



ColorSave®

New smart feeder technologies cut colorant and additive costs
delivering the highest accuracy in the industry



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Introduction

As manufacturers continue to maintain a close eye on production costs in the highly competitive plastics market, they increasingly look for new technology to help them reduce material costs, scrap and product rejects. A new generation of smart feeders using Industry 4.0 technology can help producers improve efficiency and lower costs.

Two feeders in Ampacet's new LIAD Smart line, developed by the inventor of the single-channel gravimetric feeder, feature patented smart technology to deliver the highest accuracy in the industry. Their unique hopper designs and advanced algorithms assure precise dosing regardless of material density or other parameters and allow processors to run consistently at the low end of color tolerance specifications. With plus or minus 10% tolerance ranges, processors can run accurately in the minus 10% zone, saving significantly on color costs over time.

The unmatched accuracy of the LIAD Smart ColorSave®-Micro and ColorSave® 1000 feeders enable precise dosing of high value masterbatches and additives at the lowest possible LDR, including letdown ratios of less than 1%, allowing manufacturers to significantly reduce material costs.

Ultra-precise dosing for micro molding

As small molded parts become more highly engineered, the ability to accurately feed additives and colorants in small doses is critical to ensure the product's physical properties are not altered.

A fast-growing industry segment, the micro molding market is expected to reach more than \$1.5 billion by 2025, with North America projected to occupy the largest share – nearly 40%, according to Grandview Research.

Product rejects as a result of inconsistencies in masterbatch additives can occur in any size product, and often are caused by insufficient additive added to the resin mix. As the product becomes smaller, the possibility of a reject increases due to extremely tight tolerances. As gravimetric feeders naturally vary from the set point, the likelihood of a small product reject can easily reach 5%-10%, according to some manufacturers, and possibly even higher as the product size becomes smaller. In addition, when running high-cost additives or colors at extremely low LDRs, any inconsistencies in feeding can increase costs quickly.

The LIAD Smart team, with more than 40 years of experience in weighing applications, has introduced the LIAD Smart ColorSave® - Micro for use in injection molding, extrusion and extrusion blow molding processes. The industry-first gravimetric feeder for the fast-growing micro-molding industry segment enables accurate dosing down to one pellet for applications in the medical, automotive, electronics and micro optics industries. The easy-to-clean ColorSave-Micro is also ideal for use in applications requiring clean rooms and in research, testing and prototyping facilities.

To obtain better weighing accuracy and greater additive control, the patented ColorSave-Micro feeder uses a single vibrational, protected inner channel from a unique lightweight material to eliminate exterior vibration and consistently deliver an accurate dose. Whether for more efficient production of small parts or to reduce material costs for extruded parts, ColorSave-Micro can accurately dispense materials with LDRs as low as 0.1% to 0.3%. ColorSave-Micro is the only micro feeder that is engineered for gravimetric weighing, which ensures consistent accuracy when compared to today's volumetric micro feeders.



One plastics producer, TAV Medical, which contracts with some of the world's largest medical device manufacturers, turned to ColorSave-Micro for accurate small product dosing.

“I have not found a solution for small product dosing until now. The simple truth is that when processing small jobs, no gravimetric or volumetric feeder was able to provide me with peace of mind in terms of efficiency, accuracy and consistency. Since installing the ColorSave-Micro on our small product line, we have not had a single reject due to color.”

The uniquely-designed inner channel of the feeder lines up the pellets as they advance and control the rate of additive movement via electromagnetic pulses. Loss in weight analysis via advanced algorithms speeds up or lowers the rate of the vibrations as needed – a significant advancement over step motors alone or conveyor systems, which until now have not delivered high dosing control with low LDRs.

The ColorSave-Micro is easily calibrated using the control panel, which monitors loss in weight determined from cycle to cycle. The set value is calculated from the specified shot weight, and the percentage of masterbatch or additive. This also means there is no machine down time to switch parts, with sterilization requiring less than a minute by taking the dispenser out of the protective channel and air blowing all material.

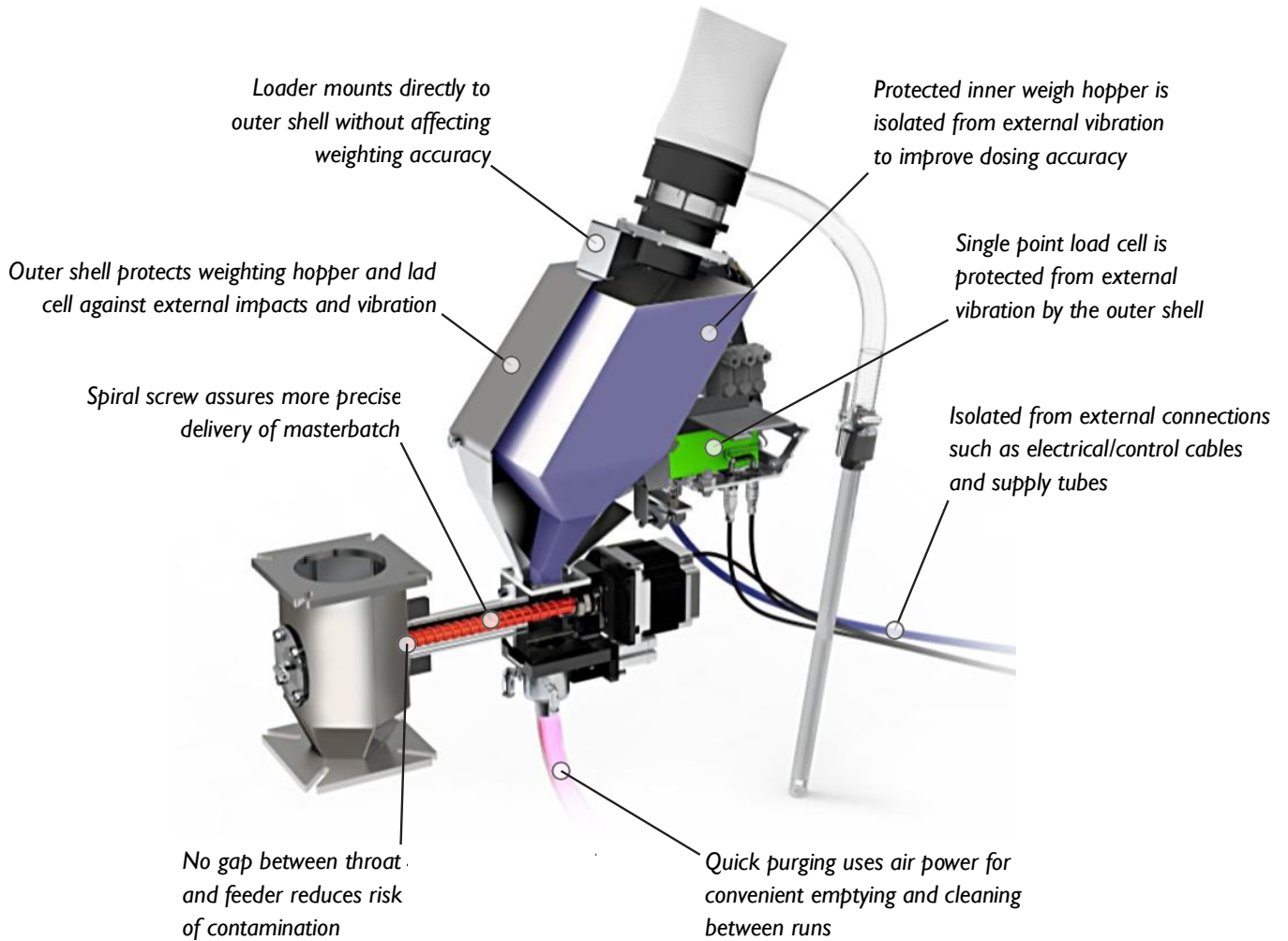
With this system, small product manufacturers can finally take a break from manual mixing, difficult calibration, product rejects and overconsumption of masterbatch additive. The feeder, which is compatible with real-time, in-line color management technology, accurately and consistently supports the use of nearly all additives, including flowable, non-dusty powders, granules and micro pellets.

ColorSave 1000: For larger dosing quantities

The ColorSave 1000 is the only gravimetric feeder that features an outer protective shell with an inner floating weigh hopper and single-point load cell to ensure accuracy, even in industrial settings affected by vibration and other outside influences. This precision, the highest in the industry in additive feeding, saves up to 35% on masterbatch use when compared to remote batch blending systems, up to 15% compared to a batch blender at machine throat and up to 50% compared to a volumetric feeder.

Other benefits of the feeder include user-friendly design, which allows operators to quickly empty components between jobs through a quick-purge auto system, resulting in significant savings on labor and production time. In addition, the loss-in-weight controlling function allows optimum adjustment of operating points. The ColorSave 1000 features automatic calibration, which enables processors to consistently feed at the desired set point. ColorSave 1000 can be used with any injection molding, extrusion and blow-molding machine. The feeder also allows for real-time data collection and management of material consumption.





Two feeder options, the ColorSave 1000 and the ColorSave-Micro, enable manufacturers to reduce additive and colorant costs while ensuring the accuracy needed to meet tight tolerances and product property specifications.

About Ampacet

Founded in 1937, Ampacet Corporation is a leading global masterbatch supplier committed to designing innovative custom color, special effect, high performance and sustainable products and solutions. Ampacet also manufactures a proprietary line of machinery and feeders for the plastic industry aimed to improve efficiencies in plastics manufacturing.

Headquartered in Tarrytown, N.Y., Ampacet employs more than 2,000 people worldwide, with 26 manufacturing sites including technical and color development centers in 19 countries throughout the Americas, Asia and Europe.

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