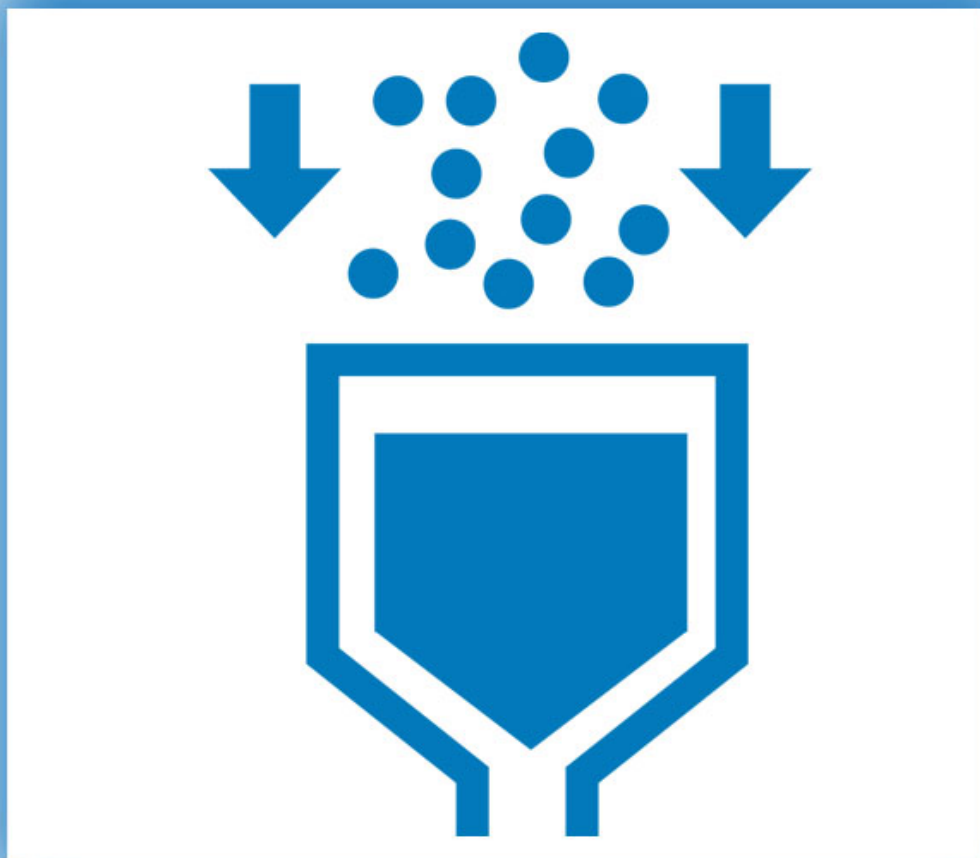


Material Handling, Drying, Dosing, Blending, Chilling and Cooling



Advantages of vacuum resin drying for more molding applications



A new vacuum resin dryer enables more molding and extrusion processors to obtain the substantial advantages of vacuum dryers over conventional desiccant systems, including lower operating cost, increased efficiency, and greater control over the drying process.

The VBD™ 300 vacuum dryer from Maguire Products, Inc. achieves throughputs of up to 300 lb. (136 kg) per hour, which is double the capacity of the company's VBD 150 model.

While the VBD 150 is sized for the throughputs of many injection molding machines and of small extrusion lines like those for medical tubing, the new VBD 300 model opens the benefits of vacuum resin drying to a broader range of applications. Maguire also offers the VBD 1000 dryer for high-volume operations.

In comparison with desiccant dryers, the VBD vacuum dryer consumes 60% less energy, dries resin in one-sixth the time, and substantially reduces the heat history to which polymer is exposed. The speed with which the VBD system removes moisture makes properly dried polymer available for production only 35 minutes after a cold start.

Like other VBD models, the VBD 300 dryer is a gravimetric system that employs load cells that precisely monitor the weight of material at two critical points, making possible precise control over material consumption and documentation of process conditions for certification to customers. Use of load cells also enhances control over the drying process, according to Frank Kavanagh, vice president of sales and marketing for Maguire Products.

“Load cell control makes it possible to precisely match the drying rate to the processing rate of the molding machine or extruder, which is particularly important for proper drying of technical polymers like nylon,” said Mr. Kavanagh. “And because load cell control ensures that no material is left in the dryer when production stops, the next production run can start immediately.”

VBD vacuum dryers use gravity to move material through three vertically arranged stages of the drying process, with the discharge of material from one stage to the next controlled by high-speed slide-gate valves with an accuracy per dispense of +/- 4 grams. The vessels for the three stages are, from top to bottom: a heating hopper that brings resin to a target temperature; a vacuum vessel in which vacuum reduces the boiling point of water, causing moisture within the pellets to volatilize and be forced out of the pellet into the low-pressure environment surrounding it; and a pressurized retention / take-away hopper that is continually purged by a membrane air dryer to maintain the target level of dryness until the material is discharged. The vacuum vessel and retention hopper are mounted on load cells.

The VBD 300 dryer has an intuitive, easy to use touchscreen controller that allows operators to manage all drying parameters from just one screen. Like all Maguire equipment, the new dryer comes with a five-year warranty.

About Maguire Products

Maguire Products, Inc., headquartered in Aston, Pennsylvania, U.S.A., is the world's largest supplier of gravimetric blenders, liquid color pumps, and vacuum dryers and also manufactures loading systems, auger feeders, granulators and related equipment and software. Its customers include injection, blow, and rotational molders, extrusion processors, and compounders. Founded in 1977, Maguire operates six manufacturing facilities in Aston.

Saving energy made easy



The CARD R system, a combination of drying hopper and air compressor with heat exchanger, recovers the heat, which supplies compressed air as a by-product and which is usually released to the environment, and utilises it for pre heating in the primary or secondary circuit.

The German Cogeneration Act (KWKG) has been designed to promote the use of self-generated energy. In resin drying, this potential often remains unused, because high energy investment is necessary during plastic processing. With desiccant dryers, for example, drying air is generated by a desiccant which must subsequently be dehumidified again by means of heat. This heat is partly released to the environment, while the remaining part is used to heat up the drying air.

During this, the topic of energy recovery or energy saving is excluded. On the contrary, the CARD compressed air dryer series from the FarragTech GmbH functions according to the principle of the tried and tested dual-circuit compressed air principle and can be additionally combined with a compressor as well as a heat exchanger. That way, energy can be efficiently saved and a reduction of operating costs can be achieved. On this year's Fakuma trade fair in Friedrichshafen, the new CARD R system will be presented for the first time.

With desiccant dryers, complete energy recovery is often dispensed with, because the recovered heat is already partly used to heat up the drying air. That is why compressed air dryers working according to the dual-circuit principle are offering a large number of advantages: Compared to a simple dehumidification unit, using this new system from FarragTech, with a capacity of the drying hopper of just 40 litres, 1 kW energy can already be saved due to the lower compressed air consumption. The average saving potential is almost 70 percent, because the resin to be dried is preheated in the upper part of the hopper due to heated ambient air. The actual drying process takes place in parallel to the lower part so that only about 30 percent of the otherwise required compressed air is required in contrast to pure compressed air dryers at the same material throughput.

The CARD R system from FarragTech is a further development of the CARD M/L series and is supplied with a stand-alone compressor, the heat of which can be reliably recovered. During the process, waste heat is recovered via oil or air heat exchangers with approximately 80 to 90° C. The heat exchangers themselves are directly integrated into the housing of the air compressor.

By means of this energy, the air is preheated in the secondary circuit with the CARD M and L. That is why clearly less additional heat output is needed in order to heat the air to the required drying temperature. If drying takes place at 80° C, for example, which is the case with materials such as polyamide or ABS, then no additional heat output is required. Thereby, the following applies: The better the air compressor is utilised, the lower are the costs per Nm³/h of air. With low take off, more energy is thus required to generate compressed air than with higher utilisation.

Another advantage of the new CARD R is that the system is individually designed for each customer: Depending on the individual requirement, a suitable concept is made according to which the compressor size is calculated for the CARD R.

About FarragTech

FarragTech was originally founded in 1991 as FASTI by Rainer Farrag, the inventor of the first compressed air dryer, and by Bernhard Stipsits. After both managing directors decided to go separate ways in 2002, Rainer Farrag founded the FarragTech GmbH effective from 1st June 2005. The company specialises in peripheral devices for further processing of plastic resin, increasing the quality of products as well as the productivity of the processing machines. The portfolio of the manufacturer includes resin dryers which are a further development of the compressed air dryer invented by Rainer Farrag, as well as systems for internal mould cooling, various loader and atmospheric air drying devices for mould area protection, of which were also developed by FarragTech. The company currently employs eight staff in its Wolfurt headquarters in Austria. Production takes place in Slovenia, with marketing carried out worldwide.

Plastic injection molding can be eco-friendlier than you think

Once plastics were invented in early 1900's, using plastics and making plastic products has become an inseparable part of how humankind in expanding the boundaries of creativity. Plastics have revolutionized product manufacturing by replacing other materials. Plastics are now everywhere and will be a part of our lives forever.

Plastic injection molding is playing a big part in this plastic revolution. Injection molded parts are in virtually any product you buy from stores. Looking at the vast amount of plastic parts that are assembled together to make products you might think what can be done to make them eco-friendlier. How to make products in a more sustainable way? But injection molding is injection molding, then apply secondary operations to make all look good? Right?

Not necessarily. Imagine,

If you didn't have to paint the parts to hide molding defects?

If you could reduce the use of materials at the same time?

If you could also greatly increase the content of recycled material?

This and more is possible with high heat molding. It makes a big impact in reaching toward more sustainable, eco-friendly manufacturing of injection molded parts. This method of injection molding is also called 'Heat and Cool Molding' or 'RHCM' and it can be done with hot water, steam, oil, electrical plugs or by induction. Heating by induction is the fastest, most economical and safest technology for Heat and Cool Molding. Here is shortly listed what makes high heat molding with Roctool induction heating technology more ecological production method.

- No paint needed. With Heat and Cool technology (H&C) injection molded parts will have a superior surface finish. Painting is not needed anymore to hide molding defects. Defects will be completely eliminated or drastically reduced.
- Decoration and textures directly from the mold. With up to 97% replication of the mold surface, the part is complete and ready for assembly right after demolding. With laser texturing anything is possible from zero reflection surface to nano-scale holograms. Piano-finish, high-gloss surface directly from the mold is possible even with fiber filled plastics.
- Part lightweighting. Lower part weight and material savings can be achieved reducing the wall thickness and/or by using foaming agents.
- Recycling. Recycling of plastic that is not painted is naturally easier and production time rejects can be reused.
- Using recycled. It is possible to greatly increase the content of recycled material and still achieve premium appearance for the application.
- Eliminate assembly parts. Through high surface replication, assembly parts can be eliminated. High-gloss and low-gloss surfaces can be molded perfectly side by side within the part.
- Faster and effective. Other heating methods are no match for induction and will end up costing more, taking more time and using more energy. Heating with induction will take just seconds and can be embedded into cycle time. With enhanced cooling, there is no production time penalty.

Roctool has perfected the induction-based heat and cool technology. At Roctool, molding matters.

By Matti Maatta, Senior Designer @ Roctool Inc.

High foaming pressure without IMM upgrading

ProTec Polymer Processing GmbH is currently developing a peripheral system which enables straightforward integration of a novel physical polymer foaming process into existing injection molding lines. The innovative process, recently presented by Kunststoff-Institut Lüdenscheid and Linde AG, involves loading dried pellets with CO₂ in a pressure vessel and then feeding them to the injection molding machine.

The novel process thus combines the easy of handling of chemical foaming processes with the high foaming pressure of physical foaming. Good foaming results and thus considerable material savings can be achieved even with thin-walled moldings. External CO₂ loading has already been tested on various types of plastics which remain reproducibly foamable over a number of hours. ProTec's integrated peripheral solution will soon make this innovation industrially viable for a wide range of users.



Processors will in future be able to integrate the new system quickly into their manufacturing lines, since existing injection molding machines, depending on the particular model, will require little or no modification. The pellets are prepared and fed completely automatically thanks to an integrated peripheral solution from ProTec consisting of dryer, autoclave and conveying unit. Since the peripheral can supply a number of machines simultaneously, manufacture of both small and large batches is economically viable. The integrated unit is operated via a network-compatible PLC controller which is already fitted to all dryers and dosing units from ProTec's SOMOS product lines.

Weight savings for the automotive industry and many other sectors

The novel foaming solution is particularly suitable for manufacturers in the automotive industry wishing to produce lightweight components in order to cut consumption of resources and emissions or to increase the range of electric vehicles. In addition to weight savings, other benefits of the process include improved thermal and acoustic insulation due to the cellular structure of the moldings.

The new process is also of interest to other sectors where there is a desire to reduce materials usage, for example for the electrical, electronics and furniture industries or manufacturers of domestic appliances and leisure articles. Previous testing suggests that weight savings of up to 60 per cent can be made.

Potential machine and tool savings

Physical foaming also has further advantages: the viscosity of the polymer is lower, resulting in improved flow characteristics. This means lower mold filling pressures can be used. Under certain circumstances, the same process can be carried out using an injection molding machine with a lower closing force or a less rigid tool. At the same time, for many plastics better dimensional stability is achieved than in conventional injection molding because the foaming reduces anisotropic shrinkage. If high surface quality is required, a gas counterpressure process may for example be used.

As straightforward as chemical foaming

The process developed by Kunststoff-Institut Lüdenscheid and Linde combines the strengths of physical and chemical foaming, the latter being considered relatively uncomplicated since a blowing agent is merely added to the polymer prior to injection molding and no changes to the injection molding machine are required.

Physical foaming, on the other hand, permits high foaming pressures and avoids deposits caused by residues arising during chemical reactions. In the past, the blowing agent has conventionally been directly injected into the plastics melt, which has normally required machine modifications such as new screws, a different injection unit and back pressure control. But not with the new process: its only requirement is for the machine to have a needle valve nozzle.

About ProTec

ProTec Polymer Processing GmbH is an international one-stop shop supplier to the plastics industry with a focus on injection molding, extrusion and blow molding. Its range of services covers components, solutions and turn-key systems for efficient materials handling, treatment and recycling of plastics and for manufacturing long fiber reinforced thermoplastics using LFT pultrusion lines. Managed by Peter Theobald and Dirk Egemann, the company has some 120 staff at its base in Bensheim, near Darmstadt, Germany.

Material loader range extended

At the 10th anniversary celebration of WITTMANN BATTENFELD staged in June 2018, WITTMANN presented its extended series of FEEDMAX basic material loaders. FEEDMAX basic is the ideal solution for medium-sized and large feed volumes. The components of FEEDMAX basic material loaders originate mainly from in-house sheet metal production and are put together according to customers' specifications.



FEEDMAX basic material loaders from WITTMANN, now also available with volumes of 15 and 25 liters

FEEDMAX basic central material loaders with feed volumes of three and six liters have been on the market for a number of years already. From now on, WITTMANN is also offering appliances with 15 and 25 liters capacity. These new models now make it possible to connect material loaders from this series with larger drying hoppers or gravimetric blender systems with higher material throughputs as well.

All parts of the FEEDMAX range which come into contact with the material to be processed are made of stainless steel, and the central part is connected to the pedestal by a clamping ring. The flow of granulate into the material loader can be optimized by simply twisting the top part of the appliance.

The standard version with a comparatively high wall thickness ensures that the material inlet of a FEEDMAX can also be exposed to freely flowing abrasive granulates right from the start and without exception. Its cast stainless steel inlet can be equipped with different inlet valves. A sealing surface on the vacuum stopper ensures reliable functionality on the vacuum side of the appliance. The lids of the larger models are also very easy to open, since there are no hoses in the way.

Setting the materials handling period with a potentiometer is also very simple. In combination with a blower station, it is possible to handle both long and short transport distances. The handling period can be adjusted very quickly to changed conditions.

Several appliances can be connected with each other and operated jointly via a central operating unit, which then makes it possible to set up a small central material handling system.

The status of every FEEDMAX is easily visible, and from a distance. The bright ambiLED status display signals any conditions which may present problems, such as lack of material.

The new FEEDMAX basic material loaders with 15 and 25 liters capacity can be used for material throughputs from about 50 to 100 kg/h, and be operated with blower stations of different outputs.

About WITTMANN

The WITTMANN Group is a worldwide leader in the manufacturing of injection molding machines, robots and peripheral equipment for the plastics industry. Headquartered in Vienna/Austria, the WITTMANN Group consists of two main divisions, WITTMANN BATTENFELD and WITTMANN, which operate 8 production facilities in 5 countries, including 34 direct subsidiary offices located in all major plastics markets around the world.

WITTMANN BATTENFELD focuses on the independent market growth in the manufacturing of state-of-the-art injection molding machines and process technology, providing a modern and comprehensive range of machinery in a modular design that meets the actual and future requirements of the plastic injection molding market.

WITTMANN's product range includes robots and automation systems, material handling systems, dryers, gravimetric and volumetric blenders, granulators, mold temperature controllers and chillers. With this comprehensive range of peripheral equipment, WITTMANN can provide plastics processors with solutions that cover all production requirements, ranging from autonomous work cells to integrated plant-wide systems.

The syndication of the WITTMANN Group has led to connectivity between all product lines, providing the advantage plastics processors have been looking for in terms of a seamless integration of injection molding machines, automation and auxiliary equipment – all occurring at a progressive rate.

Two technologies in one system



The MCHybrid blender is a unique dosing concept that combines two technologies into one system: batch blending and in-line dosing.

The main materials or regrinds are mixed in an extreme compact gravimetric batch blender. Because the system only blends the main materials, the blending speed is high and therefore the batch blender remains small.

Throughout the years Movacolor has become very experienced with all relevant issues in the packaging industry. Therefore the company developed the MCHybrid as a perfect solution for injection molding in this specific industry.

Features MCHybrid 30

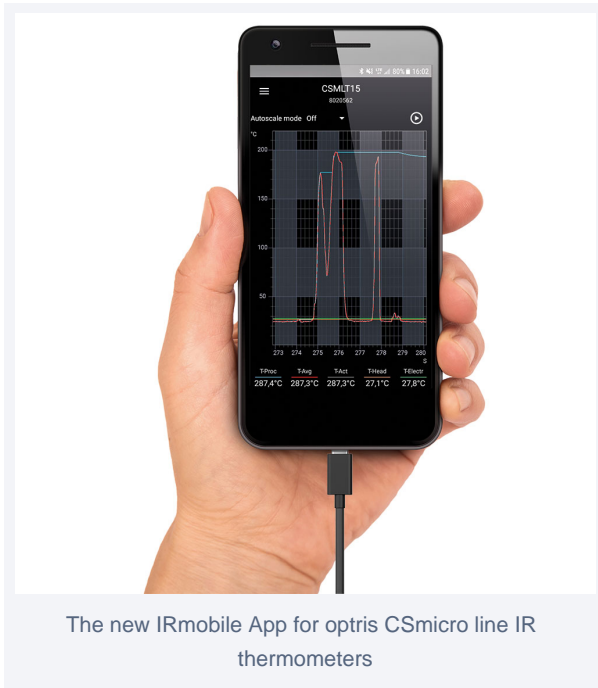
- Fully gravimetric
- 8" full color touch screen with user-friendly interface
- Able to store up to 500 recipes
- Capacity max. 350 kg/h
- Removable and spill-free main hoppers
- 2-4 main components and max. 14 in-line additives
- Extremely compact
- Able to handle powders and liquids in one system
- Quick and easy change of additives
- 100% control of all your materials

The most important advantages of the MCHybrid for this industry are a perfect mix of the main materials, reduction of mixing and cleaning time, 100% dispersion of UV-blocker in the end-product, in combination with the MCBalance.

Compact infrared thermometer with technical improvements

Smartphone app allows mobile use

The compact infrared thermometers of the optris® CSmicro line have been technically improved and now have even wider applications. “The CSmicro is one of our best-sellers, proven especially in the OEM area many times. Our ambition however remains to also continue to develop the classic sensors”, explains Dr. Ulrich Kienitz, CEO of Optris about the latest product update. In addition, the range can now also be used with the Android App “IRmobile” on smartphones and tablets.



CSmicro infrared thermometer becomes faster and

The CSmicro LT, CSmicro 2M and CSmicro 3M pyrometers have miniaturized stainless steel heads as well as electronics built into the cable. This allows integration within tight spaces as well as high temperature resistance of the LTH measuring head up to 180 °C. The completely overhauled electronics ensure low signal noise and shorter setting times. The extension of the command list as well as the option for all CSmicro models to be available in two-wire technology with mA-output means the pyrometers can now be used even more flexibly for customer-specific requirements.

Mobile programming and use with the IRmobile

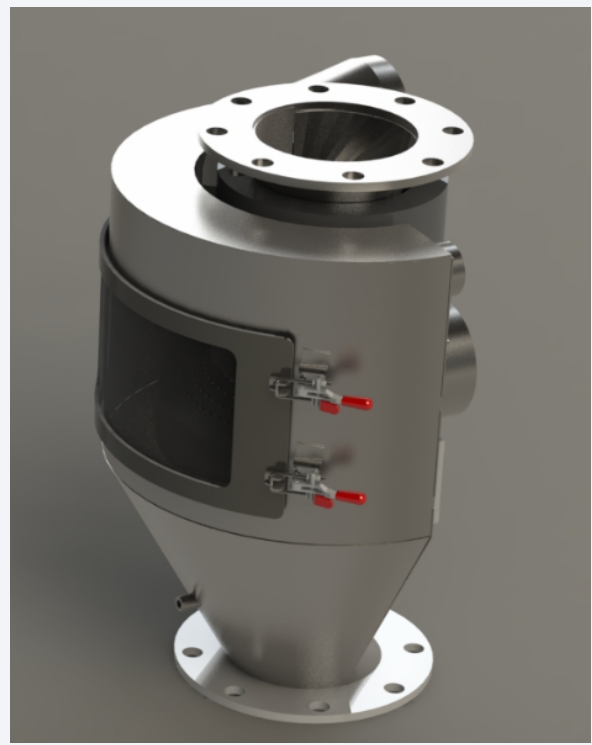
All CSmicro line devices can be used with Android smartphones and tablets via the IR App Connector (USB adapter). The Connector has a micro USB output as well as adapters for USB-C and USB-A. The IRmobile App allows modern mobile programming of the sensors, as well as immediate temperature measurement and analysis. The App can be downloaded free of charge from the Google Play store.

About Optris

Optris was founded in 2003 and has established itself as one of the leading manufacturers of non-contact temperature measurement devices. The product range consists of both portable and stationary infrared thermometers and online infrared cameras for thermographic real time analyses. Optris products are developed and produced in Germany to ensure the highest standards in quality, a central element of company policy.

New high performance dust removal system from Pelletron

Pelletron, the leader in high performance dust removal systems for more than three decades, has once again developed a cutting-edge technology to remove dust and streamers from all plastic pellets and regrind materials.



The new half-round cone technology (patent pending) is the foundation for the HR45 DeDuster®. As a huge improvement on the existing dust removal technology that already leads the market, this new model will ultimately replace the XP45 DeDuster® model that primarily serves the Plastics Processing and Compounding industry (e.g extrusion & injection molding).

With an overall capacity of 10,000 lb/hr (4.5t/hr) for average bulk density materials (PE, PET, PC, PMMA, PA, etc.) the advantages of the new HR45 DeDuster® are:

- Huge savings in operating costs due to 40% less power consumption.
- Reduced equipment costs due to smaller filters and cyclones (700 CFM versus 1100 CFM).
- Additional reduced equipment costs due to an automatic inlet flow control feature that eliminates the need of a rotary valve to control the solids flow rate into the DeDuster®.
- Fits in small spaces due to reduced height (0.6m versus 0.8m flange to flange height).
- Super high efficiency cleaning performance due to less carryover.
- Easy to operate due to no tools access viewing window.

New metal separator from Mesutronic

The Plastron 05 K is a new metal separator from Mesutronic. It was developed for the examination of plastic granulates, ground material and powders for metallic foreign bodies. It thus completes the company's extensive range of products for injection moulding and extrusion for the application case of slow-flowing material columns. It is installed directly between feed systems such as hopper loader or mixer and the plastification unit.



Particular consideration was given to the temperature stability and detection accuracy of the detection coil. This was achieved through the use of precision milled parts and a winding support made of modern composite material.

The ejection unit impresses with absolutely reliable ejections of both bridge-forming and slumping or free-falling materials. It can also be dismantled for cleaning in a matter of seconds without tools.

The high-quality AMD 05 functions as the evaluation electronics. Apart from excellent immunity to interference, this also offers ideal communication options in the sense

of digitalization.

This combination of innovation and reliability results in top performance data for precision, operating reliability and ease of cleaning. Even in the basic version the system can be used for material temperatures up to 120 °C. This offers considerably greater flexibility with the increasing use of pre-dried granulate.

About Mesutronic

MESUTRONIC Gerätebau GmbH has been producing innovative metal detection technology for the plastics industry for over 25 years. Customers all over the world are supplied with metal detectors and separators from the company's headquarters in Kirchberg im Wald.

Homogenizing powders and granules

The successful mixer module MB 2I for powders, which is used for many different processes, has now been adapted by motan-colortronic for the dosing systems MINICOLOR V and G as well as for simple applications in external systems.



The best technology to homogenize powder additives, masterbatch, virgin material and regrind is mechanical forced mixing. Due to customer demand, the mixer module MB 2I, which has previously been used in combination with the dosing unit MINIBLEND V, has now been developed for use with additional systems.

With the product name MC 2I, a version that can be used in combination with the dosing and mixing MINICOLOR-series will be available from the start of FAKUMA 2018. In addition, processors can also tie-in the unit with other system technology and applications. Different connection, installation and protection options enable flexible use.

The unit can be installed directly under the dosing unit on the machine or it is also possible to combine it with material loaders and proportioning valves as well as small drying bins. No matter how it is installed, the casing and mixing module remains easy to clean.

The unit is operated with the VOLU MC control which is available as a separate module. It reliably adjusts the mixer revolutions according to the defined setpoint value for different materials and blends.