

# PRODUCT BROCHURE



CEMENT AQUA FEED CHEMICALS PET FOOD MILLING FOOD & BEVERAGE



**PLP Systems**

TECHNOLOGY IN LIQUID HANDLING & POWDER DOSING











# OUR COMPANY

**PLP Systems** was founded in 1980, in Lugagnano Val d'Arda, Piacenza.

PLP is specialized in the research and development of machinery and technologies for a variety of sectors: zootechnics, milling, pet food, aqua feed, enology, food & beverage, fertilizers, seeds, chemistry, cosmetics and cement sector.

Through technological studies both in Italy and abroad, PLP has become a leader in the design and production of mixing, dosing and coating systems.

With more than over 40 years of experience, PLP is now one of the most technological advanced companies, both nationally and internationally, not only in liquid handling but also for powder coating systems, fat coating, mixing, homogenizing, dosing and spraying. PLP now boasts projects all over the world, guaranteeing expertise, support and assistance during the sales, design, implementation and after sales, with the support of direct offices and agents worldwide.

## BASKET FILTERS

Stainless steel basket filters for any type of liquid and with a wide range of flow rates.  
Filters can be equipped with diathermic oil heating jacket or with hot water circulation.  
The removable basket with mesh from 1 to 10 mm can be reached by a quick-release lid or a flanged lid for high pressures.



| TYPE     | No heating | Electrical resistance | Hot water heating | Connections | Volume    |
|----------|------------|-----------------------|-------------------|-------------|-----------|
| Standard | FSX 150    | FCX 150/RE            | FCX 150/RH        | 1" Gas F    | 4 Litres  |
|          | FSX 210    | FCX 210/RE            | FCX 210/RH        | 2" Gas F    | 13 Litres |
|          | FSX 310    | FCX 310/RE            | FCX 310/RH        | Flange DN50 | 30 Litres |
|          | FSX 420    | FCX 420/RE            | FCX 420/RH        | Flange DN65 | 70 Litres |
| Heavy    | BPVS 150   | BPV 150/RE            | BPV 150/RH        | 1" Gas F    | 4 Litres  |
|          | BPVS 310   | BPV 310/RE            | BPV 310/RH        | Flange DN50 | 13 Litres |
|          | BPVS 420   | BPV 420/RE            | BPV 420/RH        | Flange DN65 | 70 Litres |

## INDUSTRIAL PUMPS

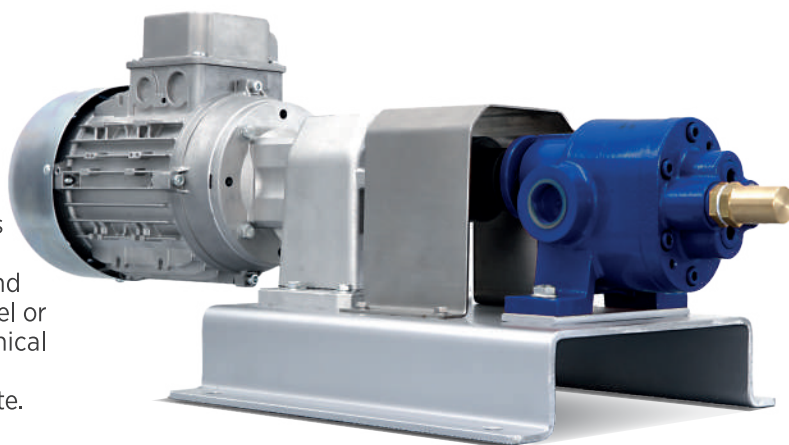
**PF Series:** Special pumps with retractable paddles, made entirely of stainless steel.

The delivery rate ranges from 500 to 1500 L/min.

**GP Series:** Special gear pumps made from stainless steel. Suitable for corrosive and abrasive products.

**B Series:** Gear pumps for various requirements and configurations, construction of the bodywork in steel or in cast iron, bypass valves and packing or mechanical seals.

Delivery rates may be from 3 to 600 litres per minute.



**Pump type: corresponding flow rate in liters per minute 1400 rpm**

|   |   |    |    |    |    |    |    |     |     |     |     |     |     |     |     |     |     |     |
|---|---|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 3 | 5 | 10 | 15 | 25 | 40 | 50 | 70 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 |
|---|---|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|



# FLOW METERS

Wide range of flow meters: mechanical , magnetic or trolley models.  
Designed to ensure the dosing of all kinds of liquids, even those with high viscosity.

## Benefits of FLOW METERS

- PRECISE DOSAGE WITH ACCURATE FLOW MANAGEMENT
- SUITABLE FOR A WIDE RANGE OF APPLICATIONS, FROM INDUSTRIAL TO FOOD SECTORS
- OPTIMAL MOBILITY, WITH TROLLEY MODELS AND RUBBER WHEELS
- MADE WITH DURABLE MATERIALS, MAINTAINING HIGH PERFORMANCE OVER TIME



## Mechanical flow meters

**CDN:** Floating disc volume counters, suitable for the dosage of every type of liquid even at high viscosity. Good reliability, simple design. Bodywork in AISI, disc in Teflon-AISI. REED pulse emitter. Flange connectors and pre-warming chamber on request.

**CPO:** Rotating disc volume counters, suitable for the dosage of liquid foodstuffs. Good reliability, simple design. Bodywork in AISI, Pistons in Teflon. REED impulse launcher. Flange connectors on request and pre-warming chamber.

| Type      | Liquids     | Min Flow | Max Flow  |
|-----------|-------------|----------|-----------|
| CP0 1/2   | NON VISCOUS | 100 l/h  | 500 l/h   |
| CP0 1     | NON VISCOUS | 180 l/h  | 2300 l/h  |
| CP0 1 1/2 | NON VISCOUS | 300 l/h  | 7000 l/h  |
| CP0 2     | NON VISCOUS | 500 l/h  | 12000 l/h |
| CDN 1     | VISCOUS     | 200 l/h  | 5000 l/h  |
| CDN 2     | VISCOUS     | 1500 l/h | 15000 l/h |

## Electromagnetic flow meters

Electromagnetic flow meters for conductive fluid.  
The flow meter ensures a fluid passage of liquid, the bodywork, as with the measuring electrodes, are made of stainless steel, while the inner coating is in Teflon.

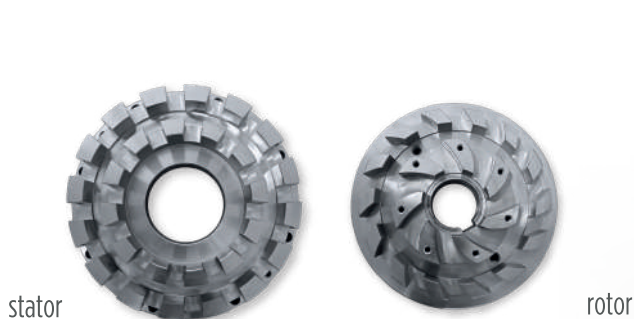
The process connectors may be flanged, DIN or Wafer and may carry electronics with 4.20mA outlet or with separate electronics with delivery rate display and output in frequency.



## EML HOMOGENIZER

The EML series homogenizer machine is used in all areas where there is a need to mix and emulsify various liquids or powder dispersions. Placed below the threshold of a tank, thanks to the pumping effect, allows for the circulation of liquids in the container.

The intense cutting effect resulting from the combination of mechanical and hydraulic processing of the rotor and stator, a powerful "shear" effect is generated on the product. This process ensures a highly mixed consistency and perfect homogeneity, ensuring high-quality results for the finished product.

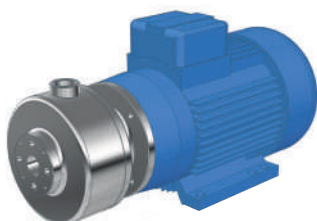


### Benefits of HOMOGENIZERS

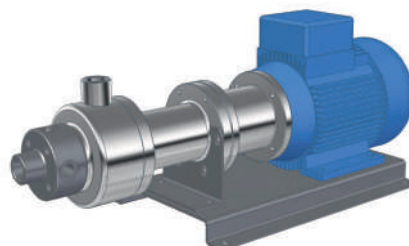
- PERFECT HOMOGENEITY OF THE LIQUIDS
- REDUCTION OF LUMPS, PARTICLES AND VISCOSITY
- IMPROVE THE COEFFICIENT OF VARIATION OF THE LIQUIDS MIXED TOGETHER
- IMPROVE THE QUALITY, COLOUR AND HUMIDITY OF THE

- FINAL PRODUCT
- PRESS OR EXTRUDER PERFORMANCE OPTIMIZATION
- INCREASING STEAM ABSORPTION IN THE CONDITIONER DURING THE PELLETING PHASE
- IDEAL FOR ANY TYPE OF LIQUID

| Type        | Motor    | Speed         | In/out   | Flow    | Notes       |
|-------------|----------|---------------|----------|---------|-------------|
| EML 1.5/P   | 1,5 KW   | 2800 rpm      | 3/4 gas  | 3 m³/h  | Body in POM |
| EML 1.5/200 | 1,5 KW   | 2800 rpm      | 3/4 gas  | 3 m³/h  | Monoblock   |
| EML 1.5/300 | 3 KW     | 2800 rpm      | 3/4 gas  | 5 m³/h  | Monoblock   |
| EML 1/200   | 1,5 KW   | 2800 rpm      | 3/4 gas  | 3 m³/h  | Assisted    |
| EML 1/300   | 3 KW     | 2800 rpm      | 3/4 gas  | 5 m³/h  | Assisted    |
| EML 3/100   | 7,5 KW   | 1400/2800 rpm | 2"/DN 80 | 15 m³/h | High shear  |
| EML 3/400   | 30-55 KW | 1400 rpm      | DN 100   | 48 m³/h | High shear  |



**EML 1.5: Monoblock version with special shaft**



**EML 1: Version with joint and bearing support**



# VERTICAL EMULSIFIER FOR LIQUIDS

The vertical turbo emulsifier is suitable for mixing various low-viscosity liquids or dispersing powders in liquids. Used inside containers or tanks and attached to the top lid, it enables a rapid and homogeneous emulsion.

## F400

The most widely used for various industries, equipped with a special motor with conical coupling, a tubular stator mounting bracket and centering bushing. Polymer rotor and stator.

## F500

Turbo emulsifier mainly dedicated for the food industry, equipped with special motor with conical coupling, support with drawn rods for stator fixing, Teflon centering bushing. Rotor and stator constructed in polymer or stainless steel.

## F400-S

Fast mixer with COWLESS or marine profile propeller. Equipped with special motor with conical coupling.

The optimization of the mixture is ensured by the rotor/stator effect. The propeller is designed to achieve the best performance with minimal consumption, while the stator allows high dispersion performances



## Benefits of VERTICAL EMULSIFIERS

- WITH AN ADVANCED VERTICAL DESIGN, THEY ENSURE HOMOGENEOUS MIXING AND EFFECTIVE EMULSIFICATION.
- THEY GUARANTEE RESISTANCE, DURABILITY, AND EASE OF MAINTENANCE.
- DESIGNED TO ADAPT TO A WIDE RANGE OF INDUSTRIAL SECTORS, FROM COSMETICS TO FOOD & BEVERAGE.
- THEY INCREASE PRODUCTIVITY THANKS TO REDUCED MIXING TIMES.

| Type        | Size | Tipology     | Helix                   |
|-------------|------|--------------|-------------------------|
| F400-L6     | 600  | Rotor/Stator | Propeller or Cowless    |
| F400-L8     | 800  | Rotor/Stator | Propeller or Cowless    |
| F400-L110   | 1100 | Rotor/Stator | Propeller or Cowless    |
| F400-S-L6   | 600  | Mixing       | Cowless or Marine helix |
| F400-S-L8   | 800  | Mixing       | Cowless or Marine helix |
| F400-S-L110 | 1100 | Mixing       | Cowless or Marine helix |
| F500-L6     | 600  | Rotor/Stator | Propeller or Cowless    |
| F500-L8     | 800  | Rotor/Stator | Propeller or Cowless    |
| F500-L110   | 1100 | Rotor/Stator | Propeller or Cowless    |



## MOTORIZED SMOG

The motorized SMOG sprayer is technologically designed for the spraying of liquids of various nature and viscosity. Equipped with an 11m injection nozzle, it is excellent for preventing unwanted blockages caused by dirt and impurities.

The nebulization occurs by centrifugal spinning of the injection chamber that forms small droplets of the liquids.

Once the liquids reaches the outlet of the sprayer, it

combines with the air supplied through the blower and forms a fog effect.

The versatility of the SMOG sprayer allows to simultaneously nebulize various liquids, including: oils, fats, water, molasses, glucose, flavors, waxes and resins.

With this system, high pressure pumps or filters are not required, simplifying the spraying process. Ideal for all sectors, from the Pet Food to the Food Industry.



### Benefits of SMOG atomizers

- NO NEED FOR HIGH PRESSURE TO NEBULIZE THE LIQUIDS
- FLOW RATE CAN RANGE FROM 0,1 TO 40 LITRES PER MINUTE, ALWAYS GUARANTEEING A GOOD NEBULIZATION
- SUITABLE FOR ANY TYPE OF LIQUID WITH ANY VISCOSITY
- LESS CLEANING REQUIRED (COMPARED TO WHEN USING STANDARD NOZZLES)
- IMPROVES THE CV "COEFFICIENT OF VARIATION" OF THE LIQUIDS SPRAYED INTO THE MIXER AND THE QUALITY OF THE FINISHED PRODUCT
- NOZZLE BLOCKAGES ARE VERY RARE

| Type      | Mounting | Range        | Assist     | kW   | Notes                   |
|-----------|----------|--------------|------------|------|-------------------------|
| MicroSMOG | TOP/SIDE | 0-20 lt/min* | Air blower | 0.12 | Any liquid and pressure |
| SMOG      | TOP/SIDE | 0-30 lt/min* | Air blower | 1.1  | Any liquid and pressure |
| SMOG XL   | TOP/SIDE | 0-40 lt/min* | Air blower | 1.1  | Any liquid and pressure |

\* Given limits with low-viscosity fluids, to be confirmed depending on the product.



# DISPERSER SPRAYER

The nebulization system called "Disperser" represents a highly effective solution for the integration of liquids of various nature directly into the mixer, ensuring an optimal homogenization of the product.

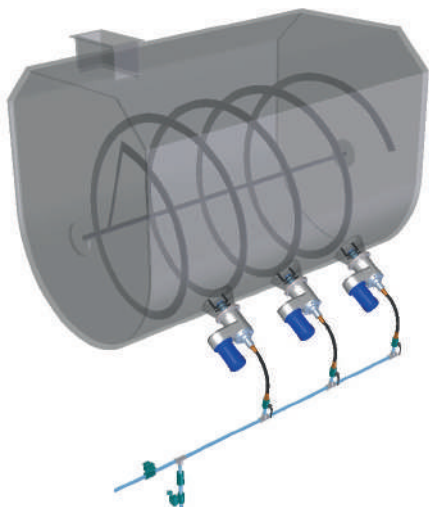
Its distinctive features include an electric motor with a toothed belt that allows the smooth transfer of motion to the blades that are in contact with the flour in the mixer.

A "chopper" function that ensures excellent homogenization through the knives that effectively act on the mixture.

An hollow shaft that has an injection valve at the end that opens with liquid pressure, preventing powders from entering the interior of the sprayer.



*Mounting example of the Disperser*



DISPERSER 1A1S.X

|          |                  |
|----------|------------------|
| Motor    | KW 2.2- 2800 rpm |
| Range    | 10/40 L/min      |
| Seal     | Mechanical       |
| Body     | Aluminium        |
| Interior | Stainless steel  |

## Benefits of the DISPERSER

- SAFETY AND CONTAMINATION PREVENTION: ENSURING SAFE AND HIGH-QUALITY PRODUCTS.
- ENSURES AN UNIFORM MIXING OF LIQUIDS WITH FLOURS.
- DESIGNED TO ACHIEVE HIGH EFFICIENCY AND PRECISE CONTROL.
- IDEAL FOR ANY LIQUID AND PRESSURE.
- IDEAL FOR "BREAKING" CLUMPS THAT MAY FORM IN THE MIXER,

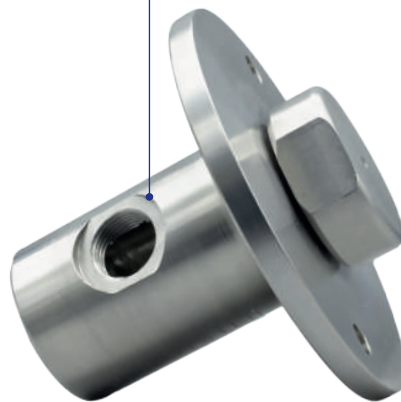
- THANKS TO THE ROTATING SPEED OF THE BLADES AT 2800 RPM.
- THE INSTALLATION POSITION HELPS KEEP THE MIXER WALLS CLEANER.
- SPECIAL VALVE LOCATED AT THE END OF THE INJECTOR TO PREVENT DRIPPING WHEN THE LIQUID DOES NOT EXCEED A CERTAIN PRESSURE.

## OUR STATIC

### SGP SPRAYER

The SGP sprayer is suitable for spraying clean liquids of medium and low viscosity such as oil, fats, water, acids and flavours.

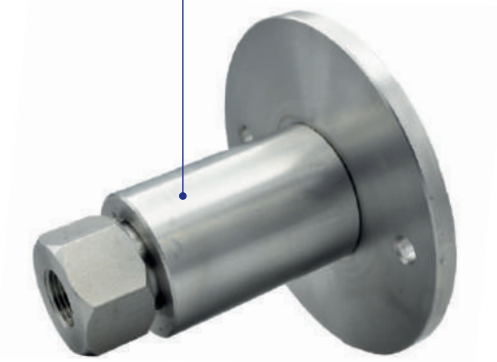
This type of sprayer requires pressure to move the liquid and is powered by compressed air.



### SOG SPRAYER

The SOG was designed for spraying molasses in the cubing press using steam, and is nevertheless suitable in all those situations where dense liquids are to be sprayed.

Thanks to injectors with 5 mm outlets, it is largely used for spraying liquids with particles in suspension. This type of sprayer is powered by steam or pneumatic air.



**Our range of spray nozzles are designed to accommodate a wide variety of liquids, including those with high viscosity. They provide a customized solution for every type of fluid, with different flow rates, ensuring homogeneous results in any application.**

**Equipped with anti-drip and anti-clogging systems, especially when dealing with viscous liquids, this technology helps to prevent blockages or obstructions in the nozzles, ensuring a consistent flow of the liquid during application.**



# SPRAYERS

## TLS SPRAYER

The TLS nozzle is used to spray various liquids, even at high viscosity and with solid bodies in suspension. Its special construction guarantees a firm closure of the sprayer nozzle on completion of the cycle, avoiding the continuous dripping of traditional nozzles and clogging problems.



| Type        | Mounting | Range        | Assisted             |
|-------------|----------|--------------|----------------------|
| TLS 1       | Side/Top | 5-30 L/min   | At pressure          |
| TLS 1 X     | Side     | 5-30 L/min   | At pressure          |
| TLS 0,5     | Side/Top | 0,5-20 L/min | At pressure          |
| TLS ON LINE | Side/Top | 0,5-20 L/min | At pressure          |
| SOG         | Top      | 0-15 L/min   | Steam/Compressed air |
| SGP         | Top      | 0-10 L/min   | Compressed air       |

## MAB MIXERS

Our MAB series vertical mixers are designed to handle a wide range of applications, including mixing liquid solutions and dispersing powders in liquids. Their containment capacity can vary from 50 to 1000 liters.

Customizable to meet specific customer requirements, they provide a range of options, including various sizes, materials, finishes, and accessories, ensuring maximum flexibility and adaptability. The MAB can be used in various sectors:

- **Food&Beverage:** For liquid solutions, juices, soft drinks, vegetable and meat broths, honey, chocolate and spreadable creams,. Additionally, for granular preparations of flavors, spices, emulsions, and colorants.
- **Chemistry and Cosmetics:** For dispersion of aromas, creams, emulsions, colours; preparation of dyes, shampoos, gels, and toothpaste.

### Benefits of MAB.V / MAB.P MIXERS

- ABLE TO OPERATE AT DUAL SPEEDS AND WITH DIFFERENT MIXING PROFILES: SLOW-SPEED WITH INTERNAL SCRAPING BLADES AND HIGH-SPEED DISPERSER BLADES, FOR QUICK AND EFFICIENT DISPERSION.
- LIFTING COLUMN FOR AN EASY INTERNAL INSPECTION AND CLEANING.
- THE TOP LID CAN BE FIXED TO THE STRUCTURE, ABLE TO BE ROTATED AT 90° FOR A TOTAL DISCHARGE, OR MOBILE WITH WHEELS FOR THE PREPARATION OF MORE BATCHES IN SEVERAL TANKS.
- JACKET AND HEATING SYSTEM, ELECTRIC OR COIL.
- CAN BE PLACED ON WEIGHING CELLS FOR THE DOSAGE OF DIFFERENT PRODUCTS. UNDER VACUUM IF THERE IS NEED TO AVOID THE FORMATION OF FOAM.



**MAB.V:** Vacuum mixing system with conically shaped bottom development.



**MAB.P:** Automated batch dosing and mixing system. Equipped with a lifting column for container replacement.



## DOSAMIX & MLBS SYSTEMS

The double tank weighing system DOSAMIX, or single tank MLBS used for industrial applications such as for the weighing of liquid components, ensuring precise dosing, mixing, and liquid injection.

PLP weighing systems, guarantees an excellent mixed product, saving time on cycle work. These technologies can be adapted according to customer needs and products to be dosed.

### DOSAMIX

DOSAMIX is a weighing double tank batch system, for the dosing and mixing of liquids.

The DOSAMIX is the best system for adding all liquids, of any type and viscosity, into the mixer. Liquids are collected in the upper tank, where dosing takes place thanks to highly precise weighing scales.

The liquids are transferred to the lower tank through a homogenization system (EML) designed to mechanically break the surface tension and bind together liquids, even when they are water-based and oily, creating a unified solution.

### MLBS

The MLBS weighing batch system is a simplified version of the Dosamix.

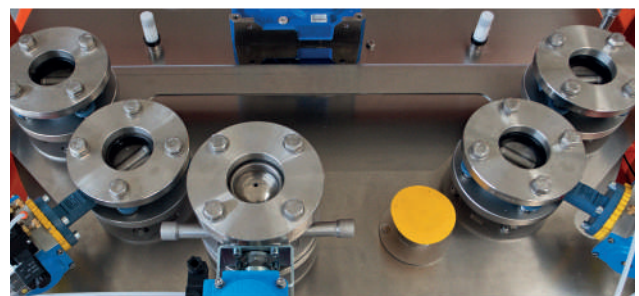
The MLBS allows the dosage of liquid components of any type and viscosity in a single dosing solution such as fats, oils, molasses, lecithin, creams, acids, amino acids and solvents.



***Dosamix system, the homogenized liquid obtained is sprayed through our SMOG atomizer.***



***MLBS system, equipped with EML homogenizer, for a perfect emulsion of the product.***



## PADDLE COATING MACHINE MT SERIES

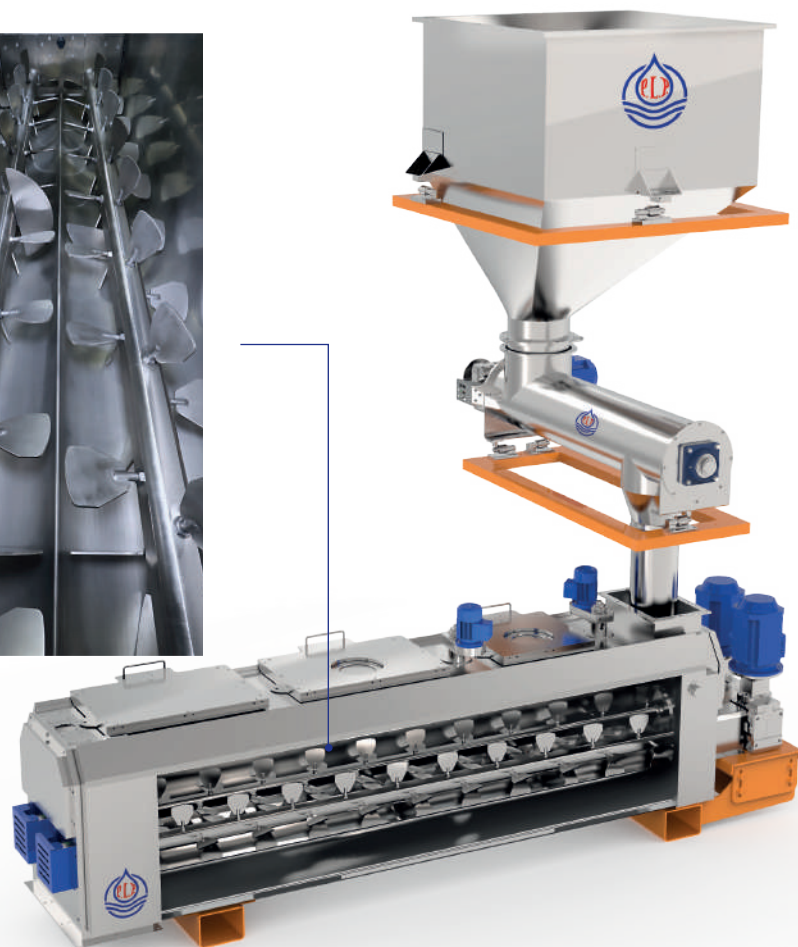
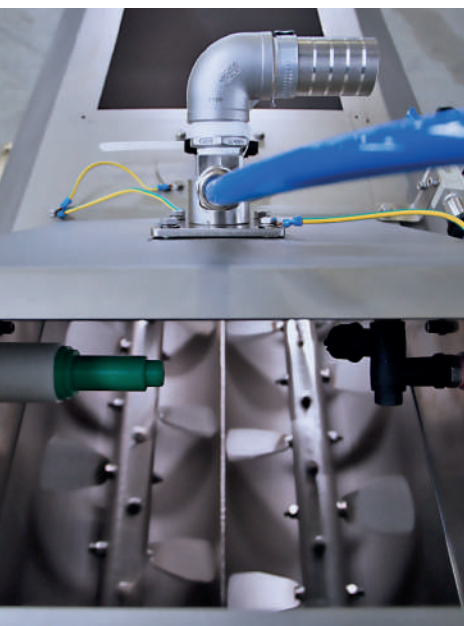
The coating system MT is technologically designed to treat and mix in line granular products, such as: croquettes, pellets etc. Guaranteeing a homogeneous coating with a wide range of liquid additives: liquid enzymes, fat, digest, aromas, oil, medicines, vitamins etc.

The system is composed of:

- Top hopper, with load cells to keep the level of the

product constant.

- Weighing screw to detect the amount of product to be coated.
- System for the preparation and dosage of the liquid additive.
- Key component, represented by the MT Coater, complete of two shafts and adjustable paddles for mixing and keeping in suspension the product.
- Motorised sprayers type MicroSmog.



| Type    | m <sup>3</sup> /h        | Power             |
|---------|--------------------------|-------------------|
| MT10    | 0.5-11 m <sup>3</sup> /h | 3+3 kW - H 3+3 kW |
| MT30    | 4-20 m <sup>3</sup> /h   | 4+4 kW - H 3+3 kW |
| MT30-SC | 4-20 m <sup>3</sup> /h   | 4+4 kW            |
| MT30XL  | 4-40 m <sup>3</sup> /h   | 4+4 kW - H 3+3 kW |
| MT50    | 7-70 m <sup>3</sup> /h   | 5+5 kW - H 3+3 kW |
| MT100   | 12-150 m <sup>3</sup> /h | 5+5 kW - H 3+3 kW |



# DRUM COATER

The Drum Coater, is designed for obtaining a gentle mixing and a continuous and homogeneous coating of the product used for applications in various sectors.

**Food & Beverage:** for the addition of powdered additives such as flavors, enzymes, spices, salt, and colorants; sweet coatings (sugar, caramel, honey, cocoa etc.) for products such as: chips, snacks, crackers, oats, cornflakes, cereals, almonds, rice etc.

**Pet food:** for the treatment of semi-moist products,

biscuits, snacks, pillows or other very fragile products.

**Seeds:** used for the treatment, tanning and dampness of seeds or for the addition of pesticides.

In addition, the system extends to sectors such as fertilizers, chemicals and recycling. Thanks to the use of the same dosing system as the MT coating machine, the Drum Coater is particularly suitable for fragile products, finer granules, or large-sized pieces, thanks to its design that allows a gentle movement during the coating process.



*Complete line with top hopper for receiving the product, weighing belt, elevator, drum coating machine and dosing system.*



| Type         | Diameter | Length  | Capacity                  | Addition   |
|--------------|----------|---------|---------------------------|------------|
| DC 600-2000  | 600 mm   | 2000 mm | 0.3 – 4 m <sup>3</sup> /h | 0,01 – 8%  |
| DC 800-2000  | 800 mm   | 2000 mm | 0.6 – 6 m <sup>3</sup> /h | 0,01 – 8%  |
| DC 1000-2000 | 1000 mm  | 2000 mm | 1 – 10 m <sup>3</sup> /h  | 0,01 – 8%  |
| DC 600-3400  | 600 mm   | 3400 mm | 0.3 – 5 m <sup>3</sup> /h | 0,01 – 12% |
| DC 800-3400  | 800 mm   | 3400 mm | 0.6 – 7 m <sup>3</sup> /h | 0,01 – 12% |
| DC 1000-3400 | 1000 mm  | 3400 mm | 1 – 12 m <sup>3</sup> /h  | 0,01 – 12% |

Capacity and addition may vary depending on the type of application, granularity, viscosity and absorption capacities.

## MASS SPIN COATER

The coating system: **MASS SPIN COATER**, is one of the most complete system for coating and adding additives onto solids products. The MSC is used for the coating treatment of granules, pellets, flakes and powders, serving various sectors such as fertilizers, seed, chemical, ceramic, cement production and recycling industries.

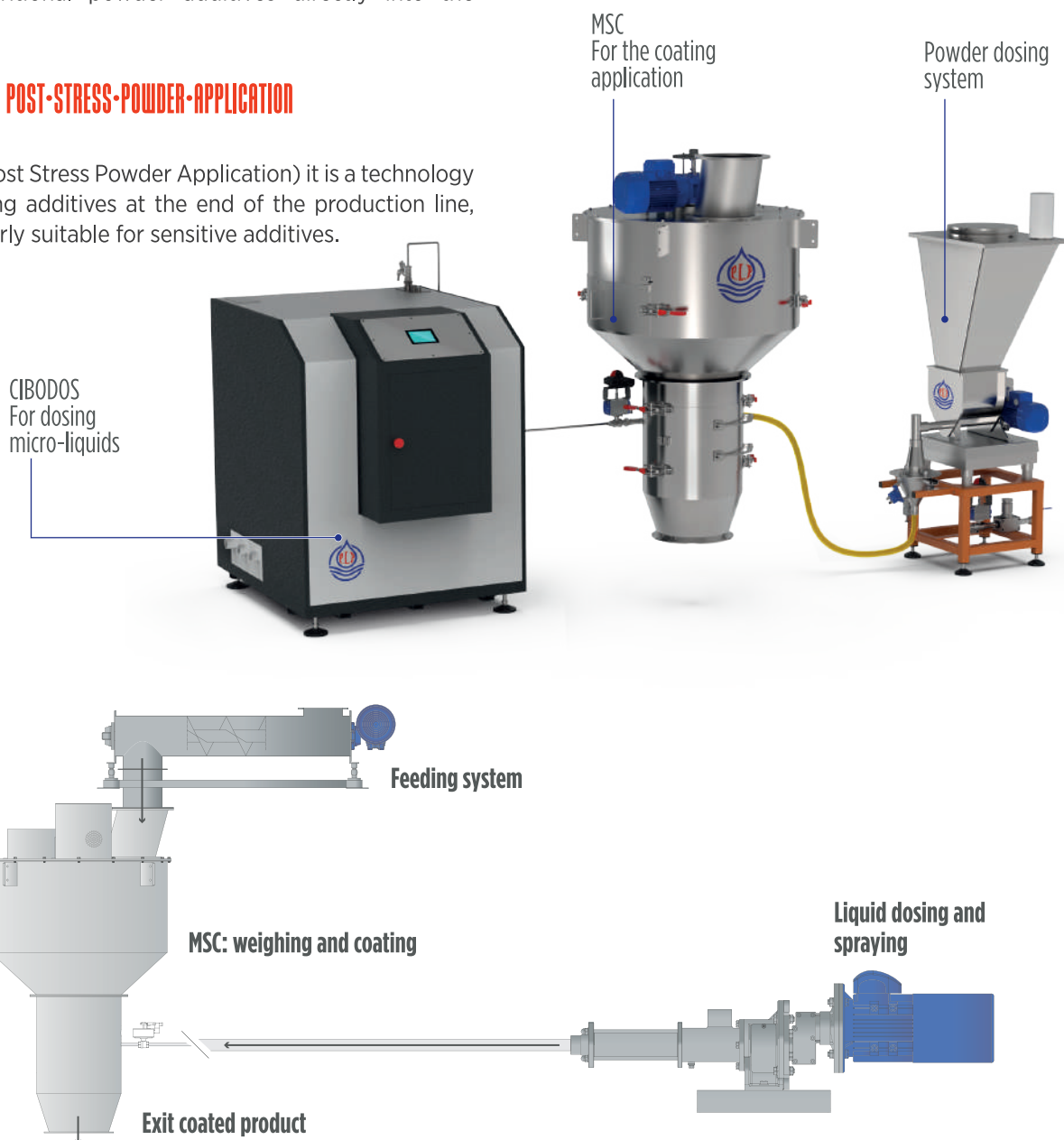
With the same technology as the Mass Spin Coater for liquid additives, it is possible to add micro-doses of powder additives such as enzymes, flavors, vitamins and nutritional powder additives directly into the pellet.



**POST-STRESS-POWDER-APPLICATION**

PSPA (Post Stress Powder Application) it is a technology for dosing additives at the end of the production line, particularly suitable for sensitive additives.

| TECHNOLOGY                        | Mass Spin Coater |
|-----------------------------------|------------------|
| MINIMUM (0,7 Kg/dm <sup>3</sup> ) | 4 t/h            |
| MAXIMUM (0,7 Kg/dm <sup>3</sup> ) | 100 t/h          |
| MINIMUM ADDITIVE                  | 20 g/t           |
| MAXIMUM ADDITIVE                  | 10 Kg/t          |





# CONTINUOUS INTENSE MIXER: MAK

The MAK is a continuous intensive mixer available in two variants: the single-shaft version and the twin-shaft version, both equipped with adjustable blades featuring different profiles. This system is designed for adding liquids in substantial quantities to grains, flours, powders, or granules to reduce clumps in the mixture and to enhance the homogeneity of the final product.

The twin shaft version not only guarantees a mechanical action that breaks up clumps but also operates at high speeds, ensuring intense mixing and high absorption of liquids into powders. This makes the MAK suitable for various industrial applications such as: animal feed, milling, zootechny etc., where mix uniformity is of primary importance.



*Twin-shaft MAK-T system*

| Technology | Type             | m <sup>3</sup> /h*   | Power*     |
|------------|------------------|----------------------|------------|
| MAK-200    | High-speed shaft | 10 m <sup>3</sup> /h | 11 kW      |
| MAK-300    | High-speed shaft | 15 m <sup>3</sup> /h | 15 kW      |
| MAK-400    | High-speed shaft | 30 m <sup>3</sup> /h | 22 kW      |
| MAK-500    | High-speed shaft | 40 m <sup>3</sup> /h | 45 kW      |
| MAK-10T    | Twin-shaft       | 15 m <sup>3</sup> /h | 5.5+5.5 kW |
| MAK-30T    | Twin-shaft       | 30 m <sup>3</sup> /h | 7.5+7.5 kW |
| MAK-50T    | Twin-shaft       | 55 m <sup>3</sup> /h | 9+9 kW     |
| MAK-100T   | Twin-shaft       | 80 m <sup>3</sup> /h | 15+15 kW   |

\*Capacity and addition may vary depending on the type of application, granularity, viscosity and absorption capacities.

## MDP

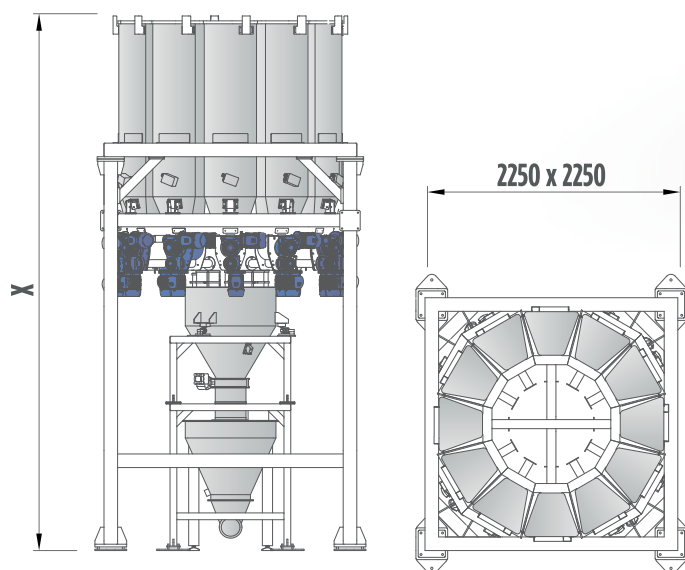
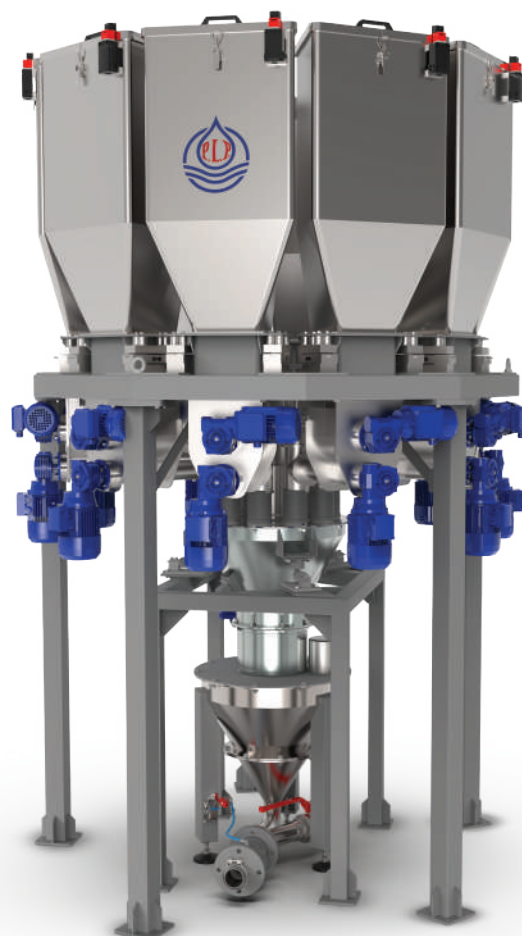
MDP micro powder dosing system used for the formulation of additives and premixes.

Constructed on a standard carousel design with up to 12 components and very small dimensions, however, it can be customised according to customer requirements.

The batch dosing can range from a few grams up to 1000 kg capacity.

The system is normally used as a batch weigher, dosing each powder individually into the weighing hopper.

Other configurations such as loss-in-weight dosing, continuous dosing and volumetric dosing are possible.

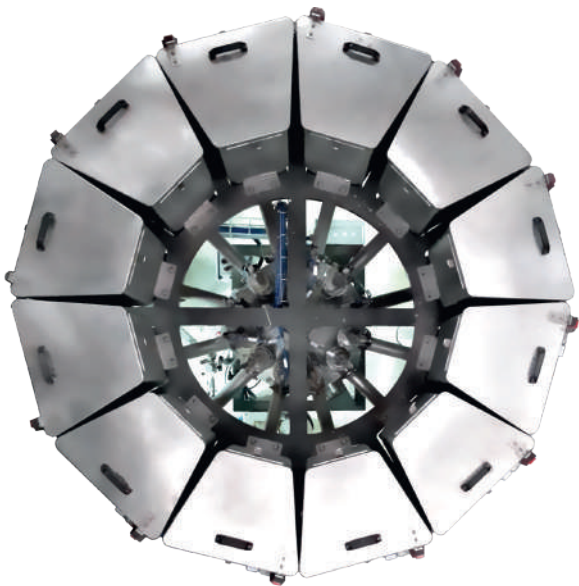


| Type      | BATCH 25L | BATCH 50L | BATCH 100L | BATCH 200L | BATCH 300L | BATCH 400L |
|-----------|-----------|-----------|------------|------------|------------|------------|
| MDP - 50  | 3010 mm   | 3060 mm   | 3210 mm    | 3460 mm    | 3860 mm    | 4310 mm    |
| MDP - 100 | 3410 mm   | 3460 mm   | 3610 mm    | 3860 mm    | 4260 mm    | 4710 mm    |
| MDP - 200 | 4210 mm   | 4260 mm   | 4410 mm    | 4660 mm    | 5060 mm    | 5510 mm    |
| MDP - 300 | 5010 mm   | 5060 mm   | 5210 mm    | 5460 mm    | 5860 mm    | 6310 mm    |
| MDP - 400 | 5810 mm   | 5860 mm   | 6010 mm    | 6260 mm    | 6660 mm    | 7110 mm    |
| MDP - 500 | 6610 mm   | 6660 mm   | 6810 mm    | 7060 mm    | 7460 mm    | 7910 mm    |

Approximate dimensions: MDP station + batch hopper WH + Pneumatic hopper PBH -- Plan dimensions 2250 mm

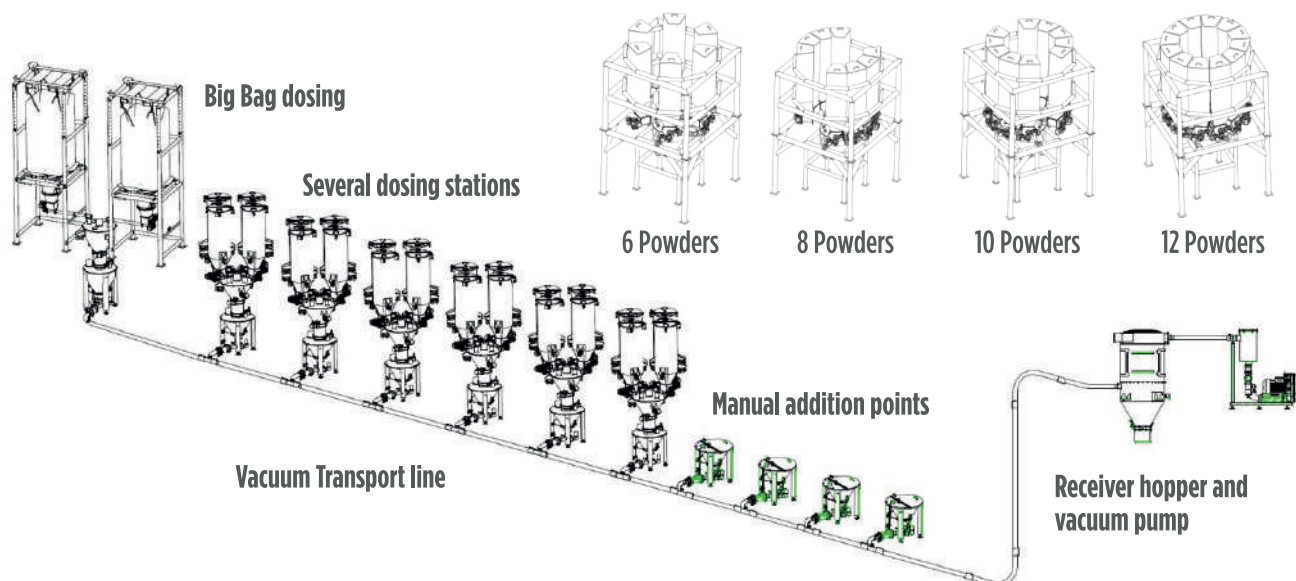
## Benefits of the MDP system

- WIDE RANGE OF CAPACITY DOSING
- ACCURACY AND REPEATABILITY OF THE DOSAGE
- FLEXIBILITY AND SPEED OF THE BATCH
- COMPACT SIZE, IDEAL FOR INSTALLATION IN EXISTING SYSTEMS
- EASY WORKING PROCESS AND MAINTENANCE
- EASY CLEANING THANKS TO THE FAST CLAMPS CONNECTIONS
- MODULARITY AND EXPANDABILITY FOR FUTURE IMPLEMENTATIONS



| Batch Kg  | Batch Liters | Resolution |
|-----------|--------------|------------|
| 0.5 - 1   | 3            | +/- 0,5 g  |
| 1 - 3     | 5            | +/- 1 g    |
| 4 - 5     | 10           | +/- 2 g    |
| 5 - 15    | 25           | +/- 5 g    |
| 15 - 30   | 50           | +/- 10 g   |
| 4 - 50    | 75           | +/- 10 g   |
| 50 - 75   | 100          | +/- 15 g   |
| 75 - 100  | 150          | +/- 30 g   |
| 80 - 150  | 200          | +/- 30 g   |
| 100 - 200 | 300          | +/- 50 g   |
| 150 - 250 | 400          | +/- 50 g   |
| 200 - 300 | 500          | +/- 100 g  |
| 300 - 500 | 700          | +/- 150 g  |
| 500 - 700 | 1000         | +/- 200 g  |

*Up to 12 additives on one single carousel system, from the plan view it occupies only 4 square meters*





## MICRODOSING LOSS IN WEIGHT - MD/G-LOSS

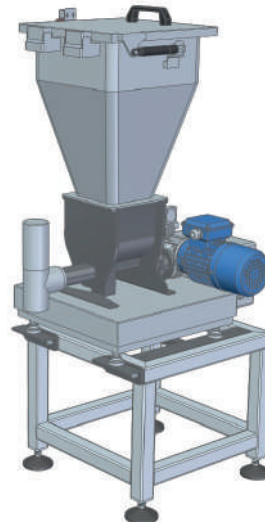
Our loss-in-weight micro-dosing systems operate fully automatically, ensuring reliable performances even during critical hopper filling phases. While commonly used for continuous dosing applications, they also showcase their versatility in special batch dosing situations.

They are particularly distinguished for their precision in fine dosing operations. The MD/G-LOSS dosing units are available with dosing capacities starting from 100 gr/h, thereby adapting to a wide range of needs.

### MD/G-LOSS DOSING UNITS AVAILABLE IN DIFFERENT CONFIGURATIONS



Volumetric doser with hopper of various sizes, motorized bridge breaker, and support structure.



Gravimetric twin-screw doser for challenging products or low flow rates.



Gravimetric doser with manual refill hopper, for increased storage capacity without compromising dosing accuracy.

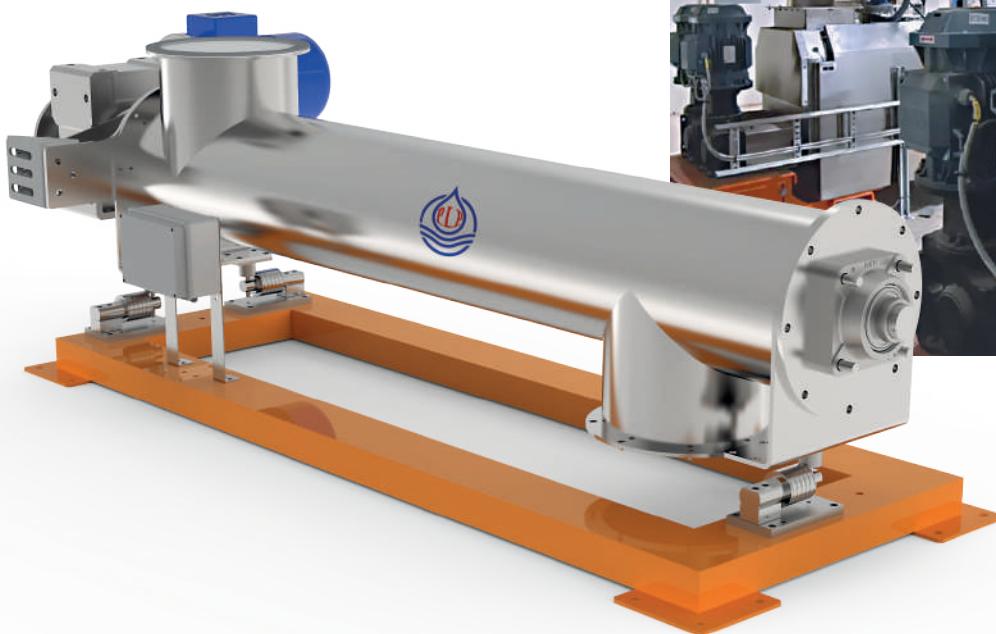


Gravimetric doser with automatic refill hopper and pneumatic transport of powders. The system can be paired with a bag cutter or a manual bag dumping hopper.

## SCF: screw feeder & continuous weighing machine

The Screw Feeder is a technology used for the gravimetric dosing of flour, powder and granules. The provided electronics can totalize the dosed product, indicate the instantaneous flow rate and output in frequency. This type of system is known for its robustness and low maintenance requirements.

The Screw Feeder can be constructed in either carbon steel or stainless steel. The system is fully customizable based on specific requirements, including the desired flow rate and required length.



| Type    | Capacity                 |
|---------|--------------------------|
| SCF 150 | 1-9 m <sup>3</sup> /h    |
| SCF 200 | 3-20 m <sup>3</sup> /h   |
| SCF 250 | 15-50 m <sup>3</sup> /h  |
| SCF 300 | 20-70 m <sup>3</sup> /h  |
| SCF 350 | 30-100 m <sup>3</sup> /h |

## ENSP: weighing belt & continuous weighing machine

The weighing belt is the ideal dosing system for delicate products which can break under mechanical stress. The system is complete with a motorized and a free roller, a roller carpet made of synthetic material, hoppers and support sides in stainless steel. Consisting of a scale plate on off-center load cells, it ensures excellent weighing precision.

The provided electronics can automatically totalize the quantity of the dosed product, indicating the instantaneous flow rate and the frequency output. It can be used for pellets, kibbles, nuts, cookies, chips, seeds and powders.



| Type         | Capacity        |
|--------------|-----------------|
| Ensp 2 Micro | 0,015-0,25 m³/h |
| Ensp 3 Micro | 0,1 – 1 m³/h    |
| Ensp 3       | 1-7 m³/h        |
| Ensp 4       | 1,5- 15 m³/h    |
| Ensp 5       | 2-18 m³/h       |
| Ensp 6       | 3-25 m³/h       |
| Ensp 7       | 5-35 m³/h       |
| Ensp 8       | 7-50 m³/h       |

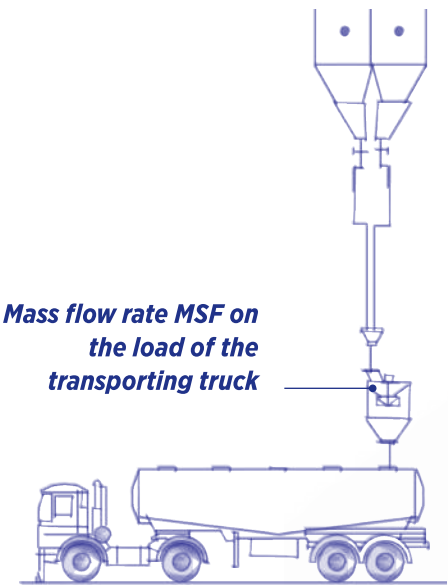


# MSF (mass spin flow) & continuous weighing machine

The MSF is a mass measuring device of continuous delivery rate.

Using an integrated torsion transducer and a processor of Coriolis force data, the MSF is capable of instantaneously detecting with a high accuracy the mass flow rate of solid products such as pellets, flours, kibbles, silica, concrete, minerals etc.

Generally, any solid product of less than 3 cm in size, ensuring a wide range of capacity: from 4 to 80 ton/h.



## GRAVIMETRIC PLATE & CONTINUOUS WEIGHING MACHINE MiFlow

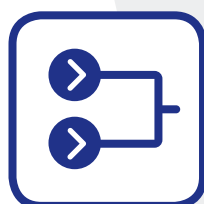
The MiFlow technology is a mass impact meter used to detect the instantaneous flow rate of solids and regulate their flow. Its main features include a specific oscillating valve that calibrates the product passage area. This valve is feedback-controlled by the flow signal, allowing adjustment of the set dosage. MiFlow is ideal in various sectors for the dosing or weighing of powders and granules.

| Type       | Capacity    |
|------------|-------------|
| MiFlow 100 | 0.2-10 m³/h |
| MiFlow 150 | 0.5-20 m³/h |
| MiFlow 200 | 1-50 m³/h   |
| MiFlow 300 | 10-150 m³/h |





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