OPM Mechatronic

NEW

CLOOPMIX®

closed loop

The dispensing system for liquid colors and additives now with CL- color control

- **Piston dosing system with up to 6 stations**
- **Accurate metering**
- **Mixing the colors via recipe management**
- **Suitable for a wide range of containers**
- **Available as version with buffer and external color supply**
- **Closed loop color control is implemented in conjunction with the GranuTrack®**
- **Ideal for color correction in the recycling sector**

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Made in **GERMANY**

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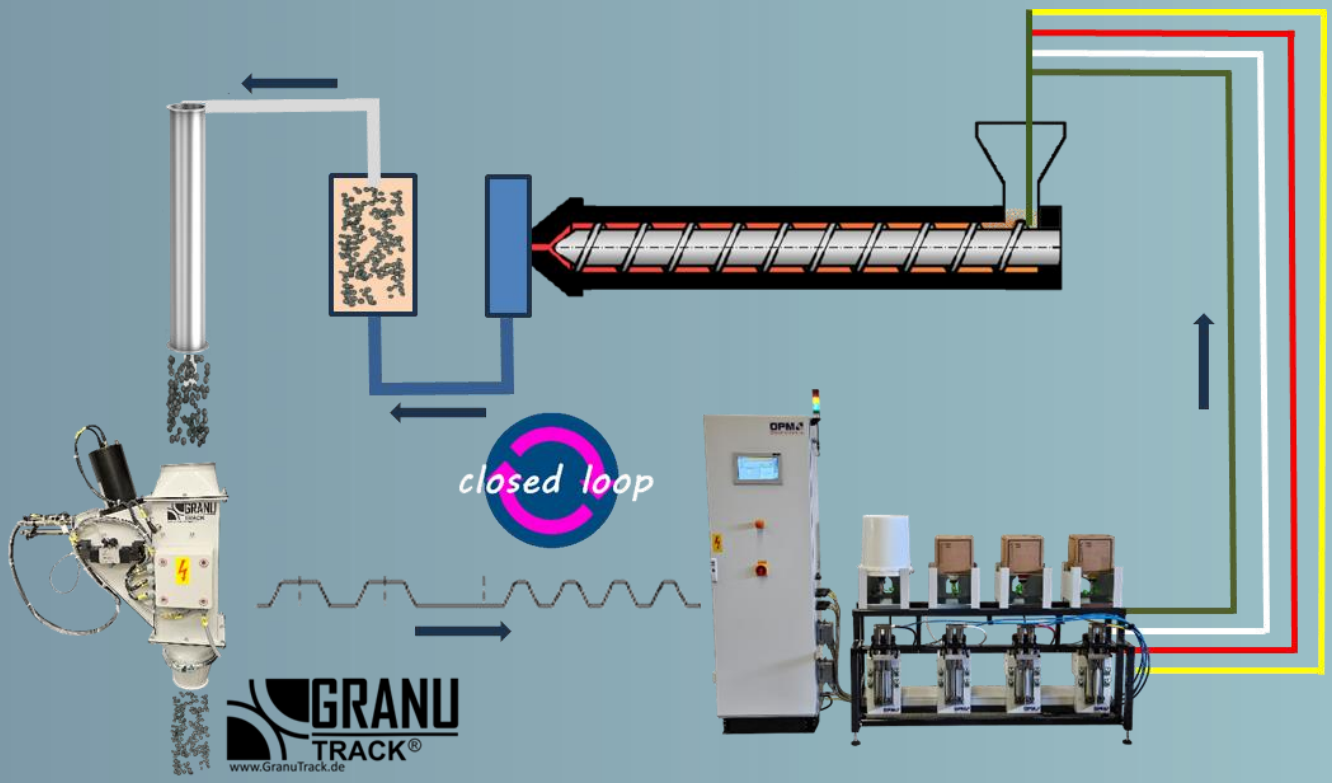
NEW

The dosing system

The CLOOPMIX® dispensing system, which was developed in close collaboration with the SKZ in Würzburg, represents a new generation of color dispensing. The core of the system are several high-precision piston dispensers that enable precise delivery of liquid colors. These dispensers work hand in hand with upstream recipe management, which allows users to mix liquid colors in precisely defined ratios. The true strength of the system is revealed in its integration with the GranuTrack®, a device that continuously measures the color values of the granules produced. These measured values are transmitted directly to the dosing system, which then automatically adjusts the color composition to always achieve the desired color quality. This dynamic adjustment is based on the CIELAB color system, ensuring precise control over the color result.



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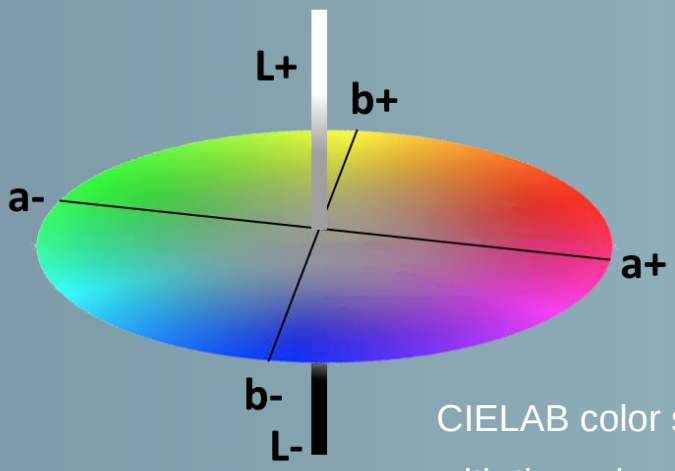
The dispensing concept:

The correction concept of our dispensing system uses the CIELAB color space to carry out targeted color adjustment. The key to correction lies in detailed analysis and adjustment along the three axes of the CIELAB system: L for brightness, a for the red-green range, and b for the blue-yellow range.



CIELAB color space simplified representation with the values *L, *a and *b

In order to be able to control a target color on all axes in both directions, you would theoretically need 6 control colors. (white for L+, black for L-, red for a+, green for a-, yellow for b+ and blue for b-) However, in the OPM concept only 4 stations are required. The “project color” is located on one station. This color component must be set so that it results in the target color in combination with a portion of each of the 3 color axes. For example, if the overall recipe is designed so that a certain proportion of the yellow correction color is present, the b-axis is changed in the (b+) direction by increasing the yellow proportion. By reducing the yellow content, the b-axis is corrected in (b-). The same can be achieved for the red/green axis with a red tone or a green tone and for the L axis with a white tone or a black tone.

This flexible adaptability makes it possible to precisely control the color result even with varying material qualities and to achieve optimal color accuracy with as few control colors as possible.

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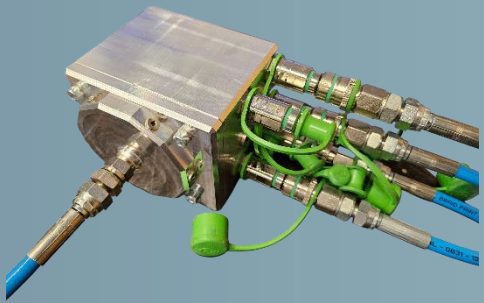
OPM's double piston dispensing units enable precise dispensing of liquid colors or additives into the extrusion process with a pressure of up to 30 bar. By adjusting the switching point, continuous, pulsation-free dosing is achieved. Specially developed valve technology ensures low-shear delivery of the medium through the pump.

Buffer systems in sizes 2l, 5l or 10l enable the continuous supply of color to the dosing system from large containers, even from a greater distance to the extrusion line. Monitoring the fill level in the buffer ensures that a consistent supply of ink is always available at the station.



The 6-way valve block from OPM Mechatronic offers the option of connecting up to six media components. The six channels converge centrally towards a common outlet using check valves that ensure mutual locking. From there, the medium is fed directly into the extruder via a short pressure line.

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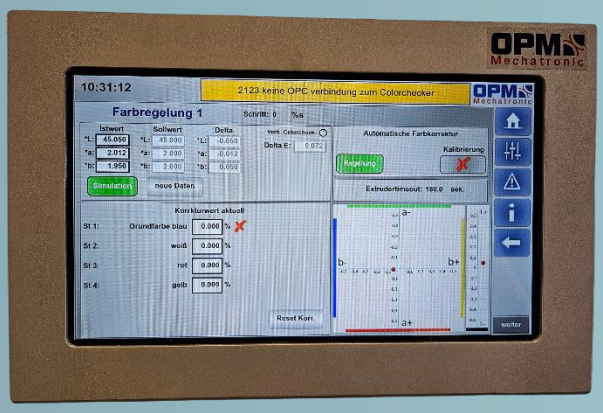
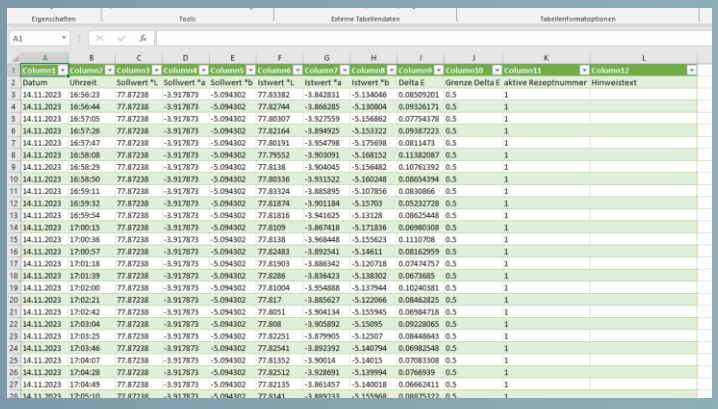
The 10-inch touch display enables easy setting and convenient operation of the dosing system with the closed-loop color control. Thanks to the integrated web server, the system can be controlled and monitored effortlessly from the office PC.





Column1	Column2	Column3	Column4	Column5	Column6	Column7	Column8	Column9	Column10	Column11	Column12
Datum	Uhrzeit	Sollwert *L	Sollwert *a	Sollwert *b	Istwert *L	Istwert *a	Istwert *b	Delta E	Grenze Delta E	aktive Rezeptnummer	Hinweistext
14.11.2023	16:56:23	77.87238	-3.917873	-5.094302	77.83382	-3.842831	-5.134046	0.08509201	0.5	1	
14.11.2023	16:56:44	77.87238	-3.917873	-5.094302	77.82744	-3.866285	-5.130804	0.09326171	0.5	1	
14.11.2023	16:57:05	77.87238	-3.917873	-5.094302	77.80307	-3.927559	-5.156862	0.07754378	0.5	1	
14.11.2023	16:57:26	77.87238	-3.917873	-5.094302	77.82164	-3.894925	-5.153322	0.09387223	0.5	1	
14.11.2023	16:57:47	77.87238	-3.917873	-5.094302	77.80191	-3.954798	-5.175698	0.0811473	0.5	1	
14.11.2023	16:58:08	77.87238	-3.917873	-5.094302	77.79552	-3.903091	-5.168152	0.11382087	0.5	1	
14.11.2023	16:58:29	77.87238	-3.917873	-5.094302	77.8138	-3.904045	-5.156482	0.10761392	0.5	1	
14.11.2023	16:58:50	77.87238	-3.917873	-5.094302	77.80336	-3.931522	-5.160248	0.08654394	0.5	1	
14.11.2023	16:59:11	77.87238	-3.917873	-5.094302	77.83324	-3.885895	-5.167856	0.0830866	0.5	1	
14.11.2023	16:59:32	77.87238	-3.917873	-5.094302	77.81874	-3.901184	-5.15703	0.05232728	0.5	1	
14.11.2023	16:59:54	77.87238	-3.917873	-5.094302	77.81816	-3.941625	-5.13128	0.08625448	0.5	1	
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14.11.2023	17:02:21	77.87238	-3.917873	-5.094302	77.817	-3.885627	-5.122066	0.08462825	0.5	1	
14.11.2023	17:02:42	77.87238	-3.917873	-5.094302	77.8051	-3.904134	-5.155945	0.06984718	0.5	1	
14.11.2023	17:03:04	77.87238	-3.917873	-5.094302	77.808	-3.905892	-5.15095	0.09228065	0.5	1	
14.11.2023	17:03:25	77.87238	-3.917873	-5.094302	77.82251	-3.879905	-5.12507	0.08448643	0.5	1	
14.11.2023	17:03:46	77.87238	-3.917873	-5.094302	77.82541	-3.892392	-5.140794	0.06982548	0.5	1	
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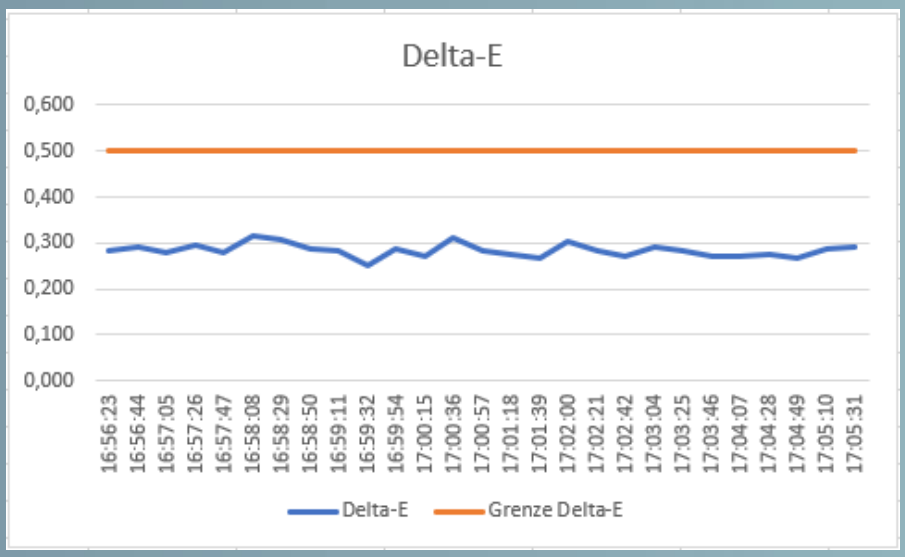
14.11.2023	17:04:28	77.87238	-3.917873	-5.094302	77.82512	-3.928691	-5.139994	0.0766939	0.5	1	
14.11.2023	17:04:49	77.87238	-3.917873	-5.094302	77.82135	-3.861457	-5.140018	0.06662411	0.5	1	
14.11.2023	17:05:10	77.87238	-3.917873	-5.094302	77.8141	-3.889233	-5.155968	0.08875322	0.5	1	

Integrated into the network, the recorded values can be automatically saved on an authorized network drive as a *.csv file.



Data recording/data comparison for quality assurance

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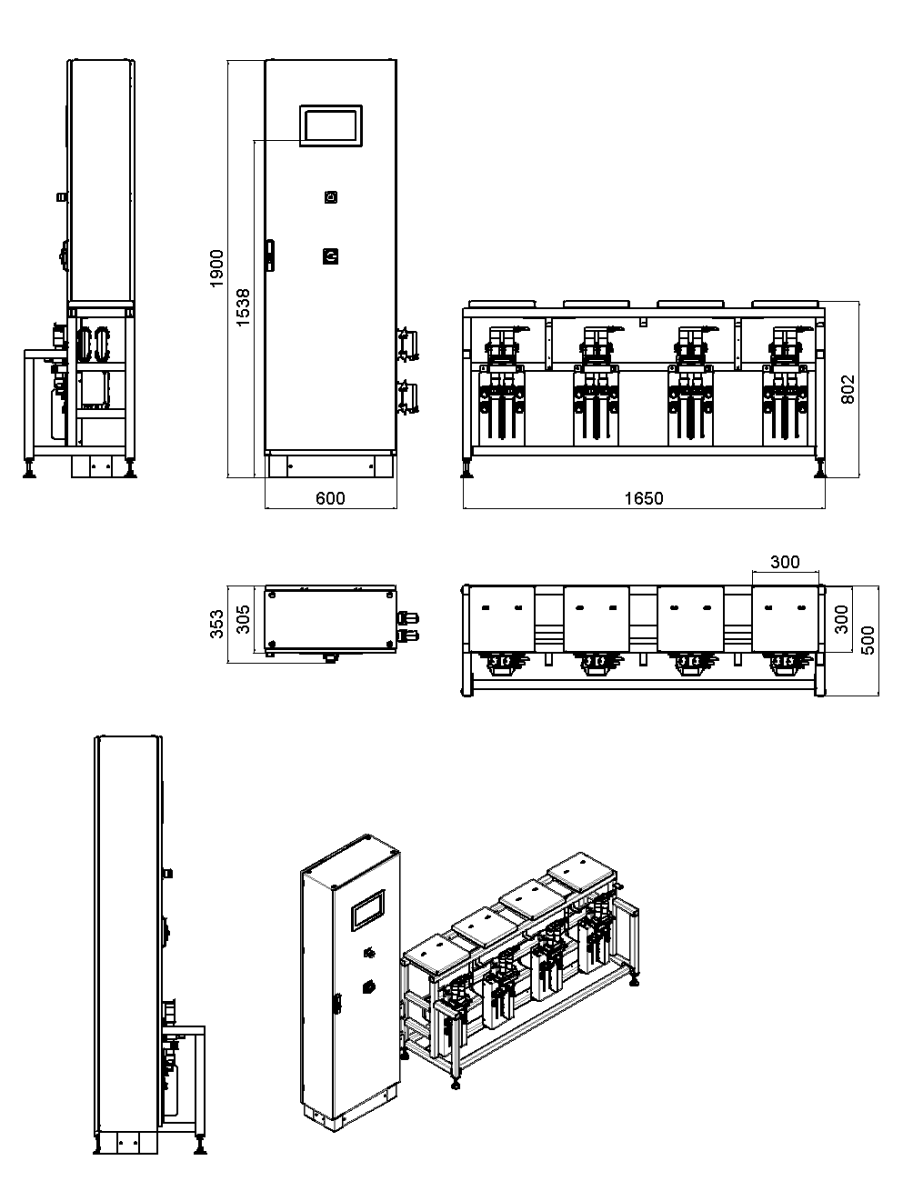
Specifications:



Specifications:

Operating voltage/current: 230V/AC/4A
Pump type: Piston pump
Delivery capacity: 0.5-500ml/min. per station*
Max. pressure: 30 bar
Temperature range: 10-40°C

* depending on the state of the medium

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