FLUID HANDLING EXPERT IN THE FOOD INDUSTRY

PCM is a leading manufacturer of pumping, dosing, mixing and filling systems for the food industry.

END-TO-END PRODUCT INTEGRITY

Today’s high quality foodstuffs are made with highly expensive ingredients. And the market trend is towards more recognisable processed foods with whole vegetables and fruits. Our systems enable you to handle - transfer, dose, mix and fill - challenging ingredients with minimal damage.

PERFORMANCE YOU CAN COUNT ON

Reliability and productivity are your best allies in facing the non-stop nature of today’s just-in-time retail supply chain. PCM pumping, dosing, mixing and filling systems enable you to produce the same recipe identically from the start of your production run until the finish and ensure repeatability.

LOW LIFE CYCLE COSTS

A pump that is not well adapted to its operational parameters can cost you money in terms of production, maintenance downtime and energy consumption. We use Life Cycle Costs (LCC) analysis to find the most cost-effective pumping solutions for your industrial processes.

MEETING THE STRICTEST STANDARDS

We share your commitment to ensuring customer safety. To begin with, all our systems are CIP (Cleanable In Place). In addition, we continually invest in innovations that enable you to anticipate constantly evolving food safety regulations. Finally, our vast international experience enables us to design systems that meet both local regulations and international standards.

OUR MARKETS

- Dairy products
- Beverages
- Convenience food
- Fruits and vegetables
- Baked goods
- Spies and starch
- Personal care
- Meat, fish, animal feed

1930 René Moineau invents the Progressing Cavity Pump (PCP).
1932 René Moineau, in partnership with Robert Bienaimé, founded PCM Pompes.
1970 PCM invests beyond the Progressing Cavity Pump and adds Delasco™ and Precipompes™ to its product range.
1990 PCM acquires Dosys™ technology.
2009 PCM introduces the PCM Dosymix™ dynamic mixer, 3A certified.
2012 PCM launches two new products in the food market: the EcoMoineau™ PCP and the HyCare™ hygienic PCP.
2015 Dosys™ pump (DACC) acquires 3A certification.
2019 PCM acquires Dosys™ technology.
FOOD CONTACT AND HYGIENIC DESIGN

It is important to understand the difference between these two concepts, both of which are involved in controlling food safety.

**FOOD CONTACT**

These symbols for the European Union and for the United States ensure compliant materials are safe according to regulatory requirements.

These requirements show that, under normal and foreseeable conditions of use, these materials do not transfer their constituents to food in a quantity likely:
- to present a danger to human health,
- to cause an unacceptable change in food,
- to cause a deterioration in the organoleptic characteristics.

Both organisations share a common goal: that of a non-contamination of process and food safety.

**HYGIENIC DESIGN**

These certifications for the European Union and for the United States define criteria for hygienic design and cleanability for equipment production.

Their recommendations are intended to remove all retention areas likely to promote bacterial or microbial growth and may include:
- geometry of equipment
- surface roughness
- manufacturing methods (welding...).

**CFD TO PROMOTE HYGIENE**

The use of CFD (Computational Fluid Dynamics) nowadays is a very powerful and robust tool to model phenomena related to fluids.

Numerical simulations, carried out in the PCM R&D department, allow computing the flow field through the volumetric pumps manufactured by PCM. These calculations have allowed PCM to optimise the internal design of pumps and improve the cleaning in place effect. This result was obtained by increasing the speed of the cleaning fluid and by studying the turbulences in the most difficult areas to clean.

![Cleaning-in-place (CIP) fluid speeds modelling in the body of the HyCare™ pump using CFD.](image)
PCM SYSTEMS
preserve the product at every step of the process

1 Transfer
Protect valuable ingredients
Although product integrity is a concern at every step of food processing, the risk of damage is highest during the transfer stage.

2 Dosing
Never waste a drop
Dosing of valuable ingredients requires accuracy and flexibility.

3 Mixing
Mix with care
We make the impossible possible: mixing ingredients without altering the texture.

4 Filling-Injection-Topping
Freedom to be creative
Breathe new life into your existing products and production facilities.
PCM transfer solutions are the ideal choice for pumping a wide range of ingredients from thin liquid to highly viscous pastes and sauces, at cold and hot temperature. These ingredients can be sticky, slippery or contain solids (including large chunks and soft pieces such as chopped vegetables and whole fruits).

PCM transfer pumps and systems are also recommended for applications that require pressure variations, depression and viscosity variations.

The choice of the technology will depend on the application and its requirements.

**PCM MOINEAU™ PROGRESSING CAVEITY PUMPS**

Respect the texture of fragile fluids

When you handle fragile products, the risk to the quality and texture of ingredients is highest during this transfer stage and depends partly on the pump technology used.

With positive displacement pumps, PCM is committed to handle your ingredients with the highest level of care, ensuring the integrity and the texture of your products. ([Further information about Moineau technology, see p.19](#)).

The PCM Moineau™ progressing cavity pump preserves the product integrity thanks to a controlled and minimum slip rate.

**PCM DELASCO™ PERISTALTIC PUMPS**

Handle abrasive and corrosive fluids

With only one item in contact with the pumped product and low operating speed, peristaltic pumps are ideal to transfer very abrasive and/or corrosive fluids (musts, ground meat juices with bone fragments...). They are also able to transfer soft or solid pieces without any damage (e.g. peach transfer). Furthermore, they can easily integrate specific industrial processes as occasional dry running is possible without damage occurring.

TRANSFER

Protect valuable ingredients: no ingredient is too complex
Inaccuracies and flexibility deficiencies of dosing systems are the main causes linked to high operating costs for most of food production systems.

The PCM dosing systems are designed to meet the requirements associated to each metered product, the required accuracy and the implemented operating processes. Each technology that is used provides the best of its advantages regarding accuracy, product losses, texture respect, productivity and cleaning ease.

**DOSING**

Never waste a drop: the perfect dose of accuracy and flexibility

**PCM DOSYS™ PISTON DOSING PUMPS**

These pumps enable accurate dosing, closest to the containers, of non-homogeneous ingredients that may contain large pieces with minimum losses and a maximum repeatability.

**PCM MOINEAU™ PROGRESSING CAVITY PUMPS**

They allow the continuous dosing of fragile ingredients for applications that may require high flowrates.

**PCM DELASCO™ PERISTALTIC PUMPS**

PCM Delasco™ peristaltic pumps are ideal for the dosing of highly abrasive and aggressive fluids.

**PCM LAGOA™ DIAPHRAGM DOSING PUMPS**

These diaphragm dosing pumps allow metering small doses of low viscosity/corrosive products.
Mix with care: introducing a better way to mix

PCM gives the opportunity to customers to optimise the overall operating cost through an inline process rather than expensive and space consuming batch solutions.

LESS LOSS AND MORE FLEXIBILITY
When your production requires rapid ingredients change, a PCM inline mixer is the answer. You can switch ingredients in mid-production without having to empty the batch tank first. Our inline mixers can also be fitted with multiple outlets for extremely even distribution through multiple filling nozzles.

INLINE MIXING: AN OPPORTUNITY FOR MORE INNOVATIONS
This flexibility and the possibility to change rapidly the recipes offers you the opportunity to create new products. New recipes with bigger solids, innovative textures and accurately distributed mixed products can now be easily incorporated.

COST-EFFICIENT CLEANING
With a PCM inline mixer there is no tank to scrape at the end of a production run, unlike with batch mixing. And the mixer’s small internal volume makes it easy to clean with minimal quantities of hot water and chemicals, using your standard CIP/SIP processes.

OPTIMISED INSTALLATION
This system is less expensive to install as it only requires the installation of a single tank containing the main ingredient. It allows also a considerable space saving on the production line.

PCM DOSYMIX™ INLINE DYNAMIC MIXER
A dynamic mixer will be the ideal choice for mixing heterogeneous or homogeneous, viscous, shear-sensitive products with or without pieces.

The rotation of the screw allows easy and efficient cleaning in place.

PCM DOSTAM INLINE STATIC MIXER
A static mixer will be recommended for mixing homogeneous liquids without solids.

Our systems guarantee homogeneous mixing without altering the ingredients or the product texture. This eliminates use of costly additives to recover the texture at the end of operation line.
The creation of innovative food products relies on an efficient filling solution that is able to meet the complexity of mixing, recipes and conditioning techniques. Nowadays, the creativity regarding containers and the diversity of textures seems limitless. PCM filling systems are designed to provide versatility and accuracy required for these operations, which can be very critical.

VERSATILITY
Every PCM filling system is designed to provide maximum volumetric flexibility. In other words, not only can you fill containers of all shapes and sizes, you can also vary the filling volume from one cycle to the next. Versatility extends to its compatibility with a multitude of filling ingredients, from liquid flavorings to viscous jams, from sticky toffee to semi-solid sauces.

PRECISION AND RESPECT OF INGREDIENTS
Based on Dosys™ dosing pumps, PCM filling systems benefit from the two main advantages of this technology: accuracy of the dosing (+/- 0.5%) and the respect of ingredients, even with fluids containing large pieces (up to 48 mm).

PCM DOSYS™ FILLING, INJECTION, TOPPING SYSTEMS
Simplified integration
Our filling systems fit perfectly to your process without affecting your existing equipment. Our portable systems provide great flexibility as you can easily integrate them in your production line.

Respect of ingredients
PCM filling systems can be fitted with a wide range of nozzles compatible with different levels of viscosity, solid or stickiness.

WHOLE WAY
UMBRELLA
SUCKBACK
SUCKBACK CARAMEL
DIAPHRAGM
MULTI-OUTLET DIAPHRAGM

Viscous, semi-solid ingredients
Rice, jam and chopped potatoes
Drippy sauces
Stringy ingredients
For liquid or low-viscosity ingredients (no solids)

FILLING
Freedom to be creative: put ideas into production through versatility and maintaining the integrity of the ingredients.
**PCM TECHNOLOGIES**

### PCM MOINEAU™ PROGRESSING CAVITY PUMPS
From the name of the inventor and PCM co-founder: René Moineau

**Principle**

A Moineau™ pump consists of a helical rotor turning in a helical stator. When the rotor turns inside the stator, the honeycomb progresses spirally along the axis of the pump without changing either shape or volume. This action transfers the product from the pump suction to the pump discharge without degrading the product.

Range of PCM Moineau™ progressing cavity pumps
- HyCare™
- EcoMoineau™ C
- Viscofeeder
- IVA/LVA/GVA/GBB

### PCM DOSYS™ DOSING, FILLING AND INJECTION PUMPS
The keys to perfect dosing and filling

**Principle**

The Dosys™ pump automatically synchronises dosing volumes with the filling station for optimal performance. It also meters the ingredients with precision, thanks to the servo-driven piston and a patented flow-control valve. Dosys™ pumps are designed to handle liquids, semi-solids and viscous products without degrading their texture.

Range of PCM Dosys™ dosing, filling and injection systems
- Dossfruit™
- Dosing unit
- Hopper station
- Additive station
- Flavor filling station
- Pouch filling station
- Multi-injection station

### PCM DELASCO™ PERISTALTIC PUMPS
The ideal choice to reduce maintenance costs

**Principle**

The peristaltic pumping principle is based on the capacity of a soft elastomer hose to accept a deformation and subsequently recover its initial shape. Peristaltic pumps are provided with either high or low pressure hoses, covering a wide range of applications which need versatility and flexibility.

Range of peristaltic pumps PCM Delasco™
- DL Series

### PCM LAGOA DIAPHRAGM DOSING PUMPS
Accuracy and reliability: ingredients of a successful dosing

**Principle**

The Lagoa pump is composed of a diaphragm connected to a piston which alternating movement successively fills and empties the pumphead.

1. The backward movement of the diaphragm opens the bottom check valve and allows the entry of fluid, which fills the pumphead.
2. The forward movement of the diaphragm closes the bottom check valve, opens the top check valve and expels the dose.

Range of PCM Lagoa diaphragm dosing pumps
- Lagoa
PCM MOINEAU™ TECHNOLOGY

PRINCIPLE OF MOINEAU™ TECHNOLOGY

A Moineau™ pump consists of a helical rotor turning into a helical stator. When the rotor turns inside the stator, the honeycomb progresses spirally along the axis of the pump without changing either shape or volume. This action transfers the product from the pump suction to the pump discharge without degrading the product.

BENEFITS

• Preserves the texture of fragile fluids (no shearing compared with lobe or ECP technologies)
• Handles fluids with solids
• High suction capability
• Self-priming
• Constant non-pulsating flow
• Reversible

RANGE OF PCM PROGRESSING CAVITY PUMPS

• HyCare™
• EcoMoineau™ C
• Viscofeeder
• IVA/LVA/GVA/GBB
HYCARE™
The most hygienic progressing cavity pump on the market

The HyCare™ pump has been designed to meet the strictest food hygiene standards.

The HyCare™ pump complies with the FDA (USA) and CE 1935/2004 (Europe) requirements which guarantee materials compatibility with food products and equipment traceability.

EHEDG (Europe) or 3A (USA) certified, this pump has become the reference for the food industry.

HyCare™ pump technology offers unbeatable hygiene and food safety.

TECHNICAL PERFORMANCES

- Pressure: 16 bars
- Flowrate: 50 m³/h
- Particles size: 32 mm

RANGE

- 22 models

EXAMPLES OF APPLICATIONS

Designed for microbiologically sensitive food applications:

- Dairy products
- Meat
- Liquid eggs ...
HYCARE™ PUMP CONSTRUCTION AND BENEFITS

1 CIP CONNECTION
- Designed to be cleaned in place

2 DURAFLEX FLEXIBLE SHAFT
- In titanium:
  - Quality and reliability
  - 3 years guarantee
  - The shaft flexibility allows a small footprint
- One-piece design:
  - Any possible retention area unlike the classic open joints
  - The total absence of wear parts prevents any risk of metal particles being released into the product

3 OPTIMIZED BODY DESIGN
- The shape and the tangential connection improve cleaning efficiency (internal flow speed)

4 HYGIENIC MECHANICAL SEAL
- Its position near the CIP inlet allows optimum cleaning
- Its internal design is free of screws or springs (any retention area)
- Easy and quick maintenance without disconnecting the pipes

5 MOINEAU™ TECHNOLOGY respects the texture of your pumped products (learn more p. 19)

6 STATOR ANTI-ROTATION SYSTEM
- Ensures a secured position even in case of high pressure or high temperature

7 BASEFRAME WITH ADJUSTABLE FEET
- From 20mm to 50mm according to models

AVAILABLE CONNECTIONS
- SMS
- Clamp [3-A]
- DIN 11851
- Din 11864-1 [3A and EHEDG]

The pump can be provided with or without vertical CIP connection.

3 AVAILABLE POSITONING FOR SUCTION CONNECTIONS
- Upward tangential
- Right tangential*
- Left tangential*

* looking from outlet side towards the drive

* The warranty is 3 years under normal conditions of use: within the limit of 10,000 operating hours, at a speed between 80 and 280 rpm, in compliance with the PCM CIP guidelines.
ECOMINEAU™ C

The shortest progressing cavity pump in the market

Its revolutionary design combines the legendary performance and reliability of PCM Progressing Cavity Pumps technology with a highly modular, eco-friendly design. The EcoMoineau™ C pump requires less space for installation which reduces costs and facilitates its integration.

The EcoMoineau™ C pump is lighter (less raw materials) and uses 10% less power than most progressing cavity pumps on the market. The energy used to manufacture, transport and operate the EcoMoineau™ C pump is therefore optimised.

This PCP is made with fewer parts compared to competitors models. This new stainless steel pump has a multitude of design features that make installation, operation and servicing easier than ever before.

TECHNICAL PERFORMANCES

- Pressure: 16 bars
- Flowrate: 110 m³/h
- Particles size: 32 mm

EXAMPLES OF APPLICATIONS

Recommended for non microbiologically sensitive food applications:
- Fruits and vegetables (soup, sauce, jam, puree...)
- Beverages (fruit juice, thick juice, wine, additives, ...)
- Glucose, syrups, massecuite, molasses
- Pasteurised preparations
- Grease, oil (colza, olive, ...), enzymes

RANGE

- 25 models
**SPACE SAVING**
- Revolutionary joint 80% shorter
- Revolutionary joint coupling rod length reduced and hardened for long life operation
- Patented connecting system: only 10 cm of clearance required to dismantle the stator

**EASY AND QUICK DISMANTLING**
- The seal can be changed by simply disconnecting the drive
- The shaft line (rotor, coupling rod, driving shaft) can be removed without disconnecting pipework
- Patented connecting system with 3 screws only

**FOOD COMPLIANT**
- Food connections and flushing ports
- FDA and European food regulations compliant materials
- Single, double and flush mechanical seals

**ECOMINEAU™ C RANGE BENEFITS**

**VERSATILE CONSTRUCTION**
Integrated construction
- Cost-effective solution including single bellow mechanical seal (self-positioning)
- Shortest and lightest design

Monobloc and bearing construction
- Five sealing solutions available
- Spacer with improved access to the sealing system
- Rubber deflector: protecting the drive and bearing

**ECO-DESIGN PUMP**
- 10% less power consumption compared to most Progressing Cavity Pump’s on the market
- Less raw materials
VISCOFEEDER
Transfer and dosing solutions for hyper-viscous products

The growing demand for more concentrated and sophisticated products often implies an increase in the viscosity of the products being transferred. If your product is viscous, pasty, sticky, greasy, thick or concentrated, PCM provides an appropriate solution for each type of rheology.

PCM Viscofeeder is a force-feed system that offers an accurate transfer and dosing of highly viscous product with optimum steady flow and high accuracy for any number of production lines.

**TECHNICAL PERFORMANCES**
- **Pressure**: 16 bar
- **Flowrate**: 24 m³/h
- **Viscosity**: 15 000 000 cP
- **Hopper**: cleanable in place (CIP)

**EXAMPLES OF APPLICATIONS**
- Transfer of cheese mixtures from the kneading through mixer to the packaging line
- Co-extrusion inner of dry pet-food
- Continuous deposit of dough mix in the desired shape
- Feeding of an extrusion head for biscuit filling
- Dosing and continuous injection of caramel and hyper viscous ingredients
**SYSTEM CONSTRUCTION**

![Diagram of a system construction](image)

**VERSATILITY**
- Transfer and dosing of highly viscous/sticky products up to 15,000,000 cPo

**ACCURATE BATCH OR CONTINUOUS DOSING**
- From 10 ml to several kilos
- Barrel independent from the pump
- Feeding of pumps at controlled pressure

**QUALITY AND HYGIENE**
- Continuous homogenisation of the products without introduction of air
- Low shearing
- Cleaning in place: gravity drainage of whole installation, cleaning of hidden areas
- Strict hygiene standards

**PRODUCTIVITY**
- Continuous production with batch loading of product
- Temperature controlled operation
- Modular equipment: using one or several positive displacement pumps

**FLEXIBILITY**
- High precision (>2%) regardless of the number of production lines, the flow, and the product
IVA / LVA / GVA / GBB

Viscous and non-homogeneous products

IVA / LVA / GVA / GBB pumps are fitted with a feeder hopper and a conveyor screw. The open-throat design allows the fluid to flow in without restriction while the screw feeds the materials into the rotor/stator.

These pumps are the ideal solution for the transfer of high-viscosity, non-homogeneous and pasty products. This is a compact solution for a simplified integration, a small investment and a low power consumption.

IVA / LVA TECHNICAL PERFORMANCES

- Pressure: 40 bar
- Flowrate: 300 m³/h
- Hopper: 72 x 156 to 590 x 590 mm
- Accessories: built-in or remote frequency variator, dry running protection, safety pressure switch

GVA / GBB TECHNICAL PERFORMANCE

- Pressure: 40 bar
- Flowrate: 32 m³/h
- Hopper: length 500-1000-1500 mm
- Accessories: built-in or remote frequency variator, dry running protection, safety pressure switch

EXAMPLES OF APPLICATIONS

- Pectin
- Fish flesh
- Apple dredgs
- Mashed potatoes
- Meat emulsions ...
IVA/LVA PUMP CONSTRUCTION

- **VERSATILITY**
  - Transfers high-viscosity, non-homogeneous and pasty products
  - The feed screw facilitates product flow
  - Simplified barrel that promotes auto-flow of a more or less viscous liquid product

- **COMPACT SOLUTION**
  - Simplified integration
  - Small hopper: compact size

- **COST SAVING**
  - Small investment
  - Low power consumption

GVA/GBB PUMP CONSTRUCTION

- **VERSATILITY**
  - Transfers very viscous products
  - Accommodates non-homogeneous, pasty and sticky fluids

- **COMPACT SIZE**
  - Reduced size of pin joint that facilitates product flow

IVA / LVA RANGE BENEFITS

- **COMPACT SOLUTION**
  - Simplified integration
  - Small hopper: compact size

- **VERSATILITY**
  - Transfers high-viscosity, non-homogeneous and pasty products
  - The feed screw facilitates product flow
  - Simplified barrel that promotes auto-flow of a more or less viscous liquid product

- **COST SAVING**
  - Small investment
  - Low power consumption

GVA/GBB RANGE BENEFITS

- **PRODUCTIVITY**
  - Improved circulation of the fluid thanks to the hopper’s shape
  - Elimination of cavitation and elimination of the risk of product bridging in the inlet hopper
  - For higher viscosity products, the GVA can be fitted with an optional motorised bridge breaker.

- **VERSATILITY**
  - Transfers very viscous products
  - Accommodates non-homogeneous, pasty and sticky fluids

- **COMPACT SIZE**
  - Reduced size of pin joint that facilitates product flow

OPTIONS

- **Drain plug that enables total drainage**
- **Polished finish (LVA option)**
- **Stainless steel base**
- **Hopper: 76x161 to 440x440 mm**

- **Drain plug that enables total drainage**
- **Grease sealing**
- **Special finish: polished, glass blasted... depending on the product**
- **Bridge-breaker**
- **Flow management with level control module in the hopper**
- **Double jacket to maintain the product’s temperature**
- **Built-in Cleaning In Place**
**PRINCIPLE OF DELASCO™ TECHNOLOGY**

The peristaltic pumping principle is based on the capacity of a soft elastomer hose to accept a deformation and subsequently recover its initial shape. Peristaltic pumps are provided with either high or low pressure hoses, covering a wide range of applications which need versatility and flexibility.

**BENEFITS**

- Only one wearing part: the hose
- Seal-less design
- Self-priming
- High suction capacity
- Simplified maintenance
- Low life cycle costs
- No mechanical seals, valves or gaskets

**RANGE OF PCM PERISTALTIC PUMPS**

- DL Series
DELASCO™ - DL SERIES
Peristaltic pumps for corrosive, abrasive and fragile products

With various pump constructions and a wide choice of elastomer hoses, the PCM Delasco™ range covers a wide variety of applications calling for heavy-duty and flexibility.

Simple to use and to maintain, PCM Delasco™ peristaltic pumps can be adapted to a multiple constraint.

Peristaltic pumps with low operating speeds are ideal for fragile and/or abrasive products: the transfer is carried out inside the hose without agitating or frothing the fluids.

They are also the perfect solution to handle corrosive products as only the hose is in contact with the fluid.

TECHNICAL PERFORMANCES

- Pressure : 15 bar
- Flowrate : 20 m³/h
- Accessories: hose-leak detector, pulsation dampener, vacuum pumping, trolleys

RANGE

- 6 models

EXAMPLES OF APPLICATIONS

- Tomato puree
- Fruit puree
- Soya oil
- Ferments
- Crushed vegetables
- Diatomaceous earth...
**DELASCO™ RANGE BENEFITS**

**REDUCED MAINTENANCE**
- Only one wearing part: the hose

**REVERSIBILITY**
- The design of the pump makes it perfectly reversible by simply acting on the direction of rotation.

**VERSATILITY**
- Corrosive products: only the pump hose is in contact with the fluid. This eliminates all the corrosion problems associated with acidic (hydrochloric sulfuric, nitric...) or basic (detergents sodium hydroxide or hypochlorite) products.
- Abrasive products: the elastomer hose resists better to abrasion than a metallic surface.
- Delicate products: the transfer is carried out inside the hose without agitating or frothing the fluids.

**REDUCED LCC**
- The Life Cycle Costs have been optimized at every stage of the pump life: from its conception, operational time and maintenance duties.

**WHITE FOOD NITRILE HOSES FOR DELASCO™ PUMPS**

The hose is made out of white food grade nitrile. For high pressure resistance, its has 4 reinforced layers and its outside cover is made out of natural rubber for the utmost mechanical resistance.

**USE:**
- Max pressure: 10 bar
- Max temperature: 80°C
- Cleanable in place
- Food contact oil

**CERTIFICATES:**
- CE 1935/2004
- FDA 21 CFR 177 2600
- DM 21/03/73

**OTHER AVAILABLE HOSES:**
- Natural rubber: for abrasive products, diluted acids, alcohols
- EPDM: resistance to chemicals, concentrated acids
PCM LAGOA DIAPHRAGM DOSING PUMPS

Accuracy and reliability: ingredients of successful dosing

PRINCIPLE LAGOA TECHNOLOGY

The Lagoa pump is composed of a diaphragm connected to a piston which alternating movement successively fills and empties the pumphead.

1- The backward movement of the diaphragm opens the bottom check valve and allows the entry of fluid, which fills the pumphead.

2- The forward movement of the diaphragm closes the bottom check valve, opens the top check valve and expels the dose.

BENEFITS

- Reliability of metering
- Simplified maintenance
- Dry-running
- Simple and robust

RANGE OF PCM DIAPHRAGM DOSING PUMPS

- Lagoa
LAGOA

The food diaphragm dosing pump

The Lagoa Series is designed for metering a wide variety of products in the food and personal care industries.

The Lagoa pump is composed of a diaphragm connected to a piston of which the alternating movement successively fills and empties the pumphead.

The backward movement of the diaphragm opens the bottom check valve and allows the entry of fluid, which fills the pumphead. The forward movement of the diaphragm closes the bottom check valve, opens the top check valve and expels the dose.

TECHNICAL PERFORMANCES

- Maximum flowrate: 315 l/h per pumphead
- Maximum pressure: 12 bar
- Maximum temperature: 90°C
- Accuracy: +/- 1%
- Linearity: +/- 3%
- Adjustable from 10 to 100%

EXAMPLES OF APPLICATIONS

- Additives, colourants, liquor, starch, starch milk
- Bases and/or acids, antibacterial solutions in cleaning in place processes
- Flavours, colourants, yeast
- Arabic gum, anhydride, casein, gelatin as wineries additives
**PUMP CONSTRUCTION**

- The pump is driven by a direct mounted light alloy motor with IP55 protection.
- The casing is made of cast aluminium alloy.

**SIMPLIFIED MAINTENANCE**
- The bearings are greased for life, making the motors maintenance-free.
- The capacity is set by turning the micrometer dial which is fitted with vernier scale graduated in percentage stroke length. Electric servo control can be fitted.
- The pumphead is easy to remove and change.

**ELECTRO-MECHANICAL DRIVE**
- Does not cause and is not affected by interferences
- Reduced mechanical and hydraulic shocks
- Silent

**OPTIONS AND ACCESSORIES**

**FOOT VALVES**
- Filter undesirable particles and keep the pump primed when stopped

**INJECTION ROD**
- Enables your product to be injected in a vein without polluting the injection pipework (non-return function)

**SAFETY AND RETENTION VALVES**
- Prevent excess flow and pressures, siphoning and underloading

**PULSATION DAMPERS**
- To render your flow linear and lessen fluid hammer effects

**“READY-TO-METERS” ASSEMBLIES**
- Connecting system to the entire pump

**LAGOA RANGE BENEFITS**

**SIMPLE AND ROBUST CONSTRUCTION**
- The pump is driven by a direct mounted light alloy motor with IP55 protection.
- The casing is made of cast aluminium alloy.

**RELIABILITY**
- Reliability of metering
- The stroke adjustment mechanism can be locked in position to ensure that stroke length remains at its set point.

**VERSATILITY**
- Dosing of a wide range of fluids.
- Pumpheads are available in many material combinations. It consists of 1 suction check valve, 1 discharge check valve, 1 liquid end body.
- Dry-running.

**LAGOA MULTIPLEXING BENEFITS**
- Perform proportional metering with different fluids
- Obtain a greater flow than with one single pumphead
- Phase the pump stroke to prevent pulsations and thereby achieving linear flow
INLINE MIXING PRINCIPLE

The principle of inline mixing consists of replacing the batch mixing tank by a continuous mixer. The mixing operation is carried out more rapidly, in a single pass, and ensures proportional and metered mixing.

This mixing technology is particularly suitable for fragile, shear sensitive or viscous products with or without solids and allows small batch production with rapid changeovers allowing efficient production of different recipes.

Unlike a traditional batch process, the inline mixing enables an homogeneous mixture much faster from the tanks to increasing dispersion. This homogenisation is obtained without altering the product and with minimized power consumption.

Through its different technologies, PCM provides 3 possibilities of inline mixing:

- the mixing by continuous injection of bases and additives (proportional dosing) with PCM Moineau™ pumps
- the mixing by continuous injection of bases and additives (proportional dosing) with PCM Dosys™ pumps (diagrams p.61)
- the mixing by injection of bases and additives in pulsed mode (Just in Time) with PCM Dosys™ technology pumps synchronised on conditioning nozzles (diagrams p.61).

BENEFITS

- Just in time mixing for products that require an optimised mixing time
- Gentle handling of fragile, shear sensitive and viscous products
- Reduced product losses
- Space savings
- Homogeneous mixing of ingredients
- Cleaning and Sterilisation in Place facilitated

RANGE OF PCM MIXERS

- Dosymix™ dynamic mixer
- Dostam static mixer
The Dosymix™ dynamic mixer preserves the most important asset in your production line: the ingredients.

Thanks to the body design, with twin helixes in opposite directions welded to an impeller, an upward and downward flow is created for gentle mixing of ingredients and accurate distribution of mixed product.

The Dosymix™ is 3A certified (American standards) to ensure a better cleaning efficiency during Cleaning In Place and/or Sterilisation In Place.

### TECHNICAL PERFORMANCES

- **Pressure**: 10 bar
- **Flowrate**: 6 m³/h
- **Particles size**: 25 mm

* According to your products, the Dosymix™ can mix bigger particles.

### EXAMPLES OF APPLICATIONS

- Fruits, pulp, syrup in stirred yoghurt
- Sugar, glucose, vitamins, flavours in cream and cheese
- Preparations including grapes in desserts
- Ferment, rennet in cheese...

### RANGE

- 5 models
**Mixer Construction**

1. **Motor**
2. **Inlet connection in pulsed or continuous flow**
3. **Spacer/Housing in Stainless Steel 316L**
4. **Body in Stainless Steel 316L**
5. **Mobile in Stainless Steel 316L**
6. **Outlet connection in Stainless Steel 316L, single or multi-outlet**

**Operating Principle**

The residence time in the mixer body (measured in seconds) ensures the quality of the mix. The residence time depends on 2 factors: the internal volume of Dosymix™ and the production rate (l/h).

**Options**

- Tandem mechanical seal
- Heating jacket: for particular applications requiring specific temperature
- Drive cover

**Dosymix™ Range Benefits**

**Ideal for shear sensitive products** containing solids or fibers
- The round shaped helix prevents the adhesion of ingredients
- Designed for products mixing with different viscosities and/or proportions

**Hygienic Construction**
- CIP and SIP facilitated

**Low Internal Volume** to minimize product losses

**Multi Outlet**
- Precise distribution and possibility to delay product finalisation

**Easy and Quick Assembly/Disassembly**
- Body fixed by Tri-Clamp connection
- Mechanical seal provided in cartridge

**Mechanical Seal** standardised with HyCare™ progressing cavity pump

**Dosymix™ Technical Performances**

<table>
<thead>
<tr>
<th>Models</th>
<th>Internal capacity (L)</th>
<th>Weight</th>
<th>Drive power (kW)</th>
<th>Speed rotation - Fixe (rpm)</th>
<th>Speed rotation - Variable (rpm)</th>
<th>Connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>DM 1000</td>
<td>3.8</td>
<td>47</td>
<td>0.75</td>
<td>145 or 300</td>
<td>60 to 300</td>
<td>SMS, DIN 11851, DIN 11864, Tri clamp Smooth end</td>
</tr>
<tr>
<td>DM 2000</td>
<td>8</td>
<td>53</td>
<td>0.75</td>
<td>145 or 300</td>
<td>60 to 300</td>
<td></td>
</tr>
<tr>
<td>DM 4000</td>
<td>17</td>
<td>90</td>
<td>2.2</td>
<td>145 or 300</td>
<td>60 to 300</td>
<td></td>
</tr>
<tr>
<td>DM 8000</td>
<td>23</td>
<td>107</td>
<td>4</td>
<td>145 or 300</td>
<td>60 to 300</td>
<td></td>
</tr>
<tr>
<td>DM 10 000</td>
<td>30</td>
<td>110</td>
<td>4</td>
<td>145 or 300</td>
<td>60 to 300</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Models</th>
<th>Ø inlet</th>
<th>Outlet manifold</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2 to 4</td>
</tr>
<tr>
<td>DM 1000</td>
<td>51</td>
<td>25/38/51</td>
</tr>
<tr>
<td>DM 2000</td>
<td>51</td>
<td>25/38/51</td>
</tr>
<tr>
<td>DM 4000</td>
<td>63.5</td>
<td>25/38/51</td>
</tr>
<tr>
<td>DM 8000</td>
<td>76</td>
<td>25/38/51</td>
</tr>
<tr>
<td>DM 10 000</td>
<td>76</td>
<td>25/38/51</td>
</tr>
</tbody>
</table>
With a simple design, the Dostam is a static mixer easy to integrate in your installation.

No power is required to use it. Product is pumped through the static mixer via the transfer pump located upstream of the installation.

PCM Dostam is recommended for the mixing of homogeneous fluids without pieces.

**TECHNICAL PERFORMANCES**

- Flowrate: 0.5 to 30 m<sup>3</sup>/h

**RANGE**

- 5 models

**EXAMPLES OF APPLICATIONS**

- Oil and flavours, vitamins
- Drinking yoghurts, aromas, pulps
- Beverages, water, syrup
- Chocolate, flavours
**MIXER CONSTRUCTION**

- **STAINLESS STEEL TUBE WITH CONNECTION FITTINGS AND STOPPER**
  - Surface finishes: polished RA 0.8 µ (interior)
  - Glass blasted RA 1.6 µ (exterior)

- **FIXED 10 HELICAL LINKS**
  - Surface finishes: polished (RA 0.8 µ)

**DOSTAM RANGE BENEFITS**

**DESIGNED FOR NON HOMOGENEOUS PRODUCTS MIXING**

The Dostam range consists of 5 models enabling to handle from 800 liters to 30 000 liters/h. It is the ideal solution for mixing homogeneous or non sensitive fluids such as water, syrup, drinking yoghurts, fruits pulps, oils, flavours.

**LOW INTERNAL VOLUME**

To minimize product losses.

The low internal volume of these mixers is comprised between 0.2 liters to 5.4 liters depending on the model. It is extremely low and advantageous during installation cleaning.

**EASY INTEGRATION**

Although links ramp is a complex and technical component, the Dostam is a simple equipment to integrate into your industrial process as it can be simply connected to the existing piping.

**CONSTRUCTION**

Vertical or horizontal downward

**ENERGY SAVINGS AND EASY MAINTENANCE**

PCM Dostam is a static mixer. There is no drive, the fluid transfer is generated through the upstream pump. Our mixers contain no moving parts, that means no wearing parts (excluding joints).

**DObserving principle**

The fluid velocity through the chain enables efficient mixing.

When the fluid encounters the 1st link, it is divided into two streams, and then four in the 2nd link, and so forth. This division of the flow as well as the fluid rotation through the crosscutting 90° left and 90° right of the links, allows homogeneous mixing.

The upstream pumps, for bases and additives, can be set up with a continuous flowrate (Moineau™ technology) or with a synchronised pulsating flow (Dosys™ technology).

The mixer must be correctly sized to provide sufficient operating speed and guarantee a mixture quality.

**DOBSTAM TECHNICAL PERFORMANCES**

<table>
<thead>
<tr>
<th>Models</th>
<th>Internal capacity (L)</th>
<th>Weight</th>
<th>Ø Inlet exterior pipe</th>
<th>Ø Inlet interior pipe</th>
<th>Total length (mm)</th>
<th>Connections</th>
<th>Ø SMS &amp; Tri Clamp</th>
<th>Ø DIN mâle</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS25.10</td>
<td>0.2</td>
<td>0.8</td>
<td>25</td>
<td>23</td>
<td>484</td>
<td>SMS DIN 11851 Tri clamp</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>DS38.10</td>
<td>0.7</td>
<td>1.7</td>
<td>38</td>
<td>36</td>
<td>737</td>
<td>SMS DIN 11851 Tri clamp</td>
<td>38</td>
<td>40</td>
</tr>
<tr>
<td>DS51.10</td>
<td>1.6</td>
<td>3.0</td>
<td>51</td>
<td>48.5</td>
<td>946</td>
<td>SMS DIN 11851 Tri clamp</td>
<td>51</td>
<td>50</td>
</tr>
<tr>
<td>DS63.10</td>
<td>2.8</td>
<td>5.5</td>
<td>63</td>
<td>60.5</td>
<td>1133</td>
<td>SMS DIN 11851 Tri clamp</td>
<td>63</td>
<td>65</td>
</tr>
<tr>
<td>DS76.10</td>
<td>5.4</td>
<td>7.5</td>
<td>76</td>
<td>72.8</td>
<td>1320</td>
<td>SMS DIN 11851 Tri clamp</td>
<td>76</td>
<td>80</td>
</tr>
</tbody>
</table>
PCM DOSYS™ TECHNOLOGY

PRINCIPLE OF DOSYS™ TECHNOLOGY
Dosys™ pump technology sits at the heart of all PCM systems. Invented by PCM, it makes it feasible to replace wasteful systems with highly accurate and efficient inline injection.

Dosys™ pump automatically synchronises dosing volumes with the filling station for optimal performance. It also meters the ingredients with precision, thanks to servo-driven piston and a patented flow-control valve. Dosys™ pumps are designed to handle liquids, semi-solids and viscous products without degrading their texture.

BENEFITS
- It meters the ingredients with precision (repeatability: 0.5%)
- Dosys™ pumps handle ingredients with large semi-solids (up to 48 mm) without damaging them
- Because there is no rotating movement, solids remain suspended in the liquid medium; no emulsion or aeration is created
- Dosys™ pumps can be cleaned in place (CIP/SIP)

RANGE OF PCM DOSING, FILLING AND INJECTION SYSTEMS
- Dosyfruit™
- Hopper station
- Dosing unit
- Additive station
- Flavor filling station
- Pouch filling station
- Multi-injection station
**PCM DOSYS™ PUMP PERFORMANCES**

<table>
<thead>
<tr>
<th>Dosys™ pump</th>
<th>Capacity in cc per cycle</th>
<th>Maximum production rate (cycles/minute)</th>
<th>Maximum solid size (mm)</th>
<th>Maximum pressure (bar)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Min.</td>
<td>Max.</td>
<td>50% capacity</td>
<td>100% capacity</td>
</tr>
<tr>
<td>8/20-8</td>
<td>0.05</td>
<td>1.01</td>
<td>80</td>
<td>60</td>
</tr>
<tr>
<td>Brushless</td>
<td>0.10</td>
<td>1.01</td>
<td>80</td>
<td>60</td>
</tr>
<tr>
<td>Pneumatic</td>
<td>0.10</td>
<td>1.01</td>
<td>80</td>
<td>60</td>
</tr>
<tr>
<td>Brushless 3-A</td>
<td>0.05</td>
<td>1.01</td>
<td>80</td>
<td>60</td>
</tr>
<tr>
<td>12/20-8</td>
<td>0.10</td>
<td>2.26</td>
<td>80</td>
<td>60</td>
</tr>
<tr>
<td>Brushless</td>
<td>0.20</td>
<td>2.26</td>
<td>80</td>
<td>60</td>
</tr>
<tr>
<td>Pneumatic</td>
<td>0.10</td>
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<td>80</td>
<td>60</td>
</tr>
<tr>
<td>Brushless 3-A</td>
<td>0.45</td>
<td>9.05</td>
<td>70</td>
<td>50</td>
</tr>
<tr>
<td>24/20-8</td>
<td>1.80</td>
<td>18.1</td>
<td>70</td>
<td>50</td>
</tr>
<tr>
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<td>0.90</td>
<td>18.1</td>
<td>70</td>
<td>50</td>
</tr>
<tr>
<td>Pneumatic</td>
<td>0.90</td>
<td>18.1</td>
<td>70</td>
<td>50</td>
</tr>
<tr>
<td>Brushless 3-A</td>
<td>0.90</td>
<td>18.1</td>
<td>70</td>
<td>50</td>
</tr>
<tr>
<td>24/40-16</td>
<td>1.90</td>
<td>18.1</td>
<td>70</td>
<td>50</td>
</tr>
<tr>
<td>Brushless</td>
<td>2.00</td>
<td>18.1</td>
<td>70</td>
<td>50</td>
</tr>
<tr>
<td>Pneumatic</td>
<td>2.00</td>
<td>18.1</td>
<td>70</td>
<td>50</td>
</tr>
<tr>
<td>Brushless 3-A</td>
<td>2.00</td>
<td>18.1</td>
<td>70</td>
<td>50</td>
</tr>
<tr>
<td>36/40-16</td>
<td>9.05</td>
<td>180.96</td>
<td>50</td>
<td>40</td>
</tr>
<tr>
<td>Brushless</td>
<td>9.10</td>
<td>180.96</td>
<td>50</td>
<td>40</td>
</tr>
<tr>
<td>Pneumatic</td>
<td>9.10</td>
<td>180.96</td>
<td>50</td>
<td>40</td>
</tr>
<tr>
<td>Brushless 3-A</td>
<td>9.10</td>
<td>180.96</td>
<td>50</td>
<td>40</td>
</tr>
<tr>
<td>48/100-23</td>
<td>15.60</td>
<td>311.72</td>
<td>50</td>
<td>40</td>
</tr>
<tr>
<td>Brushless</td>
<td>15.60</td>
<td>311.72</td>
<td>50</td>
<td>40</td>
</tr>
<tr>
<td>Pneumatic</td>
<td>15.60</td>
<td>311.72</td>
<td>50</td>
<td>40</td>
</tr>
<tr>
<td>Brushless 3-A</td>
<td>15.60</td>
<td>311.72</td>
<td>50</td>
<td>40</td>
</tr>
<tr>
<td>63/100-23</td>
<td>20.40</td>
<td>407.15</td>
<td>45</td>
<td>35</td>
</tr>
<tr>
<td>Brushless</td>
<td>20.40</td>
<td>407.15</td>
<td>45</td>
<td>35</td>
</tr>
<tr>
<td>Pneumatic</td>
<td>20.40</td>
<td>407.15</td>
<td>45</td>
<td>35</td>
</tr>
<tr>
<td>Brushless 3-A</td>
<td>20.40</td>
<td>407.15</td>
<td>45</td>
<td>35</td>
</tr>
<tr>
<td>72/100-23</td>
<td>31.80</td>
<td>636.17</td>
<td>40</td>
<td>35</td>
</tr>
<tr>
<td>Brushless</td>
<td>31.80</td>
<td>636.17</td>
<td>40</td>
<td>35</td>
</tr>
<tr>
<td>Pneumatic</td>
<td>31.80</td>
<td>636.17</td>
<td>40</td>
<td>35</td>
</tr>
<tr>
<td>Brushless 3-A</td>
<td>31.80</td>
<td>636.17</td>
<td>40</td>
<td>35</td>
</tr>
<tr>
<td>90/100-35</td>
<td>66.40</td>
<td>1327.32</td>
<td>25</td>
<td>20</td>
</tr>
<tr>
<td>Brushless</td>
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<td>1327.32</td>
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<td>20</td>
</tr>
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<td>1327.32</td>
<td>25</td>
<td>20</td>
</tr>
<tr>
<td>Brushless 3-A</td>
<td>66.40</td>
<td>1327.32</td>
<td>25</td>
<td>20</td>
</tr>
<tr>
<td>130/100-48</td>
<td>132.70</td>
<td>2654.44</td>
<td>20</td>
<td>15</td>
</tr>
<tr>
<td>Brushless</td>
<td>132.70</td>
<td>2654.44</td>
<td>20</td>
<td>15</td>
</tr>
<tr>
<td>Pneumatic</td>
<td>132.70</td>
<td>2654.44</td>
<td>20</td>
<td>15</td>
</tr>
<tr>
<td>Brushless 3-A</td>
<td>132.70</td>
<td>2654.44</td>
<td>20</td>
<td>15</td>
</tr>
</tbody>
</table>

**INLINE DOSING**

PCM Dosys™ dosing systems, associated with mixing solutions, enable you to implement fully automated inline processes. These dosing solutions include the end of containers detection and management, no intertwining areas in case of ingredients changeover, and cleaning in place (CIP) phases.

**Injection / mixing before buffer tank**

**Injection / mixing after buffer tank ("just in time" mode)**
DOSYFRUIT™
Fully automatic multi-ingredients station

SYSTEM CONSTRUCTION

- CONTROL PANEL
- DEGASSING & CONTAINER END DETECTION POT
- DOSYS™ DOSING TECHNOLOGY
- CLEANING IN PLACE
- UTILITIES MANAGEMENT
- CONTAINERS CHANGEOVER

DOSYFRUIT™ RANGE BENEFITS

RESPECT OF PRODUCTS
- Considerable reduction of fruit losses
- Gentle handling of ingredients

PRODUCTIVITY
- Dosing of 1 to 4 different fruits, in containers or bag in box (ground or height)
- End of containers and degasing detection pot
- Automatic container changeover
- Dosing synchronisation by the conditioning and packaging machine, or depending on the raw material flowrate
- Manual or automatic valves
- Pneumatic or electric motorisation

ACCURACY AND FLEXIBILITY
- 100% reliable and repeatable through to the electric actuator
- Limited loss of ingredients through transition pushes and without rinsing
- Optimised and automatic management of the start and the end of production for multi-ingredients recipes

HYGIENIC
- Complete Cleaning and Sterilization In Place (sterile air, steam, containers foot sterilisation, injection point)
### 3 RANGES OF DOSYFRUIT™ SYSTEMS

<table>
<thead>
<tr>
<th>Fruits conditioning</th>
<th>BASIC</th>
<th>PREMIUM</th>
<th>COMPACT</th>
<th>Productivity optimisation</th>
<th>Fruit losses limitation</th>
<th>Hygiene improvement</th>
<th>Flexibility saving</th>
<th>Safety improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of conditioning</td>
<td>Container or BIB</td>
<td>Container or BIB</td>
<td>Container or BIB</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Type of connection</td>
<td>Multiple</td>
<td>Multiple</td>
<td>Multiple</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Conditioning positioning</td>
<td>Beside the station</td>
<td>Beside the station</td>
<td>Below the station</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Number of different fruits</td>
<td>1</td>
<td>1 to 4</td>
<td>1 to 4</td>
<td>--</td>
<td>++</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Overpressured containers (sterile air or azote)</td>
<td>N/A</td>
<td>N/A</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Start of production</td>
<td>Fruits priming from the container to the dosing unit</td>
<td>N/A</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Production</td>
<td>Fruits priming from the container to the dosing unit to the injection point</td>
<td>N/A</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Type of conditioning</td>
<td>Container or BIB</td>
<td>Container or BIB</td>
<td>Container or BIB</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>Type of connection</td>
<td>Multiple</td>
<td>Multiple</td>
<td>Multiple</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Conditioning positioning</td>
<td>Beside the station</td>
<td>Beside the station</td>
<td>Below the station</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Number of different fruits</td>
<td>1</td>
<td>1 to 4</td>
<td>1 to 4</td>
<td>--</td>
<td>++</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Overpressured containers (sterile air or azote)</td>
<td>N/A</td>
<td>N/A</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

### Fruits conditioning

<table>
<thead>
<tr>
<th>Function available</th>
<th>Function in option</th>
<th>N/A</th>
<th>Function unavailable in this version</th>
</tr>
</thead>
<tbody>
<tr>
<td>End of production</td>
<td>Synchronisation with the stop of the conditioning machine</td>
<td>N/A</td>
<td>--</td>
</tr>
<tr>
<td>Water push</td>
<td>N/A</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

### Cleaning / Sterilization

<table>
<thead>
<tr>
<th>Function available</th>
<th>Function in option</th>
<th>N/A</th>
<th>Function unavailable in this version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valve control</td>
<td>N/A</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Dosing unit hydraulic barrier</td>
<td>N/A</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Injection valves + sight</td>
<td>N/A</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Integrated dynamic mixer</td>
<td>N/A</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Integrated static mixer</td>
<td>N/A</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Hygienic insulation of the container foot coupler to fruits</td>
<td>N/A</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Safety sensors on CY/SIP connectors</td>
<td>N/A</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Steam pipes cover sheet</td>
<td>N/A</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Containers/BIB weighing</td>
<td>N/A</td>
<td>N/A</td>
<td>--</td>
</tr>
</tbody>
</table>
HOPPER STATION
Semi-automatic mono-ingredient station with cleaning in place

SYSTEM CONSTRUCTION

EXAMPLES OF APPLICATIONS
- Dosing of fruits in yoghurt white mass
- Dosing of non homogeneous ingredients (fluids or solids) for convenience food

3 RANGES OF DOSYFRUIT™ SYSTEMS

Dosyfruit™ Basic
Mono ingredient and manual valves

Dosyfruit™ Premium
Multi ingredients, automatic valves and minimum fruit losses between productions

Dosyfruit™ Compact
Multi ingredients, automatic valves, minimum fruit losses between productions and containers below the station

HOPPER STATION BENEFITS

PRODUCTIVITY
- Integrated ingredient preloading tank
- Programming of several recipes
- Detection of product end
- Pneumatic or electrical motorisation
- Semi-automatic or manual operation

HYGIENE
- Complete Cleaning and Sterilisation In Place (hoppers and system)

EXAMPLES OF APPLICATIONS
- Inline injection and mixing of flavors to the yoghurt fruit preparation
- Precise dosing of concentrated aromas
ADDITIVE STATION
Semi-automatic dosing station of flavorings and liquid additives

SYSTEM CONSTRUCTION

1. DOSYS™ PUMP TECHNOLOGY
2. CONTROL CABINET
3. SUCTION WAND WITH END OF DRUM DETECTION DEVICE
4. SUCTION WAND CIP SLEEVE

ADDITIVE STATION BENEFITS

PRODUCTIVITY AND SIMPLICITY
• Stainless steel suction rod with low level detection to control the end of the tray
• Integrated control cabinet and control LEDs
• No hopper
• Dosing synchronisation by the conditioning and packaging machines, or depending on the main product flow
• Compact and easy integration to existing facilities station
• Dosys™ technology

HYGIENE AND FOOD SAFETY
• Cleaning In Place of the dosing unit and the injection rod
• No more risk of product without commensurate ingredients

EXAMPLES OF APPLICATIONS
• Flavouring, colouring, sowing of dairy products and other bases...
• Concentrated aromas, vitamins injection in drinks...

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DOsing UNIT
Semi-automatic single-ingredients station

SYSTEM CONSTRUCTION

1. DOSYS™ DOSING TECHNOLOGY
2. CONTROL PANEL
3. INGREDIENT LOADING HOPPER
4. BASES OR WHEELS MOUNTED FRAME

DOsing UNIT BENEFITS

PRODUCTIVITY
• Removable ingredient pre loading tank
• Programming of several recipes
• Detection of product end
• Fixed or wheels mounted frame
• Pneumatic or electric motorisation

EXAMPLES OF APPLICATIONS
• Dosing of non homogeneous ingredients (liquid and solid) for convenience food
• Dosing of viscous products
FLAVOR FILLING STATION
Diluted and concentrated flavors injection

- SYSTEM CONSTRUCTION

  - CLEANING IN PLACE
  - DOSYS™ DOSING TECHNOLOGY
  - STAINLESS STEEL SUCTION ROD

- FLAVOR FILLING STATION BENEFITS

  - SIMPLE AND OPERATIONAL SYSTEM
    - Control panel with control by flowmeter or by the top of the packaging machine

  - DOSYS™ TECHNOLOGY
    - +/- 0.5% with concentrated flavours

  - FOOD SAFETY
    - Fully cleanable in place: from the suction rod to the nozzles plate

  - PRODUCTIVITY
    - Stainless steel suction rod with low level detection probe to control the end of tin
POUCH FILLING STATION

Sauces dosing station

SYSTEM CONSTRUCTION

1. FULL FLOW NOZZLE
2. CENTRIFUGAL PUMP
3. DOSYS™ PUMP WITH ELECTRICAL MOTORISATION
4. CONTROL PANEL

POUCH FILLING STATION BENEFITS

FOOD SAFETY
- Full flow nozzles for sauces with pieces, with integrated sensor for monitoring the injection temperature

EFFICIENCY
- Remote control of the quantities and the filling speeds

VERSATILITY
- Control panel with up to 50 programmed recipes (volumes, shapes)

AUTONOMY
- Centrifugal pump for CIP

EXAMPLES OF APPLICATIONS
- Sauces with or without pieces, liquid or viscous in sachets for convenience food

MULTI-INJECTION STATION

SYSTEM CONSTRUCTION

1. DOsis UNITS
2. NEEDLES DISTRIBUTION PLATES
3. DIAPHRAGM PUMPS

MULTI-INJECTION STATION BENEFITS

SYNCHRONISATION
- Four dosing units with 4 to 16 heads per unit with individual dose adjustment.

VERSATILITY
- Needles distribution plate, with lift-and-lower system to suit different kinds of buns.

EXAMPLES OF APPLICATIONS
- Injection of precise doses of aromas, jam, chocolate in buns
In order to provide the best use of our pumps and pumping systems, we offer a wide range of pre- and post-sales services.

All of our services are designed with one goal in mind: optimising the performance of PCM pumps and systems. From preventive maintenance to spare parts management, from equipment upgrading to training, we strive to best contribute to the productivity of our customers.

**EXTENDED WARRANTY**

The extended warranty ensures:
- an extension of our guarantee according to our General Sales Conditions,
- the best solution for delayed installation or commissioning cases,
- the peace of mind at a reasonable cost.

Our extensive service includes also an extension for the general guarantee conditions for a period from one to four years according to your requirements.

**TESTS**

To ensure the performance and lifespan of a pump or a system, it is vital that the equipment is engineered to meet the needs of the materials being handled. That is why we provide a wide offer of tests:
- chemical compatibility tests,
- viscosity tests,
- abrasiveness tests.

**TRAINING**

In order to support and train the professionals who handle our pumps and systems, we can arrange training sessions either on customer or PCM site.

The use of achieved knowledge enables the participants of the training to maintain the value of the pump or system to minimise the consequential costs for maintenance or service even more.

**MAINTENANCE, REPAIRING & UPGRADE**

We offer a full range of services to ensure optimum operation of your pumps as well as time and cost savings.

Maintenance services for PCM pumps are provided by our highly trained engineers. This ensures that pumps and systems are maintained at optimal operating levels. Our careful monitoring and expertise helps to minimise production downtime and increase the global run life of the system.

We provide a wide range of after-sales services:
- maintenance on customer’s site,
- PCM workshop maintenance,
- maintenance contracts,
- mechanical seals and rotors refurbishment,
- systems upgrade.

**INSTALLATION AUDITS**

The Life Cycle Costs audit will optimise the use of your pump while reducing costs related to inefficiency, rationalising your stock of spare parts and controlling your overall costs.

Our extensive service includes:
- a complete inspection of your facilities,
- an analysis of your spare parts consumption,
- a detailed report and our recommendations to help you optimise your costs.

**COMMISSIONING**

PCM pumps and systems are simple to use and efficient as long as they are installed and commissioned properly.

Through pre-operational checks and close monitoring of all equipment, our installation services implement stable and secure production.

Our installation services take the guesswork out of integrating a new pump into an existing system or installing a new pump from scratch. We provide start-up assistance, system integration engineering and training for operators.

**SPARE PARTS**

Thanks to our worldwide network of sales agencies and distributors, you can obtain genuine PCM spare parts quickly. Using PCM spare parts ensures that PCM products last as long as possible, benefit from warranty protection and maintain their CE conformity until their end of life.

PCM experts are dedicated to spare parts and answer your request in the shortest time. Thus, available standard PCM spare parts can be delivered within 24hrs.

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