

*Development of ancillary equipment fundamental for plastics and rubber processing*

## BLENDING AND METERING EQUIPMENT

Several Italian manufacturers today operate in the specific field of blending and metering systems for plastics and rubber. In recent years they have been developing more and more specialized solutions with a high degree of technology. In the following pages some of these companies offer their contribution to a complete overview of the state-of-the-art today available for carrying out two fundamental operations for the success of plastics and rubber processing technologies.

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A study conducted by Moretto on the dehumidification of pigments or masterbatch was prompted by the performance of Dry Air, the smallest double-tower dryer available on the market. Designed for the treatment of engineering materials and low throughputs, this unit has allowed in-depth functional tests on different materials such as masterbatch. Its throughput can be tuned according to the demand, protecting the polymers thanks to a high and constant efficiency, with dew point values in the region of 55°C and an average of -50°C with a difference of only 4-5 degrees, a characteristic that is highly appreciated in moulding.

In order to process virgin materials, the humidity level must be very low so that the moulded parts can satisfy the high criteria set by European standards. However often little attention is paid to the influence of humidity contained in the masterbatch. As a matter of fact, the latter can contain very high percentages of humidity, more than 2%, and despite being used in relatively small quantities, they can make the treatment and the processing of engineering polymers less efficient and safe.

In the light of these considerations, Dry Air is particularly indicated for this use, both for the small size dimensions and the constant quality ensured. During the testing phase, masterbatches were considered in all their applications and, even if the temperature of treatment is always lower with respect to the basic

material to process, Dry Air can reach temperatures up to 180°C and thus handle technical materials.

Starting from these assumptions, a dosing system has been developed for the treatment of very hot materials such as PET up to 180°C, and for a number of ingredients ranging from 2 to 4. As a result, the DVM 18 H dosing unit was designed for high temperatures with up to four stations and the possibility to treat the different ingredients separately. This dosing unit, specially devised for this application, can dose granules, masterbatches or additives up to 180°C. Water is not required for cooling, which is a great advantage, considering that the water could condense and leak dangerously during the heat exchange.

Other characteristics have been thoroughly considered, such as the creation of dosing systems composed by a DVM 18 H mounted on a base, as well as of a dosing group composed by up to 3-4 stations. Each of these stations can be equipped with Dry Air

or, on demand, with a dosing unit of the DVM range. With this version for high temperatures that keeps the direct setting of the percentages, the number of applications grows. The calibration can be checked even though it is not necessary. As a matter of fact, as for the entire range, in order to calibrate the machine it is sufficient to fill a measuring cup with the material to be dosed, weigh it and enter this weight into the control. Once this operation has been carried out, the unit recognizes the material and it is thus possible to set the percentage directly.

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