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Liquid color dosing in injection molding and in extrusion

colorDoS - dosing system for liquid color established in production

September 2023: The compact dosing system colorDoS of HNP Mikrosysteme, developed for fast and clean color changes of liquid colors in plastic injection molding, has proven itself in production. An extension of the system for use in extrusion will be presented at Fakuma 2023.

colorDoS is easy to operate, enables rapid implementation in existing production lines, and ensures high color fidelity and clean color changes. The precise dosing and especially the fast color change help to reduce waste. This enables cost savings and a more sustainable production process.

Two years after the product launch, the colorDoS system has entered production. Zilloplast Kunststoffwerke Höllwarth of Austria has equipped more than half of its moulding machines with colorDoS, according to production manager Michael Kreidl. Zilloplast produces colored rings for technical papers and performs color changes several times a day. The color addition is 0.03%, which corresponds to 0.04 g of color per shot. Particularly convincing were the easy handling of the system, the savings in working time and material, and the excellent technical advice provided by HNPM.

Components include a modular micro annular gear pump mzr-7245, dosing nozzle, container holder with load cell and display control. Depending on the metering time and viscosity of the liquid color, the micro pump doses volumes from 0.02 to 100 g of color per shot.

Clean color change plays just as important a role in extrusion as it does in injection molding, and the use of liquid color is equally possible. The continuous process as well as the significantly higher material throughput make some adjustments necessary. The diameter of the adapter tube was enlarged and thus adapted to the larger granulate throughput of up to 600 kg/h. The color addition is usually 1 to 1.5 % and, depending on the color density and material throughput, this results in a volume flow of up to 100 ml/min. For this reason, the container holder has also been strengthened to handle containers weighing up to 30 kg. In addition, drums or IBCs can be connected via a transfer pump.

In terms of control technology, it is a matter of adapting to the continuous process. The mzr-7245 micro annular gear pump used is suitable for both discrete and continuous metering. The operator enters color density and color addition, as a percentage of the granulate quantity. The control of the pump is synchronized with the control of the extruder, the process is dynamic. Functions that have already been programmed for injection molding, such as color management, alarm manager and cleaning mode, are retained.

colorDoS offers a wide range of benefits for injection molding and extrusion. A successful change to a production with liquid colors is only possible with a suitable dosing system. As such a system, colorDoS has been proven in practice.

At Fakuma, booth A1-1205, HNPM has an Arburg Allrounder 270 and shows everything live and in color: production and color change from red to yellow or violet to green or pink.

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HNP Mikrosysteme

HNP Mikrosysteme GmbH, located in Germany, develops, manufactures, markets pumps and systems worldwide which deliver small amounts of liquids fast and accurately. Beside several applications in plant engineering, chemical and pharmaceutical processing, m3r-pumps are used in the field of life science and analytical instrumentation.



Picture 1: *hnpm_pressebilder-colorDoS_für_extrusion_2.jpg* (Source HNP Mikrosysteme)
colorDoS now for the use in extrusion



Picture 2: *hnpm_pressebilder-colorDoS_für_extrusion_4.jpg* (Source HNP Mikrosysteme)
Adapter tube and container holder enlarged for use in extrusion

Note to the editors:

If you need to shorten the company name "HNP Mikrosysteme", please use the term "**HNPM**".