DEHUMIDIFICATION TECHNOLOGY

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Flowmatik by Moretto

In plastics transformation industry, the dehumidification has assumed a central role. This treatment is inalienable considering the high standard levels that the market required but for the industry, the dehumidification represents a cost for energy, logistic, machines, processes, and this implies the necessity to optimize costs and productions. For this reason, centralized multi-hopper systems are realized, able to use at best the energy resources. With these plants, a whole department of transformation machines can be served by taking material from an unique treatment system that includes 5, 10 or also 20 hoppers. Naturally, with this configuration it is quite difficult to control the machines connected to each hopper and consequently manage the productive capacity of every single hopper.

FLEXIBILITY

The injection molding department works programming the production of the single machines for its necessity without considering the dehumidification treatment.

Anyway, the system must guarantee a maximum production but it also must have an extreme flexibility, in order to be able to adapt itself to the requested production.

This flexibility depends mainly from the correct hoppers management.

There are many variables that contribute to influence the dehumidification process:

- Hopper size
- Type of material
- Throughput required
- Temperature of treatment
- Time of treatment
- Bulk density
- Specific airflow

It is very difficult to manage a system with 20 hoppers and all the mentioned variables guaranteeing a constant and suitable treatment; besides, an operator is necessary to interpret the requirements coming from the production department.

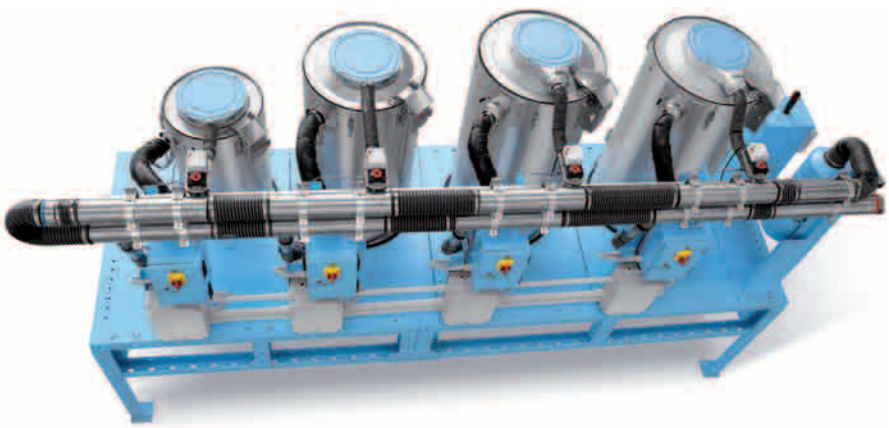
It's to highlight that in the sizing phase it is necessary to structure a system able to satisfy the maximum production for each single machines on a maximum number of materials, in the hardest conditions. This can cause the realization of an oversized plant, but necessary in order to satisfy the production peaks.

For the management of this complex demand/offer system, the answer is Flowmatik.

It is an innovative system realized by Moretto, able to manage automatically the whole process monitoring every single material with particular algorithmic. The automation counts on a close loop system. By means of an airflow measurement device, this system controls a modulating valve with the purpose to synchronize the effective airflow with that one calculated by the Flowmatik.

Every hopper is equipped with this particular system realizing a careful control of the air distribution in the single hoppers. The process is managed by Flowmatik server that controls each material in treatment, realizing a flexible and precise dehumidifying system, able to guarantee a constant treatment quality.

The dryed material request in a single hopper can decrease up to 50% as well. The reduction in the removal of material determinates an increase in the drying time and therefore a temperature rise in the mass of the polymer inside the hopper as a side effect. In this case a second valve named Antistress intervenes. By means of this valve and related temperature sensors, the thermal gradient of the polymer under process is kept constant, preventing the over-drying degradation. The unused process air in the drying circuit is given back to the dryer which operates in a closed loop treatment circuit.



Flowmatik is able to manage automatically the whole process monitoring every single material

With this device, Flowmatik is able to realize a low consumption multi-hopper system, using only 48 watt per hour per Kg of treated material.

The user interface is simple and intuitive, thanks to a color touch screen. The programming of each hopper needs to set only 2 parameters:

- Material type (ex. ABS, PA66, PC)
- Throughput (ex. Kg/h 28)

ALL THE REST IS AUTOMATIC

The standard materials memorized in the Flowmatik server are 40 and other 40 materials can be add for particular polymers, on the base of customers' needs. Flowmatik is connected to the dryer realizing a unique plant able to manage the airflow distribution and prevent the thermal stress of the polymers caused by over-drying.

The best automation in the multi-material systems can be obtained with the Flowmatik-X Dryer technology coupling. Thanks to the innovative characteristic of flexibility, X Dryer is able to produce the exact quantity of airflow requested by the multi-hopper system. Flowmatik calculates the sum of the air's demands of each hopper. The result is sent to the dryer which consequently calibrates the process airflow in order to supply exactly the requested air quantity.

In this way an On Demand drying system is realized. It guarantees a low energy consumption, able to amortize its cost in only 12 operating months.

Flowmatik and X Dryer are the most innovative solution in the multi-material dehumidifying system.

Flowmatik can be interfaced to Mowis supervising system which has the possibility to manage up to 5 server where each one can control from 2 to 32 hoppers. Mowis can supply process data, production report, statistic data or link to company informatics systems. Moreover, Mowis is able to perform the remote control of the Flowmatik by the Teleservice software pack (post sale remote diagnostic service).

Flowmatik, X Dryer and Mowis are exclusive Moretto's OMS&P products.