector 30
- Cutting Unit
- Replacement GE 90-30
- Glue Regulator
- Dust Remover
- Cap Application Improvement
- Adhesive Detector
- Dust Remover CAP 30
- ETP Replacement



Replacement GE90-30

UG Name	Replacement GE90-30
System/Machine affected	All Filler Machines and Downstream Equipment with GE 90-30 PLC
Value Category	Capability
Implementation Time	1-2 days



What does it do:

Replacement of back plate, CPU and power unit of the GE-Fanuc 90-30 with the new Rx3i.

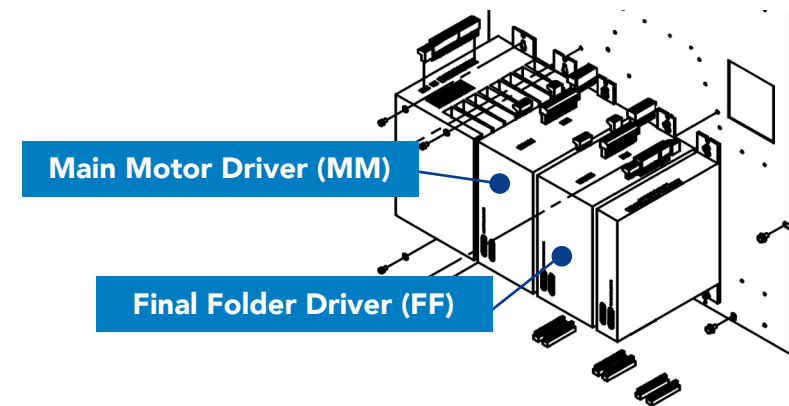
Benefits:

Address the obsolescence of the GE-Fanuc 90-30 PLC series and extends the lifetime of the equipment.

Replacement DMC2 Servo Drive

UG Name	Replacement DMC2 Servo Drive
System/Machine affected	Tetra Pak® TBA/22, -0400 and -0500 Tetra Pak® A3/Speed, -0100
Value Category	Extended Life Cycle
Implementation Time	1-2 days

DMC2 Servo drive 90458-0399 (obsolete)



What does it do:

This Tetra Pak® Upgrades kit consists of two (2) new Servo Drive DMC2 90458-0398, software modification, adaptation plate and connection cables to fit the new component in the electrical cabinet.

Benefits:

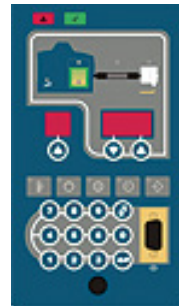
- Minimize un-planned downtime impact by proactive installation of this kit
- Selective replacement (possibility to use the replaced DMC2 servo drive as spare part for other equipment in same plant)
- The kit guarantees a stable and continue access to spare parts, extending equipment lifetime

► Mixed configuration (old and new DMC2) will not work



Nordson ProBlue 4 TSA 22HS

UG Name	Nordson Pro Blue 4
System/Machine affected	TSA 22 HS -0100, -0200
Value Category	Capability
Implementation Time	1 day



What does it do:

The kit introduces a Nordson Pro Blue 4 unit replacing the old Hot Melt Unit no longer in production.

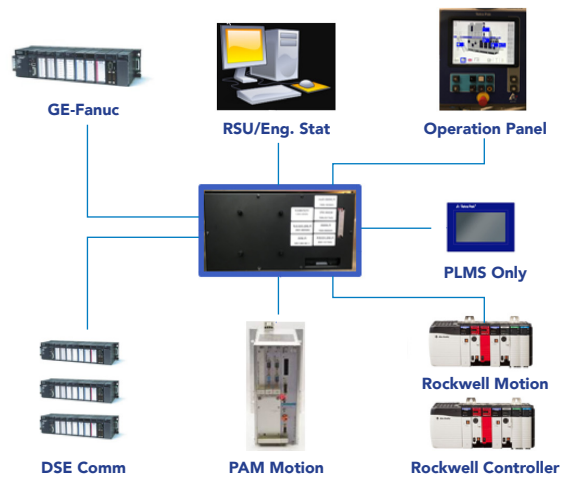
Benefits:

- Improve the hot melt application by using a modern & a better performing technology
- Minimize unplanned downtime impact due to an obsolescence unit replacement by planning a proactive installation of this kit
- Simplify daily operation and reduce the maintenance activities by a non-stick coated tank, a more easy access to the unit, and an intuitive graphic interface, with system status and temperature monitoring (tank, hose, gun)



Replacement Flexbox VI

UG Name	Replacement Flexbox VI
System/Machine affected	Prio1: A3/Flex 0100 (*) TBA/8-1000 Prio2: TB/19, TBA/8-1100, TBA/8-1200, TBA/19, TBA/21, TBA/22, C3/Flex, A1
Value Category	Extended Life Cycle
Implementation Time	1-3 days



What does it do:

Industrial PC complete with panel (4:3) of 3 dimension:(8", 12", 15") depending on IPC. All IPC interfaces in scope granted including operator/PLMS panel replacement.

Benefits:

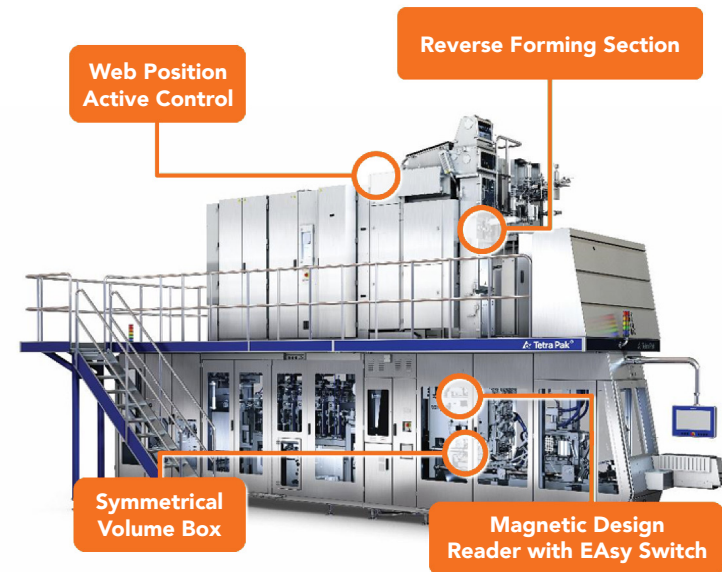
Address the obsolescence of the TPMC and extend the lifetime of the equipment.



MaPS

UG Name	Magnetic Positioning System (MaPS)
System/Machine affected	TP A3/S -0200, -0300, -0400
Value Category	Operational Efficiency
Implementation Time	5-7 days

Tetra Pak A3/Speed for TBA 125 S



What does it do:

The kit combines magnetic inks (static marks) printed into the packaging material with magnetic readers located inside the Filling Machines.

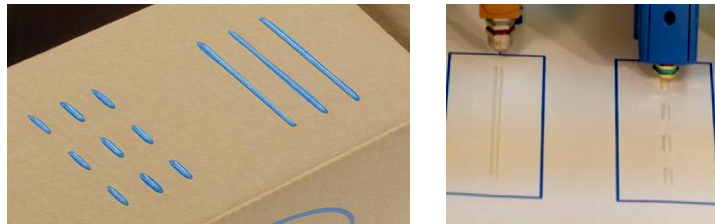
Benefits:

Reduce Customer Operational Cost by improving:

- Filling Accuracy
- MME, MTBF (Capacity increase)
- Packaging Material waste
- Product waste
- Operational activities (reduce number of operator tasks)

EcoDot CBP32 – TCBP70

UG Name	EcoDot
System/Machine affected	CBP32 -0200 to -0700 TCBP70 1100 to 1200
Value Category	Operational Efficiency
Implementation Time	8 hours



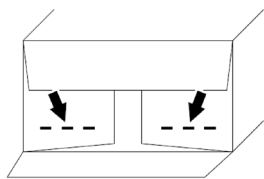
What does it do:

The kit is composed of new hotmelt guns and gun holder and it applies short, intermittent beads in place of long continuous beads of hot melt.

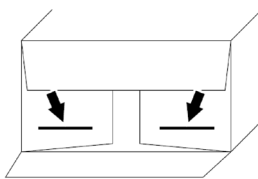
- For CB32, an EcoDot icon is introduced in the HMI
- For TCBP70, a pattern generator enables the EcoDot function

Benefits:

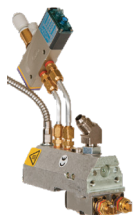
The saving of hotmelt consumption is from 15% to 30% depending on the type of distribution unit.



Intermittent adhesive dots

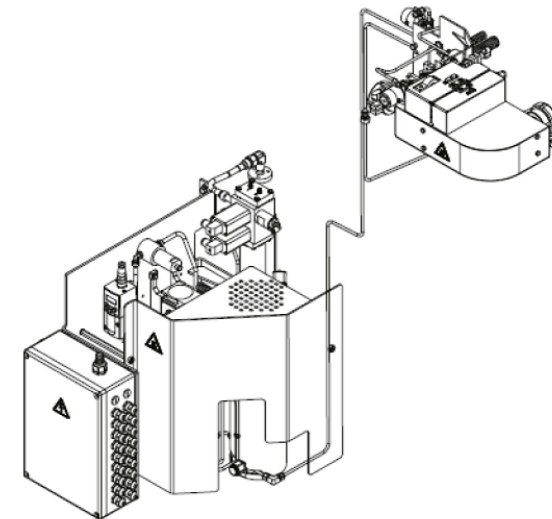


Continuous adhesive dots



Headspace Unit

UG Name	Headspace Unit
System/Machine affected	TBA/19 -0300, -0500 Tetra Pak® A3/Flex -0200, -0300, -0400, -0600 Tetra Pak® A3/Speed -0200, -0300, -0400, -0500
Value Category	Operational Efficiency
Implementation Time	4-5 days



What does it do:

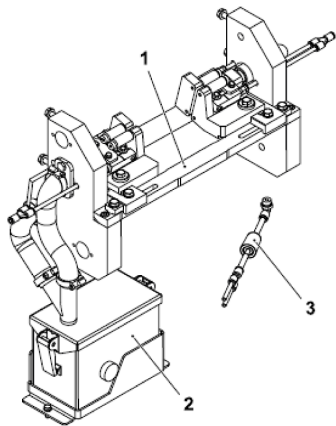
- This Optional Kit provides the opportunity of creating headspace inside each package according to the product being filled.
- Headspace unit is a system able to blow a controlled amount of sterile inert gas, air or nitrogen (depending on the product being filled) directly into the product line.
- The amount of injected gas can be in the range of 2% - 10%.
- All the parts of the HI that are intended to be in contact with the product are sterilised and cleaned during the Cleaning-In-Place (CIP).

Benefits:

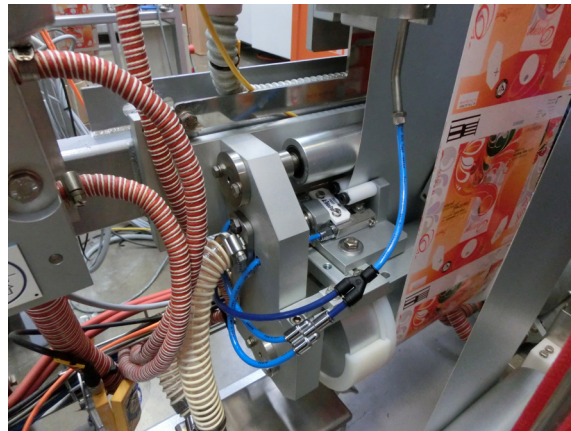
- Fill packages by weight rather than by volume (e.g. tomato)
- Fill packages with products that need to be shaken
- Achieve better pouring properties for certain products

Dust Remover A3/CF

UG Name	Dust Remover
System/Machine affected	A3/CF -0100, -0200, -0300, -0400 E3/CF -0100
Value Category	Efficiency
Implementation Time	1-2 days



- 1 Double blower assembly
- 2 Waste box
- 3 Pneumatic connection



What does it do:

This rebuilding kit provides a blower with the aim to remove the dust along the edge of the packaging material before the strip is applied and convey it into a dust collector box.

Benefits:

Maintenance cost reduction by decreasing the cleaning frequency of Strip Applicator by Customer operator due to less paper dust accumulation in the ASU module, especially in case of usage bleached packaging material.

U/P Transducer

UG Name	U/P Transducer
System/Machine affected	Tetra Pak A3/Compact Flex -0100, -0200, -0300
Value Category	Operational Efficiency
Implementation Time	1 day



Existing Solution:
Norgren VP50



New Solution:
Sentronic 833

What does it do:

This Tetra Pak® Upgrade Kit is composed by the new Sentronic transducer, the adapter plate and the cable to be connected in the Valve Panel.

Benefits:

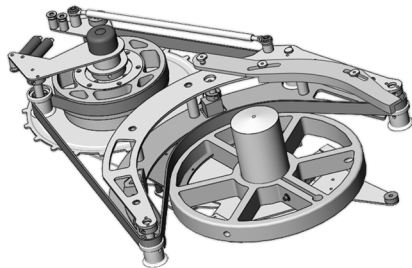
Improvements introduced with the new transducer:

- More robust vs current application
 - Less sensitive to product line disturbances
 - Less sensitive to compressed air quality conditions
- Faster response time
- No need of manual settings from the operator
- Reduces risk of events related to product instability



ACHx 30 Slope Chain Top

UG Name	ACHx 30 Slope Chain Top
System/Machine affected	ACHx 30 0300 to 0700
Value Category	Efficiency
Implementation Time	3-5 days



What does it do:

The kit is composed of a new chain with sloped chain top and a new spider, based on

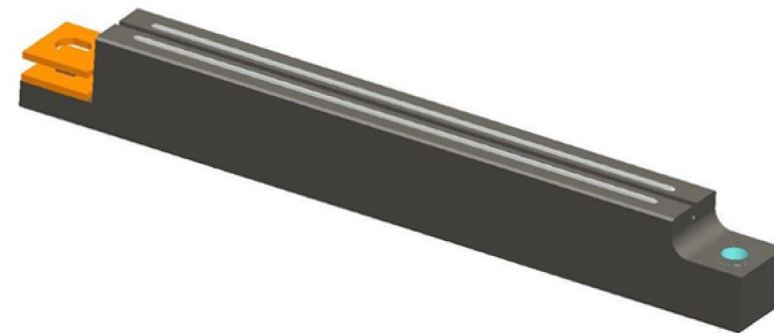
- Hyperspeed ACHx40 design
- 34mm sloped chain-top
- Hyperspeed-design spider with improved package support

Benefits:

- Improved MTBF for ACHx30
 - Less stops due to package jams in spider outfeed
 - Less fallen packages
- Reduced Customer Operational Cost
 - Reduced operator intervention needed
 - Less wasted packages
- Extended package guide increasing support as the packages are released from the spider

Jaw System TS Inductor

UG Name	Jaw System TS Inductor
System/Machine affected	TP A3/Speed -0200, -0300, -0400 TBA/22 -0500
Value Category	Efficiency
Implementation Time	1 day



What does it do:

New TS inductors with a new coil and connectors material which is resistant against corrosion due to environmental working condition (peroxide residues and product pH)

Benefits:

Reduce maintenance cost by improving component lifetime at least to 2000 hours

OFU – Oil Filtering Unit TP/A3

UG Name	OFU
System/Machine affected	TP A3/F -0100, -0150, -0160, -0200, -0300, -0400 TP A3/CF -0100, -0200, -0300, -0400
Value Category	Efficiency
Implementation Time	1-2 days



What does it do:

The solution consists of a coalescence filter for hydraulic system oil that removes:

- Insoluble particles
- Oil degradation products
- Water

Benefits:

Decreases customer system cost extending oil lifetime from 2000h to 4000h and reducing the risk of filling machine breakdown due to oil degradation.

Jaw System Cutting Knife

UG Name	Jaw System Cutting Knife
System/Machine affected	Tetra Pak A3/F -0100, -0150, -0160 Tetra Pak A3/F -0200, -0300, -0400, -0600 Tetra Pak A3/CF -0100, -0200, -0300 Tetra Pak A3/S -0100, -0200, -0300, -0400, -0500 Tetra Pak TBA22 -0500
Value Category	Operational Efficiency and Food Safety
Implementation Time	4~6 hours



What does it do:

The kit introduces new knives in a more durable material (Stellite 6K chromium-cobalt alloy) with outstanding property of corrosion resistance and hardness.

Benefits:

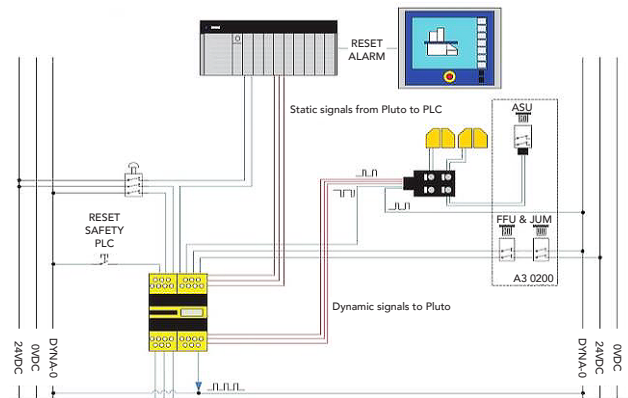
Reduce downtime by improving component life time when packing complex and very complex products.

Additional Benefits:

- Reduce stops (in FFU) due to a better output quality
- Stable cutting quality

Improved Diagnostic for Safety Sensor

UG Name	Improved Diagnostic for Safety Sensor
System/Machine affected	A3/S -0300, -0400 A3/F -0300, -0400
Value Category	Operational Efficiency
Implementation Time	2-3 days

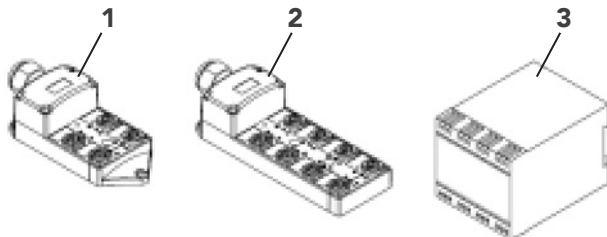


What does it do:

The Kit connects all the Adam sensors (dynamic signal) to the PLUTO module which then sends information directly to PLC (chain removed). Each sensor is directly connected to the safety system in order to easily detect the faulty sensor, and the precise information of the faulty sensor is displayed on filling machine TPOP.

Benefits:

Reduction of troubleshooting time due to a malfunctioning or failure of the ABB Jokab Door Safety Sensors by improving the diagnostic system.



► Introduced as standard from SN 21219/00458 (A3/S) and SN 21218/00436 (A3/F)

Straw Quality Improvement

UG Name	Straw Quality Improvement
System/Machine affected	Straw Applicator 30
Value Category	Operational Efficiency
Implementation Time	2-3 days

Current Solution



New Solution



What does it do:

The Straw quality improvement that improves straw application and ladder band guide in Straw Applicator 30.

Reduced friction against straw at application will prevent the straw to slide along package during application. New feedwheel needed due to new rollers and new knife to improve cutting.

Reduced sensitivity for straw position variations in the ladder band. Preventing straw ladder band breaks and failures in cutting and straw picking areas.

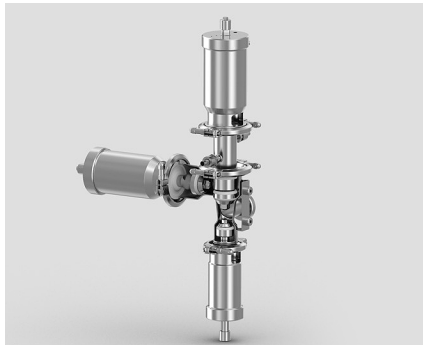
Benefits:

- Increased Line Machine Mechanical Efficiency (LMME)
- Decreased Mean Time to Restore (MTTR)
- Reduced operator time when less packages are rejected due to defective straw application
- Improved Straw Application Quality

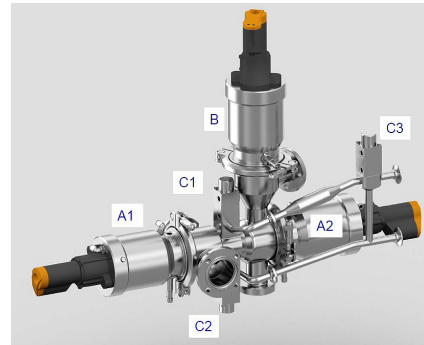
New Aseptic Product Valve NAPV

UG Name	New Aseptic Product Valve NAPV
System/Machine affected	Tetra Pak A3/CF, A3/F, A3/S
Value Category	Food Safety
Implementation Time	3-5 days

New design to improve the current AP valve functionality



Current Aseptic Product Valve



New Aseptic Product Valve

What does it do:

Replace the current Aseptic Product Valve (ABC Valve) with the new Aseptic Product Valve. This kit includes also pipe connections from-to the new valve with steam system, sterile air system, filling and cleaning system.

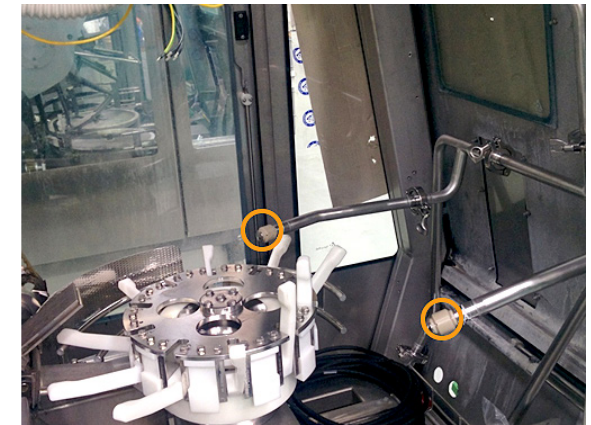
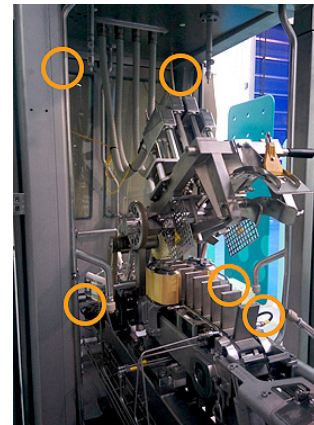
The new design aims to improve current AP-valve functionality.

Benefits:

- Reduction of operational downtime by A-valve seat automatic cleaning during CIP – no need of weekly manual cleaning
- Lower operating temperature (minimizing the product burnt) by having the sterile condensate steam barrier (as option) instead of sterile steam barrier
- More accurate and reliable coupling by using new mechanical connections (DIN 11864) instead of clamps – the tightening does not rely on the operator
- Easier operator task during cleaning in place enabled by a new position of swing bend/ flow switch (A3S – A3CF)

Additional External Cleaning for A3/S

UG Name	Additional External Cleaning
System/Machine affected	A3/Speed -0200, -0300, -0400 (*)
Value Category	Food Safety and Operational Efficiency
Implementation Time	22 hours



What does it do:

The kit is composed by:

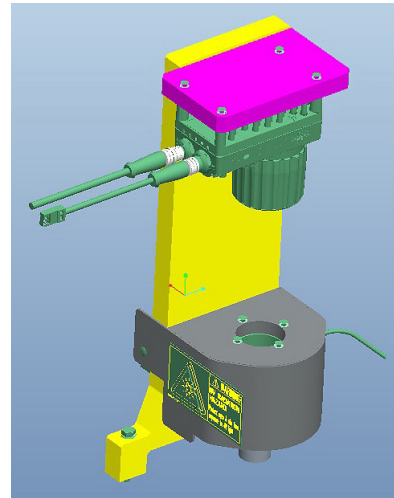
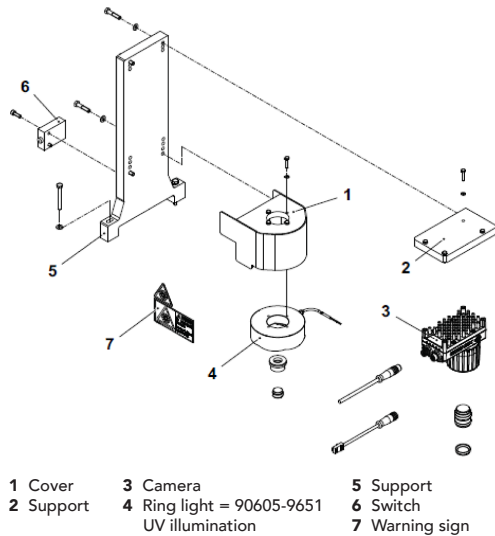
- Additional nozzles (static and rotating) installed in Jaw System, Final Folder Unit and Waste Conveyor areas.
- An external water gun (no high pressure) directly connected to the service unit (with automatic pipe reel) able to perform both rinsing and foaming phases. The functionality can be selected from Filling Machine TPOP.

Benefits:

- Improve the cleaning efficiency of existing external cleaning by adding new nozzles (internal and external) and a water gun
- Decrease labour cost by reducing manual cleaning time (average daily operator time saving is 40-50%)
- Increase available production time due to reduced manual cleaning time
- Increase the overall cleaning quality of equipment and production output

Adhesive Detector

UG Name	Adhesive Detector
System/Machine affected	CAP 30F 0100-0200, CAP 30S 0100-0200
Value Category	Food Safety
Implementation Time	2-4 days



What does it do:

Adhesive Detector is a vision system, based on a In-Sight camera installed inside the cap applicator, to control the quantity and quality of the glue on the caps.

Benefits:

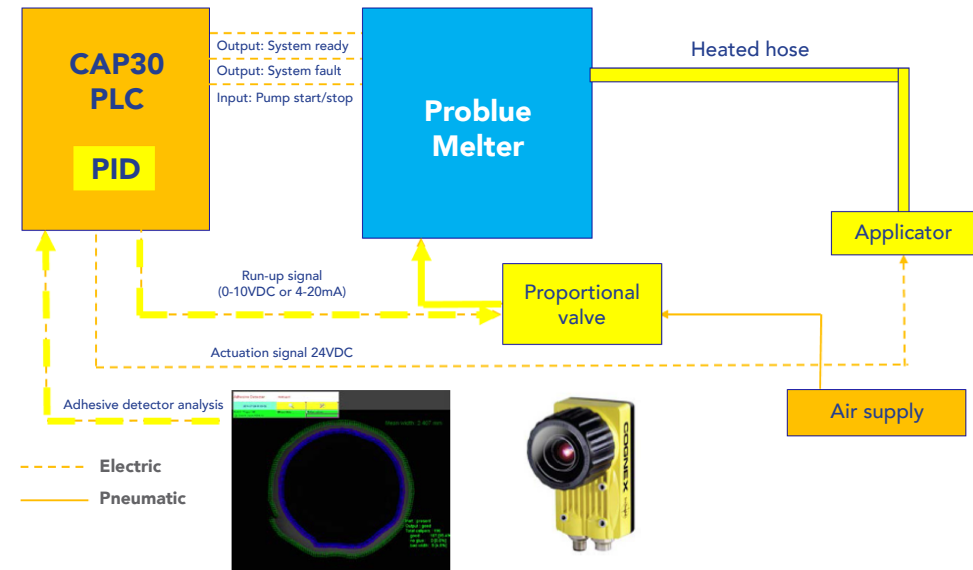
Better quality control of the caps to prevent defective packages going out to the market.

Customer Benefits:

- Prevent leakages
- Avoid caps coming off
- Avoid openability problems

Glue Regulator CAP30 Flex & CAP30 Speed

UG Name	Glue Regulator
System/Machine affected	CAP30 Flex & CAP30 Speed
Value Category	Food Safety
Implementation Time	2 days



What does it do:

This Upgrade Kit is composed by a new hot melt gun group equipped with an automatic closed loop system aimed at stabilizing the glue amount applied on the caps.

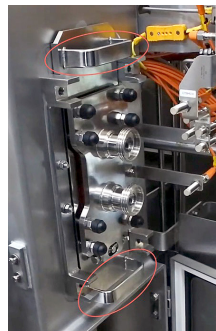
Benefits:

The automatic closed loop system minimizes the risk of openability issues (too much glue) and tightness issues (too little glue) thereby reducing the waste of filled packages. It also reduces the need of manual quality control of the cap application.

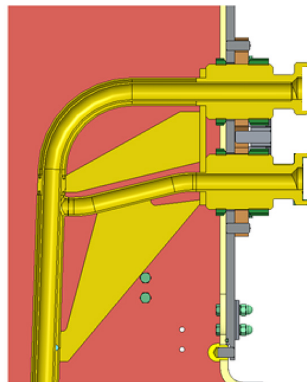
► Adhesive Detector & Hot Melt Hose (*) are pre-requisites for the Glue Regulator

Upper Filling Pipe for A3/CF

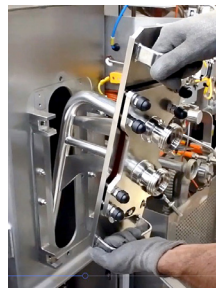
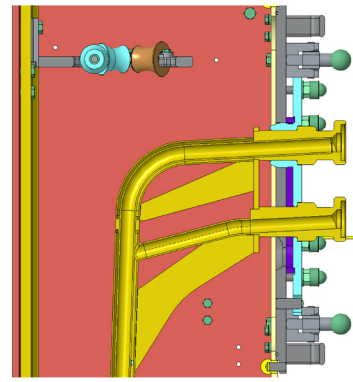
UG Name	Upper Filling Pipe
System/Machine affected	Tetra Pak® A3/CF -0100, -0200, -0300, -0400 (*)
Value Category	Food Safety and Operational Efficiency
Implementation Time	2 days



Existing Solution



New Solution



What does it do:

This Tetra Pak® Upgrades kit is composed by a new re-designed Upper Filling Pipe with a reinforced locking system to aseptic chamber.

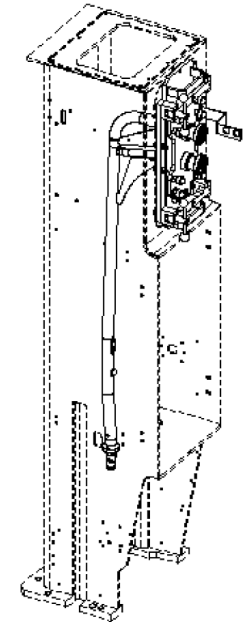
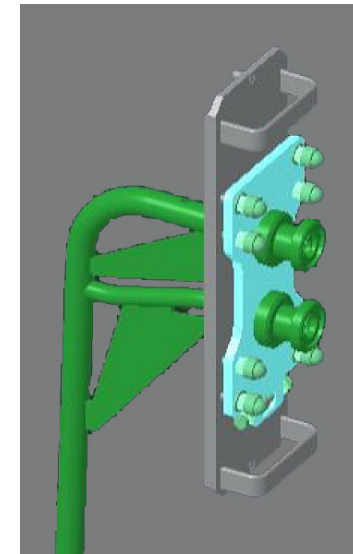
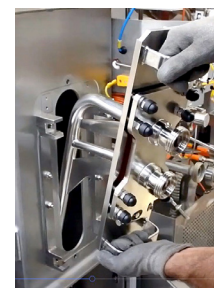
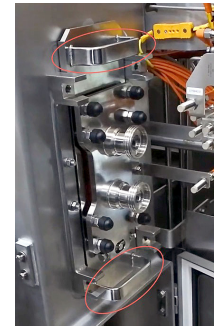
Benefits:

Reduced Customer Operational Cost by:

- Decreasing operator manpower to align the position of the Upper Filling Pipe after CIP
- Decreasing filling machine downtime
- Reducing risks of Longitudinal Sealing problems/Package integrity/Package forming

Upper Filling Pipe for TBA/19

UG Name	Upper Filling Pipe
System/Machine affected	Tetra Pak® TBA/19 -0100 to -0500
Value Category	Food Safety and Operational Efficiency
Implementation Time	2 days



What does it do:

This Tetra Pak® Upgrades kit is composed by a new re-designed Upper Filling Pipe with a reinforced locking system to aseptic chamber.

Benefits:

Reduced Customer Operational Cost by:

- Decreasing operator manpower to align the position of Upper Filling Pipe after CIP and/ or weekly care
- Decreasing filling machine downtime
- Reducing risks of Longitudinal Sealing problems/Package integrity/Package forming

Card Inserter CBP32

UG Name	Card Inserter CBP32
System/Machine affected	CBP32 -0400, -0500, -0600, -0700
Value Category	Food Safety / Efficiency
Implementation Time	6-8 days



What does it do:

This rebuilding kit allows the Tetra Pak® Cardboard Packer 32 machine to insert vertical cards between package groups during pattern forming in order to prevent damage or shape change during transportation.

Benefits:

Decrease package damage in a range of 10~20% during transportation (depending on conditions)

Package	Cap	Packing Pattern
TBA 250 E, TBA 200 E	All	3x8, 4x8
TPA 330 Sq	All	3x4, 3x6, 4x6
TBA 1000 S	All	2x3, 2x5, 2x6
TBA 1000 Sq	All	3x4, 2x6
TBA 125 S	All	4x10
TBA 250 S	All	3x6, 3x8
TBA 1000E	All	2x6, 3x4, 2x5
TBA 500 E	All	3x4
TBA 500 Sq	All	3x4
TT 1000B	All	3x4



Production Capability Upgrades – A3/S Up Speed

UG Name	Machine Up-Speed
System/Machine affected	A3/S (Depends on Product & Packet Size)
Value Category	Production Capability
Implementation Time	Depends on level of upgrade



What does it do:

By re-designing the Tetra Pak machine, the capacity can be changed to customer's new requirements.

The configuration of the existing process design might need to be modified in order to get optimal production performance at the specified capacity. Depending on the capacity change, some parts need to be modified or changed to correspond to the changed capacity.

Installing the kit increases the nominal capacity of the filling machine from 24,000 packs/hour to 26,000 packs/hour (depending on product & machine type).

Benefits:

- Increased Flexibility
- Improved Utilization
- Short Payback Time
- Match market demand with a limited investment



03 AUTOMATION

Food production today is complex. It requires detailed control of plant operations - from the reception and processing of raw materials to the packaging and distribution of finished products. The greater your control, the more value you can squeeze out of your production.

We bring you over 40 years of experience in providing automation and information solutions tailored to the needs of the food industry – your needs – and have embedded that intelligence in our equipment and production solutions. This ensures you total control of plant operations, and the benefits that brings: enhanced and guaranteed performance, consistent product quality, uncompromising food safety and reduced environmental impact.



Sustainability

Tetra Pak® Plant Master
Software Upgrades
– Production Control

Tetra Pak® Plant Master
Software Upgrades
– Production Integrator

Manufacturing
Execution System (MES)



Productivity & Efficiency

Tetra Pak® Plant Master
Hardware Upgrades
(Virtualisation)

SCADA &
Report Generation

Remote Support
Services

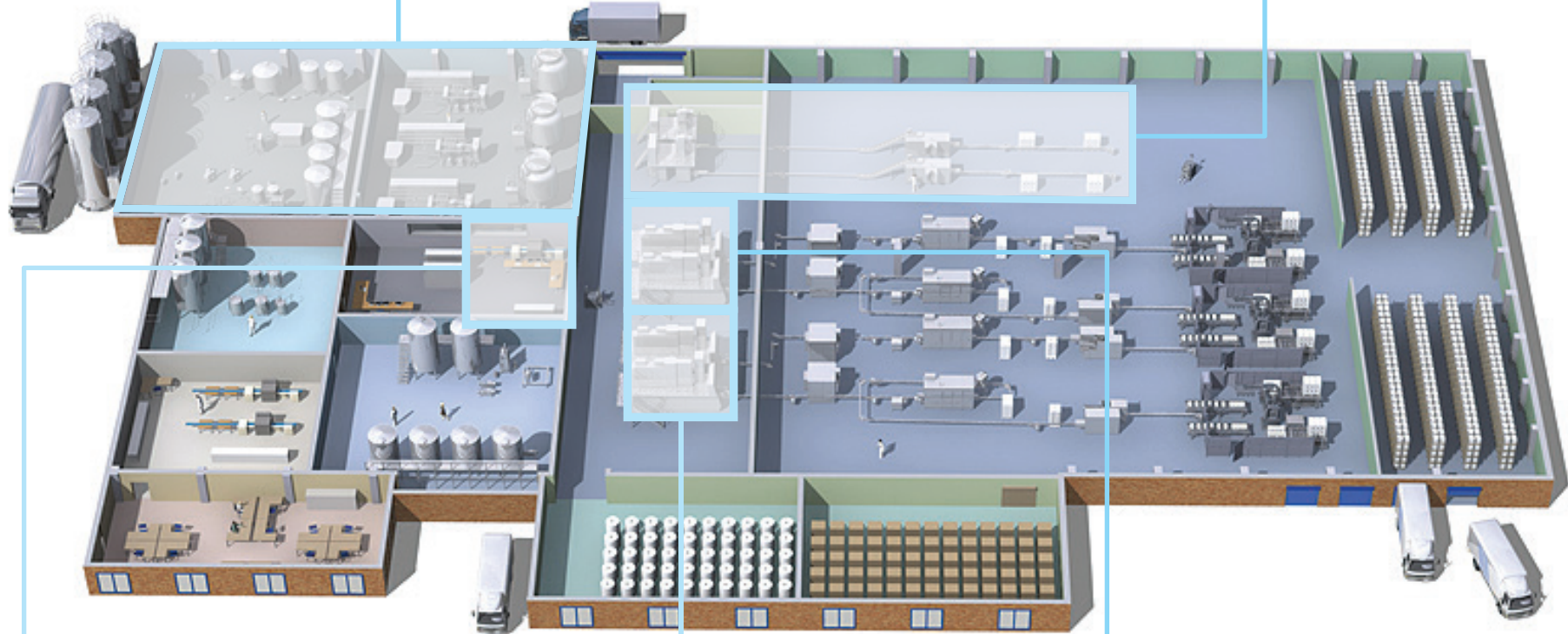
AUTOMATION PRODUCT PORTFOLIO

Processing Units

- Replacement HMI (Beijer, Proface, etc)
- Replacement PLC (ABB->Siemens, Rockwell)
- New Control Panel (Latest Platform)
- Cheese Vat Coagulation Sensor

Packaging

- Tetra Pak® Line Controller
- Tetra Pak® Line Gateway (LiGa)



Plant Automation

- Tetra Pak® Plant Master:
 - Production Control
 - PI/MES/PLMS
- Tetra Pak IT/OT Infrastructure (Virtualisation)
- Tetra Pak® Plant Master Traceability Upgrades
- SCADA System & Report Generation
- Wonderware Intouch Upgrade
- MES Manufacturing Execution System

Packaging

- RK PAM/SAM
- RK FLEXBOX VI
- RK GE90-30

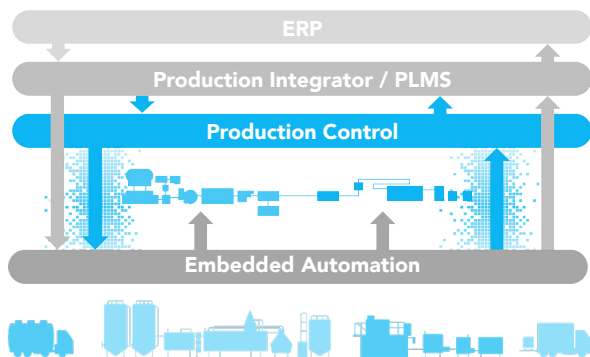
Packaging

- RK TPMC
- RK Rockwell L63 PLC



Tetra Pak® Plant Master Software Upgrades

UG Name	Tetra Pak Plant Master Software Upgrades – Production Control
System/Machine affected	Tetra Pak Plant Master Solutions & Non-Tetra Plant Master automation solutions
Value Category	Production functionality, Quality, Operational Efficiency & Cost
Implementation Time	Depends upon size of solution



What does it do:

The TPPM PC comes with:

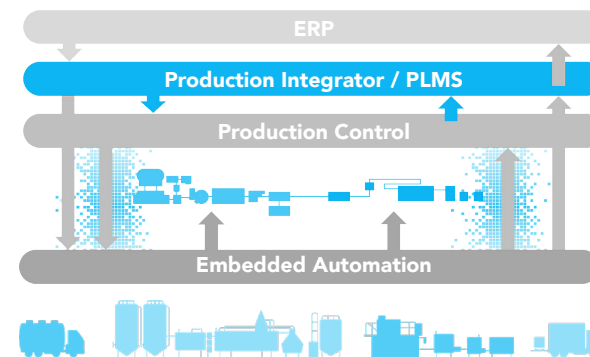
- Upgrade of controller software, such as PLC and HMI systems
- Unique configuration matching the process application and plant hardware
- Designed and delivered based on consistent and proven S88 & S95 standards
- Factory Acceptance Testing
- Installation, I/O checking & Commissioning

Benefits:

- Get total control for guaranteed food safety and consistent product quality
- Greatly simplify operation with one user interface and intuitive, task-based navigation
- Maximize OEE and cut operational cost by reducing downtime, waste and recalls
- Increase process stability and reliability by reducing risk of human error
- Base for future platform for advanced and rapid traceability information available at the click of a button

Tetra Pak® Plant Master Software Upgrades

UG Name	Tetra Pak Plant Master Software Upgrades – Production Integrator
System/Machine affected	Tetra Pak Plant Master Solutions & Non-Tetra Plant Master automation solutions
Value Category	Production functionality, Quality, Operational Efficiency & Cost
Implementation Time	Depends upon size of solution



What does it do:

The TPPM PI comes with:

- Upgrade of production integrator software, such as SQL server, Batchkernel, system integration kit, etc
- Creation of Plant Model matching the process plant
- Designed and delivered based on consistent and proven S88 & S95 standards
- Factory Acceptance Testing
- Installation & Commissioning

Benefits:

- Get total control for guaranteed food track & trace
- Greatly simplify operation with one user interface traceability navigation
- Maximize OEE and cut operational cost by enhanced analysing reports
- Get a modular and scalable integrated solution
- Collect correct and relevant data through our expertise in process design
- Advanced and rapid traceability information available at the click of a button
- Get real time performance of your production lines



Manufacturing Execution System (MES)

UG Name	Manufacturing Execution System (MES)
System/Machine affected	MES
Value Category	Production functionality, Quality, Operational Efficiency & Cost
Implementation Time	Depends upon size of solution



- MES Suite
- Production Control
- Embedded Automation

What does it do:

- Replacement IT hardware such as servers, network storage & performance management software
- Get the one and only MES solution for food production that covers your entire operation – from raw material reception to finished goods
- Digitalize your entire operation – across all of your sites – no matter your level of automation today and no matter what equipment you use
- Provide transparent information within your factory and in the entire supply chain – from raw material to consumption
- Secure a flexible and future proof solution thanks to scalability, modularity, software maintenance support, dynamic updates, licensing and customizable functionalities

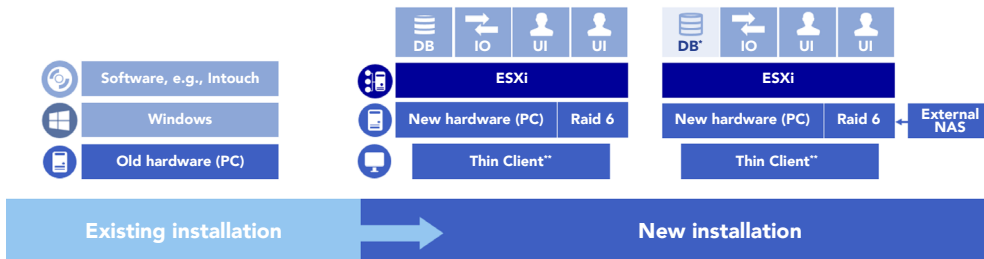
Benefits:

- Optimal performance
- Flexible & future proof solution
- Customized base report



Tetra Pak® Plant Master Hardware Upgrades (Virtualisation)

UG Name	Tetra Pak Plant Master Hardware Upgrades (Virtualisation)
System/Machine affected	Tetra Pak Plant Master Solutions
Value Category	Life Cycle Management and System Reliability
Implementation Time	Depends upon size of solution



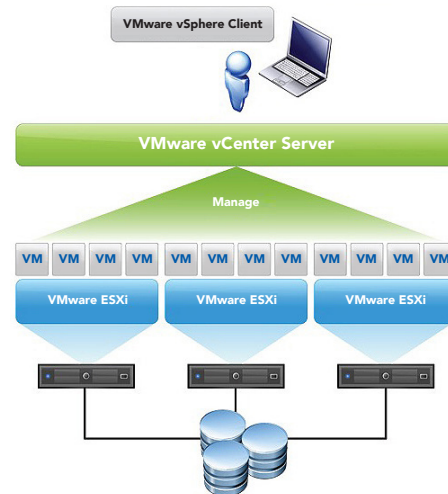
What does it do:

The TPPM Hardware upgrade comprises of:

- Replacement IT hardware such as servers, network storage & performance management software
- Configuration of host, operating and application software
- Factory Acceptance Testing
- Installation & Commissioning
- Fault tolerance check & recovery training

Benefits:

- Secure modern hardware
- Application independent
- Scalable customized solution
- More efficient use of the technology
- Reduction in Capex and Opex costs
- Improved security



SCADA & Report Generation

UG Name	SCADA & Report Generation
System/Machine affected	All
Value Category	Operational Efficiency
Implementation Time	Depends on number of equipments



What does it do:

This solution allows to monitor and control manufacturing processes by means of an interface capable of extracting information on components and processes, such as:

- Sensors
- PLCs
- Scales

This application stores all the information entering the system and automatically analyzes – in real time – the correct process operation, enabling comparison with previous production data in order to identify with possible improvements.

Benefits:

- Obtain information leading to better process traceability
- Storage of performance data in order to correct quality problems
- Creating a smart maintenance regime and decreasing downtime
- Making operator's jobs easier by having graphical statistics presented in real time
- Achieve a more connected operation and take the next step towards Industry 4.0

Remote Support Services

UG Name	Remote Support
System/Machine affected	All
Value Category	Operational Efficiency and Troubleshooting
Implementation Time	Depends on number of equipments



What does it do:

The remote support service solution is based on Tetra Pak (Customer Extranet Connection), which is a secure connection to the customer's factory and allows service engineers and equipment experts to connect to the customer's equipment to:

- Remote troubleshoot problems or change configurations
- Automatically transfer data from Tetra Pak to the customer (if authorized, transfer to the other direction)
- Provide remote automation support, PC, PLC, etc.
- Provide a variety of other services, such as: online TPM, log running time, remote status monitoring

Benefits:

- Reducing labor costs for maintenance and troubleshooting
- Improving efficiency and equipment utilization
- Reducing waste (products/materials)
- Root cause analysis



04 ICE CREAM

Ice cream may be one of the world's favourite desserts, but as manufacturers know only too well, the demand for novelty is relentless. Product innovation is essential, and it's not only a question of new flavours; the product has to look irresistible too. Regular variations in shape, dipping, toppings and wrapping all help attract attention. Explore ways with Upgrades to take performance to a whole new level.



Productivity & Efficiency

Control Upgrade
for Tetra Pak®
Continuous Freezer

Control System
Migration

Ice Cream Filler
Airless Chocolate Spray

Dynamic Pressure
Distributor

Tetra Pak®
Extrusion Wheel

Multi Dasher – Freezer



Food Safety & Quality

Dry Run Protection
for Freezer



New Requirement for your Line

New Product Upgrade
– Extrusion

New Product Upgrade
– Rotary Moulder

ICE CREAM UPGRADES PRODUCT PORTFOLIO

Freezing

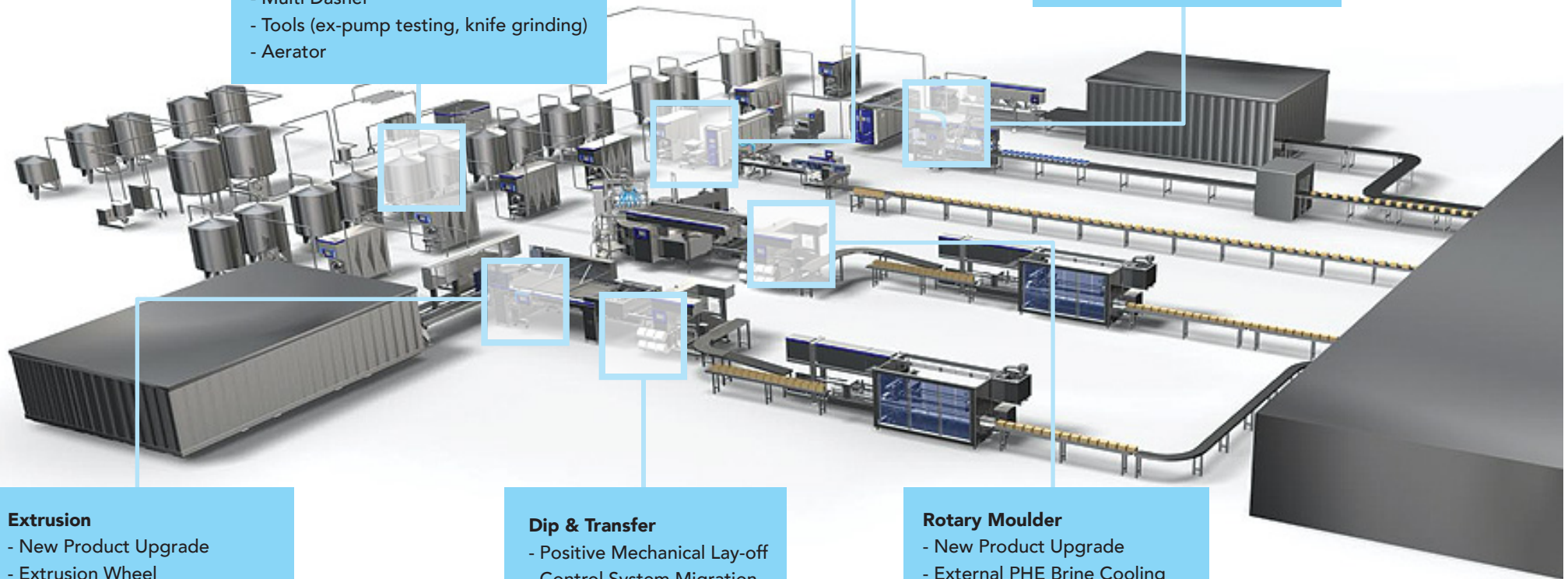
- Control Upgrade
- Dynamic pressure distributor
- Multiple Cream Pump
- Dry run protection
- HMI Panel
- Multi Dasher
- Tools (ex-pump testing, knife grinding)
- Aerator

Ingredient Dosing

- Feeder Pump Upgrade
- Control Upgrade

Filling

- New Product Upgrade
- Airless Chocolate Spray
- Cone, Cup & Lid Dispensers
- Swirl Effect
- Dynamic Pressure Distributor



Extrusion

- New Product Upgrade
- Extrusion Wheel
- Swirl Effect
- Dynamic Pressure Distributor
- Control System Migration
- Automatic Stick Single

Dip & Transfer

- Positive Mechanical Lay-off
- Control System Migration
- Tongs Surveillance

Rotary Moulder

- New Product Upgrade
- External PHE Brine Cooling
- Positive Mechanical Lay-off
- Automatic Stick Multi A2
- Dynamic Pressure Distributor
- Control System Migration
- Tongs Surveillance
- Safe Tong
- Individual Emergency Release

Control Upgrade for Tetra Pak® Continuous Freezer

UG Name	Control Upgrade for Tetra Pak® Continuous Freezer
System/Machine affected	Tetra Pak Continuous Freezers
Value Category	Operational Efficiency, Production Capability, Automation Life-Cycle Management, Environment
Implementation Time	5 days approx



PLC and electrical components mounted on backplate

OP panel installed in new cabinet door

Optional motor and gear direct drive

What does it do:

- All necessary parts/units such as new sensors and control components are included in the upgrade kit
- Upgrade kits are designed based on the original configuration of the freezer
- Kits are delivered ready to build into the freezer
- The upgrade secures spare part supply availability and includes an extensive service maintenance program
- Active pump speed control and instant read-out of essential process parameters

Benefits:

- Higher output constancy, reducing production cost and ensuring constant quality ice cream
- Faster start-up reducing product loss and rework
- More user-friendly operation
- Reduced and secured maintenance cost
- Proven solution with >200 systems in operation
- Allows remote connectivity and support
- Enables I4.0 possibilities



Control System Migration

UG Name	Control System Migration
System/Machine affected	Tetra Pak Extrusion Tunnel, Rotary Moulder, Wrapper and Dip & Transfer units
Value Category	Operational Efficiency, Production Capability, Automation Life-Cycle Management; Environment
Implementation Time	10 days approx



What does it do:

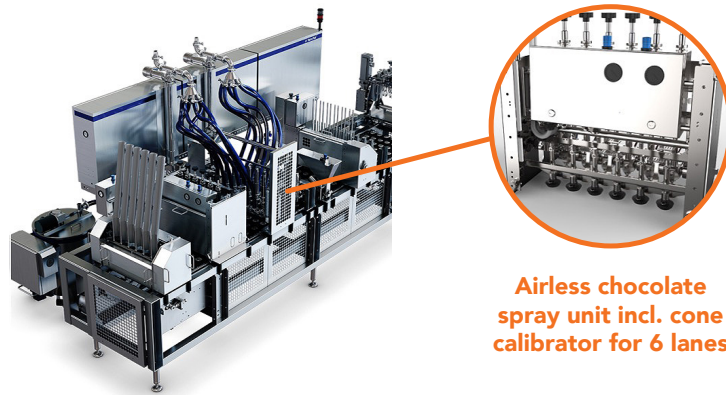
- Can include all necessary automation components to bring the system up to the latest generation
- Depending on the machine/line set-up, the scope will vary
- Complete technical documentation and documented quality check of the installation
- The upgrade utilizes either Siemens S7 platform or Rockwell CLX platform

Benefits:

- Full spare part supply secures minimal time of delivery and downtime
- Enables Improved Production Flexibility
 - Better compatibility for future upgrades and new modular design principles, making the production line more flexible regarding production of new ice cream products
- Facilitates Introduction of New Ice Cream Products
- Enables new production equipment, e.g. servo cutter in pre-programmed software
- Improves Product Quality
 - Full line integration provides:
 - Better diagnostics
 - Maximum consistency in production
 - Accurate correction of deviating production parameters
 - Recipe storage
- Allows remote connectivity and support
- Enables I4.0 possibilities

Ice Cream Filler Airless Chocolate Spray

UG Name	Tetra Pak® Airless Chocolate Spray
System/Machine affected	Tetra Pak® Ice cream filler A2/A3, CometC/ C2, Comet N, Fillmark, Cattani, Viking and 3rd party machines
Value Category	Operational Efficiency, Environment
Implementation Time	1-2 day per freezer



Airless chocolate spray unit incl. cone calibrator for 6 lanes

What does it do:

- Volumetric filling nozzles enable exact and desired amount of chocolate in each cone
- Chocolate circulation for maintaining chocolate temperature no nozzle blocking
- On the fly adjustments
- Hygienic design
- Low risk at integration with stand alone control system

Benefits:

- Accurate chocolate dispensing due to volumetric filling
- Reduced waste integrated cone calibrator incl. cone detection no cone no spray
- More uptime chocolate spray can be adjusted in operation



▶ *Based on Tetra Pak IC Filling Machine

Dynamic Pressure Distributor

UG Name	Pressure Distributor
System/Machine affected	Tetra Pak® Extrusion tunnels Tetra Pak® Ice Cream Filling machines Tetra Pak® Moulding machines (Inline & RM) 3rd Party Machines
Value Category	Operational Efficiency
Implementation Time	3-6 days



What does it do:

- Blender housing with multi blades for mixing inclusions and break flow, to secure uniform distribution to all outlet holes in bottom
- Customized bottom plate to actual flow for optimizing ice cream distribution to multiple lanes
- Distribution head with multi blade scraper to prevent blocking of outlet holes in case of inclusions in ice cream
- Hygienic design, CIP
- Separate control box

Benefits:

- Equal distribution, lower standard deviation in ice cream weight
- Proven solution reduce risk of failure and downtime
- Easy machine integration

Tetra Pak® Extrusion Wheel

UG Name	Tetra Pak® Extrusion Wheel
System/Machine affected	Tetra Pak Extrusion Line
Value Category	Production Capacity, Environment
Implementation Time	3-5 days

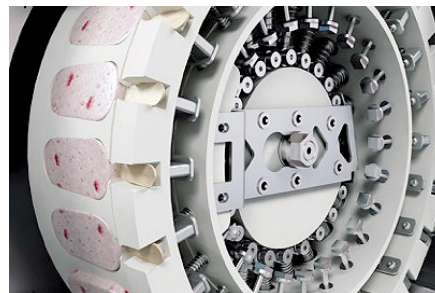


What does it do:

- Mould wheel for extruding ice cream with large inclusions in one to four lanes, on to an extrusion worktable (One lane production of one product size per extrusion wheel)
- Suitable for production of both stick and sandwich ice cream products with large inclusion including:
 - Servo motor drive synchronized with basic machine
 - Cleaning in place system
 - One test of unit in laboratory with customer inclusion and mix recipe before shipping

Benefits:

- High product quality
- Flexibility on ingredient size (up to 25mm)
- High yield and maintained extrusion capacity
- Great environmental and safety performance
- Low running cost
- Stick placing accuracy constant and exact
- No nitrogen cooling needed
- Small size and only needs electrical connection
- Less downtime with less frequent defrosting



Multi Dasher – Freezer

UG Name	Multi Dasher – Freezer
System/Machine affected	Tetra Hoyer Frigus KF Continuous Freezer
Value Category	Operational Efficiency
Implementation Time	1-2 days

Old Design



New Design



What does it do:

- The Multi Dasher unit for Tetra Hoyer Frigus KF Continuous Freezer replaces the standard dasher.
- Generally suitable for all applications, especially advantageous for water ice, sherbet, low fat products and “all natural” recipes.
- The unit prevents ice build-up on the knives and dasher of your freezer, enabling longer intervals between required thawing and in most cases eliminates the need for thawing during production compared to the standard dasher.

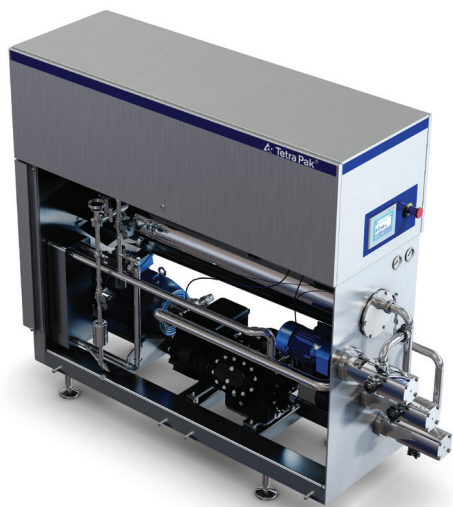
Benefits:

- Increases freezer uptime
- Maximized production efficiency
- Recipe flexibility increased
- Optimized knife angle to the cylinder wall for improved performance



Dry Run Protection for Freezer

UG Name	Dry Run Protection
System/Machine affected	Control upgraded KF freezers for CF or F1 level (Freezers manufactured from 2004-2014)
Value Category	Food Safety and Operational Efficiency
Implementation Time	1 day per freezer



What does it do:

- A pressure transmitter will constantly monitor the inlet pressure to the mix pump combined with input measured on the mix flow meter
- In case the pressure and flow is too low the dasher and pumps are stopped
- Scope of supply
 - One inlet pressure transmitter
 - Electrical drawings
 - Software on memory card
 - Installation guide

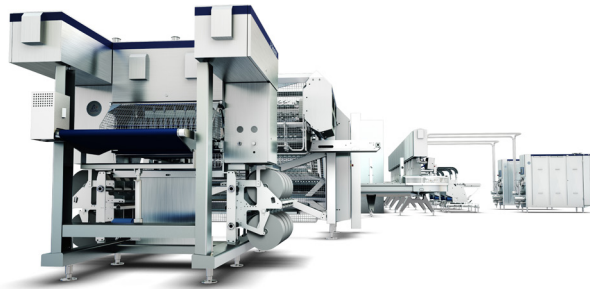
Benefits:

- More uptime (reduce risk of production stop)
- Reduced maintenance cost
- Reduced risk of food contamination (ex. chrome from the cylinder peeling off)



New Product Upgrade – Extrusion

UG Name	New Product Upgrade
System/Machine affected	Tetra Pak Extrusion Line
Value Category	Operational Efficiency
Implementation Time	Depends on new product



What does it do:

- New product upgrade for an existing extrusion line.
- Meeting and exceeding consumer expectations requires launch of innovative products.
- Various changes have to be made to the existing equipment depending on the demand of the new product. By this upgrade the time to introduce a new product in the market is short, which improves business.

Benefits:

- Increased Flexibility
- Improved Utilization

Ice Cream Sandwich



Candy Bar / Bite Size



Wafer Cups / Cones



Sticks



Cakes



New Product Upgrade – Rotary Moulder

UG Name	New Product Upgrade
System/Machine affected	Rotary Moulder
Value Category	Operational Efficiency
Implementation Time	Depends on new product

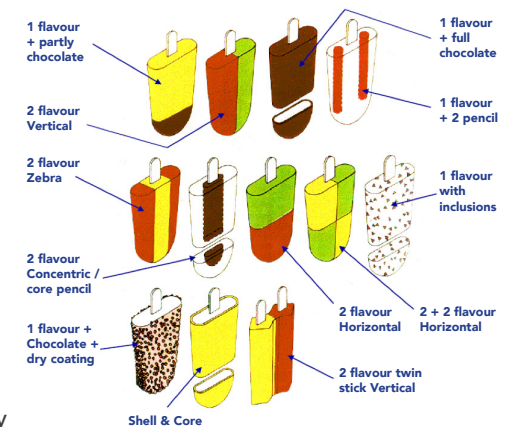


What does it do:

New stick moulded product upgrade for an existing rotary moulder line. Meeting and exceeding consumer expectations requires launch of innovative products.

Examples:

- Combination Filler
 - For small inclusions, up to 10mm (fruit pieces or similar)
 - Water ice, Ice cream & slush ice
 - One or two color filling
 - Less than 1% standard deviation between lanes
- Dry Coating
 - Equipment will create a “mist of nuts” (or similar dry material) in which the coated, but still “wet” product is dipped
 - Easy operation even in case of chocolate dip creating block-up – clean-out on the fly



Benefits:

- Increased Flexibility
- Improved Utilization
- Short Payback Time

05 CHEESE & POWDER

At Tetra Pak, we have brought together the world's leading systems and equipment supply companies for the industrial production of cheese and powder under the name Tetra Pak Cheese and Powder Systems - Tetra Pak CPS. With the addition of powder handling equipment to the portfolio via Guerin Systems SAS, we are now the only company in the world that can provide full line solutions for cheese and powder applications. We offer complete services in engineering, manufacturing plant construction, personal training and full automation.

In addition, our fully automated solutions are high sanitary, dust-free systems, meeting all of the European quality standards and, our powder handling systems are easily maintained, with local service and spare part capabilities via the Tetra Pak worldwide network.



Sustainability

Vacuum Skid
for Evaporators



Productivity & Efficiency

Coagulation Sensor for
Curd Making Vats

New Knives for
TT OST Cheese Vats

Control Upgrade
for OST Vat

New Agitator Drive for
TT OST Cheese Vats

Elevator Cylinder
Upgrade for
Blockformer

CHEESE PLANT UPGRADES PRODUCT PORTFOLIO

OST Vat Upgrades

- Coagulation Sensor
- Cordless Whey Sieve
- OST Knives Upgrade
- OST Drive Upgrade
- Control Upgrade OST Vat
- Rennet Dosing
- LED Lighting

Blockformer Column Upgrades

- Automatic Weight
- Door
- Elevator Cylinder
- Extended Column
- High Capacity
- Automatic Bagging System

Cheddaring Machine Upgrades

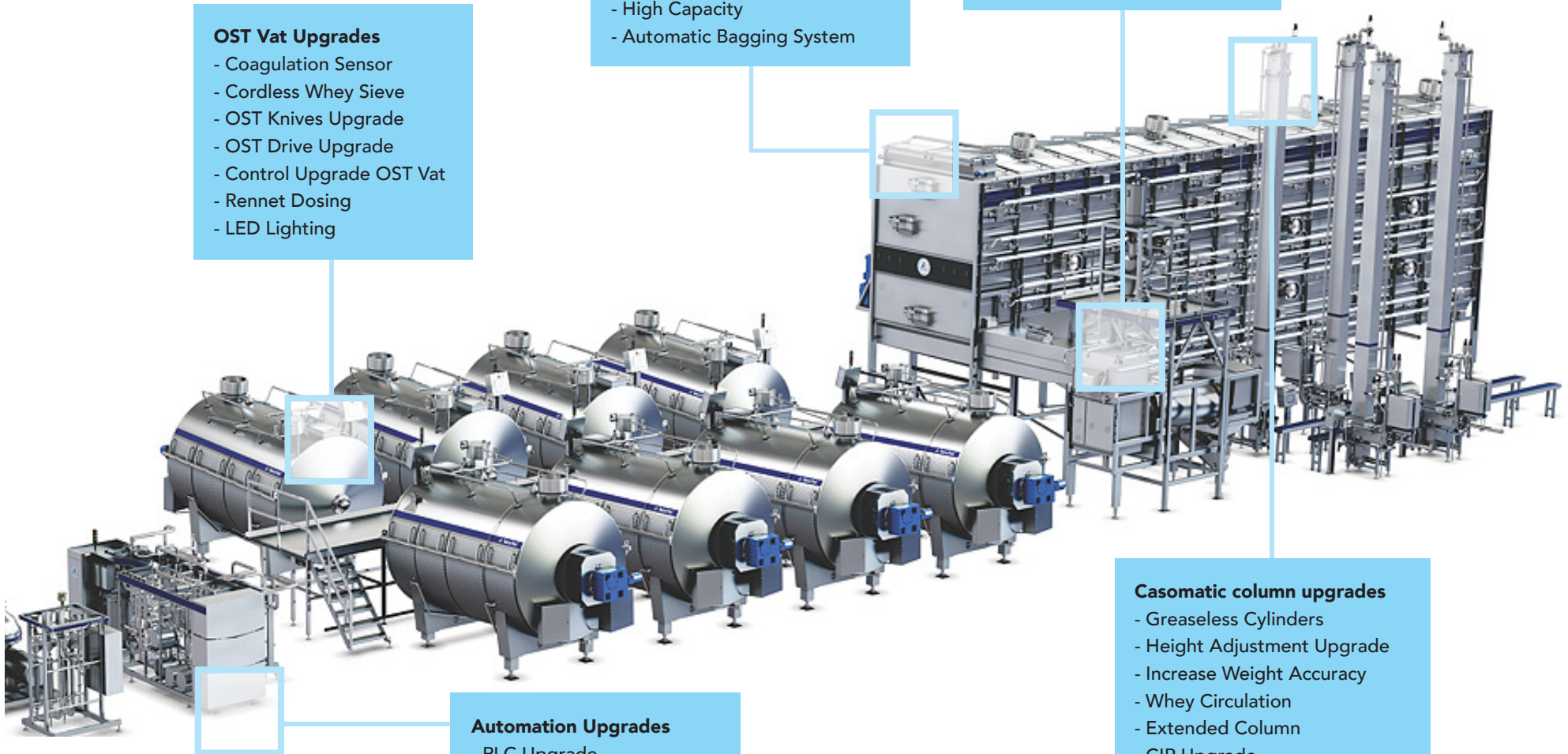
- Chip Mill
- CIP Improvement
- Water Saving
- Fine Saver

Automation Upgrades

- PLC Upgrade
- IT Upgrades
- Tampering Free Production
- Virtualisation

Casomatic column upgrades

- Greaseless Cylinders
- Height Adjustment Upgrade
- Increase Weight Accuracy
- Whey Circulation
- Extended Column
- CIP Upgrade
- Control Upgrade
- Improved Buffer Tank Stirring
- Separate Cleaning Buffer Tank



TYPICAL EVAPORATION & DRYING PLANT

Automation Upgrades

- PLC Upgrade
- IT Upgrades
- Tampering Free Production
- Virtualisation

Plant Level Upgrades

- Water recovery to rinse-water tank
- Product recovery with automatic sorting of mix phase
- Energy recovery with hot and cold water tanks
- Energy recovery with hot water as steam complement

Evaporator Upgrades

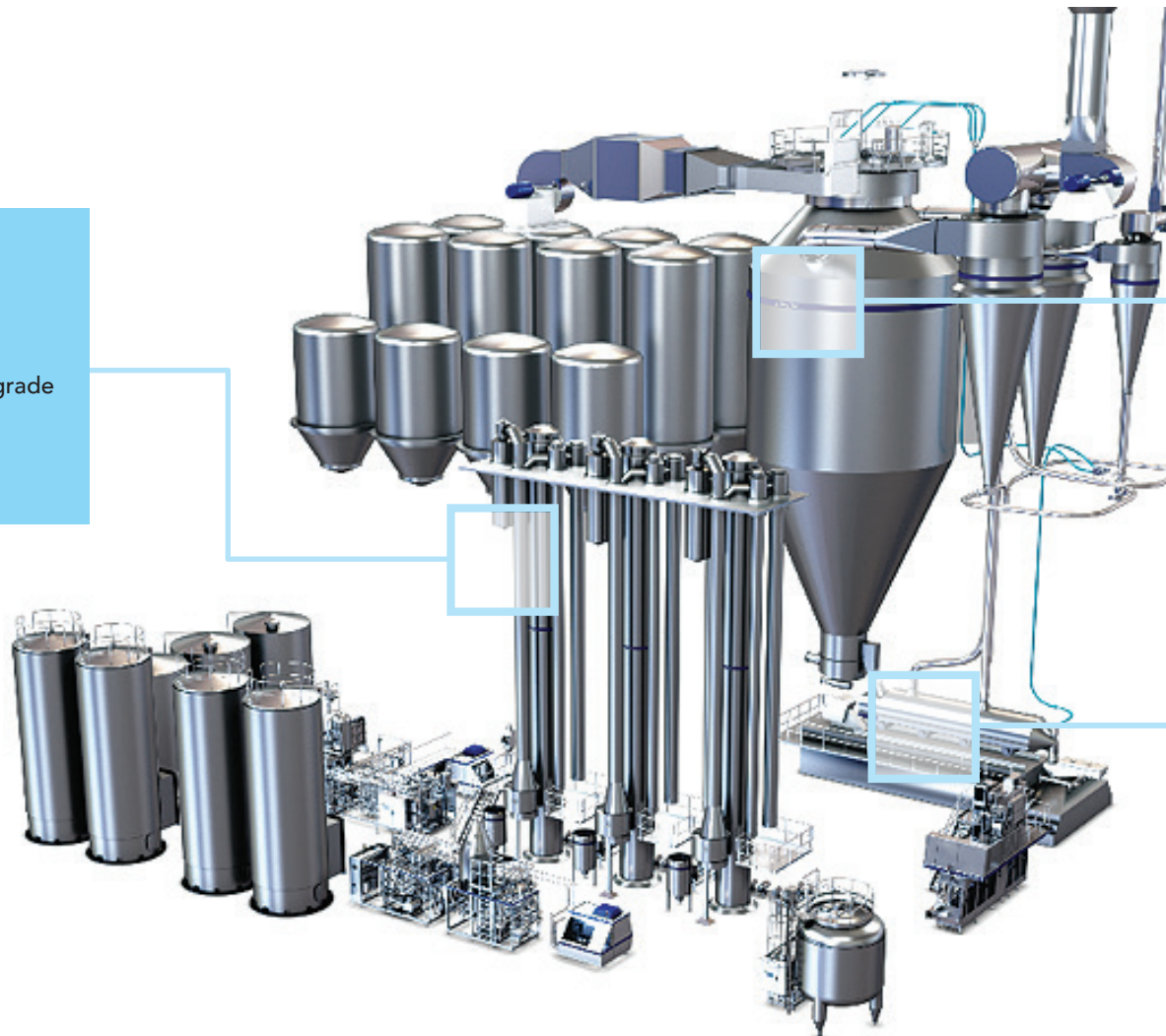
- Vacuum Skid
- Hygiene Upgrade
- DSI
- Distribution Plate Upgrade
- Heat Recovery
- CIP Upgrade
- MVR Upgrades

Dryer Upgrades

- Safety Upgrades
- Concentrate Pre-heater
- Spray Monitoring
- Dehumidifier
- APC
- Baghouse
- Powder Humidity Control
- Powder Samplers
- CIP Upgrade
- Fan Upgrades
- Heat Recovery
- HP Set Upgrade

Shaking Bed Upgrades

- Air Distribution Plates
- GVK Springs
- Drive Upgrade





Vacuum Skid for Evaporators

UG Name	Vacuum Skid
System/Machine affected	Former Scheffers/Stork/CPS and Tetra Pak evaporators
Value Category	Process Efficiency
Implementation Time	5-10 days



What does it do:

- The vacuum skid consists of two ring water vacuum pumps and a ring water vessel:
 - All engineered to fit together and to ensure optimal running conditions
- The ring water temperature to the vacuum pumps is controlled by chilled water:
 - A small plate heat exchanger is included in the skid, ensuring that the ring water feeding the vacuum pumps is at the right temperature
- Reuse seal water of the evaporator centrifugal pumps:
 - The seal water of the evaporator centrifugal pumps is high quality water, which can be reused inside the skid, reducing the chilled water consumption
- Compact unit and easy to install in existing installation

Benefits:

- Reduces operational costs
- Creates a safer working environment
- Reduces noise emission
- Reduces carbon footprint



Coagulation Sensor for Curd Making Vats

UG Name	Coagulation Sensor for Curd Making Vats
System/Machine affected	Tetra Pak and suitable third party supplied curd making vats (that have appropriate process parameters)
Value Category	Operational Efficiency
Implementation Time	2-5 days



What does it do:

A sensor is fitted to the vat with appropriate software algorithms to allow the progress of coagulation process to be monitored. That information can be used to determine the optimum cutting time, to automatically step on to cutting or to provide early warning of an issue. By logging the data externally the unit will allow detailed process analysis and comparison between vats and batches.

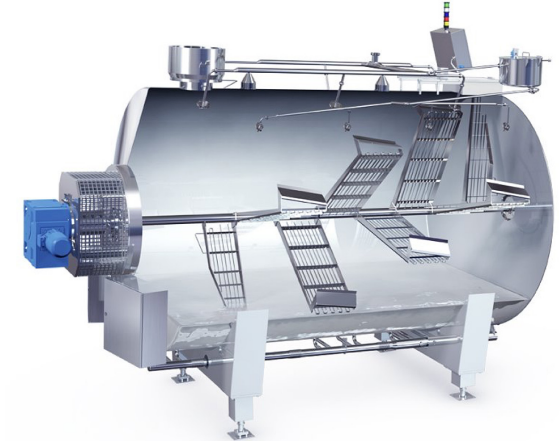
- Measures backlight scattering during coagulation to determine flocculation point
- Helps to maintain optimal cutting-time selected by the cheese-maker
- Can be used for automatic starting signal for the cutting sequence

Benefits:

- Reduces operator input and provides consistency in cutting times
- Early warning in case of deviations
- Allows analysis and insight into the coagulation process
- Supports external data logging for long term analysis

New Knives for TT OST Cheese Vats

UG Name	New Knives for TT OST Cheese Vats
System/Machine affected	TT OST Cheese Vats
Value Category	Operational Efficiency and Food Safety

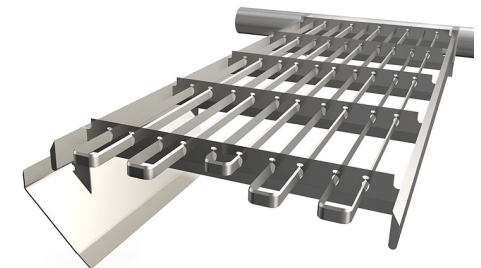


What does it do:

- Upgrade consists of the delivery of complete sets of knife frames, to be installed inside the TT OST vat.
- The knife blades on the new knife frames are made of hardened and special sharpened material. The harder and thinner knives generate less cutting and fat losses.
- Overall, the new design gives better overall cutting performance, including along the side walls of the cheese vat.
- Loose knife end-tips and welds are avoided enabling a more hygienic design.

Benefits:

- New knife design reduces product losses and improves yield
- Less fat and fines losses
- Improved hygienic knife frame construction because of thin, sharp, hardened knife blade material.
- Improved cleanability
- Improved mechanical stability



Control Upgrade for OST Vat

UG Name	Control Upgrade for OST Vat
System/Machine affected	OST vat (all versions)
Value Category	Automation Life Cycle Management
Implementation Time	5-15 days



What does it do:

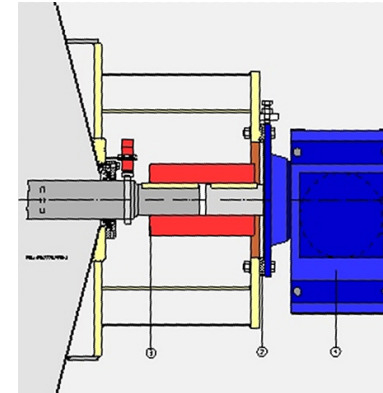
- Supply of updated components or replacement panels with associated software updates
- Supply of components can include
 - PLC hardware (CPU & I/O) along with mounting hardware and installation
 - Supply of new HMI and adaption
 - Supply of new variable speed drive units
- Can be used for automatic starting signal for the cutting sequence

Benefits:

- Replacement of obsolete components with current technology and components
- Proven solution as used in latest new products
- Original software developer, with process knowledge along with technical capability
- Possibility to include latest functionality improvements
- Possibility to provide integration with factory systems

New Agitator Drive for TT OST Cheese Vats

UG Name	New Agitator Drive for TT OST Cheese Vats
System/Machine affected	TT OST cheese vats
Value Category	Obsolete, Minimize Down Time
Implementation Time	5-10 days



What does it do:

A new, strong and well supported OST agitator drive minimises downtime in the event of a breakdown, since the existing older drives are no longer available nor supported by the supplier. Proactively upgrading minimizes risks and ensures uninterrupted productions.

- The shaft seals in the new drive system are significantly easier to replace
- Smooth stopping and starting-procedure of the knife frames
- The absence of any motor-shaft slip after upgrading and more constant rotation speeds, due to the stronger motor improve the process uniformity
- The upgrade includes among others: drive, including motor and gearbox, drive frame, shaft position indication, bearings, coupling

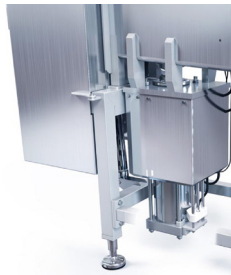
Benefits:

- Reduces fat and fines losses
- Provides more consistent cutting and stirring
- Increases hygiene and cleanability
- Reduces mechanical stress
- Enables longer lifetime of knives



Elevator Cylinder Upgrade for Blockformer

UG Name	Elevator Cylinder Upgrade for Blockformer
System/Machine affected	Mk 2 and 3 blockformers – Obsolescence, performance improvement & operational cost reduction Mk 4 and 5 blockformers – Performance improvement & operational cost reduction
Value Category	Premium Upgrade
Implementation Time	5-10 days



What does it do:

The elevator cylinder reduces operational costs and improves the performance of blockformer units. The new design enables higher reliability and reduces maintenance costs. The upgrade consists of a pneumatic stainless-steel cylinder with a brake unit on top. The height adjustment can be done manually or automatic by means of a pneumatic stepper motor.

- Stainless steel cylinder with anodized aluminium brake unit
- Stainless steel mounting plate with pressurized seal gland
- Stainless steel splash cover
- New chamber gland unit with seal
- Accurate height adjustment system using pneumatic stepper motor – manual or automatic
- Control system – one of three options:
 - Modifications to blockformer control
 - New control system
 - Functional description and pneumatic & electrical diagrams only

Benefits:

- Increases reliability
- Improves accuracy of block height
- Reduces maintenance
- Increased inherent safety
- Reduces cycle time
- Cuts back air consumption



TETRA PAK® BLOCKFORMER SYSTEM

WHEN CONSISTENT RESULTS COUNT

- Creates cheese blocks of a uniform size and weight.
- Low losses thanks to features like the double action door, interceptor plate and angled ejector block.
- Food safety is embedded throughout the design, including folded stainless-steel base unit.

 **Tetra Pak[®]**

www.tetrapak.com