



Hall 14 / B19

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Press Release

Coperion and Coperion K-Tron at K 2019

Digital Solutions for Networked Plastics Production

Stuttgart, October 2019 – As part of its new “C-Beyond 4.0” portfolio, Coperion will present digital concepts and applications for networked plastics production at K 2019 (16-23 October, Dusseldorf) at Booth B19 in Hall 14. Among these are a concept study addressing a uniform user interface for human-machine interfaces (graphical user interfaces or GUIs for short). These can depict Industry 4.0 functionalities and are being gradually implemented into all Coperion extruders, compounding machines, and material handling systems for the compounding industry. The intelligent support programs (Smart Machine Features) include intelligent diagnosis and monitoring functions that contribute to increased productivity and machine availability. They will be on display at the show on iPads, in an application similar to an app; in future, they will then be integrated into the GUI. The third highlight in this context is the C-Beyond 4.0 app which makes various applications available for the customer’s use: An overview of the installed machine components with relevant documentation, intelligent spare parts lists for the individual components with an ordering function, and the analysis of overall equipment effectiveness (OEE). With this app, Coperion places important production data from the entire line at the production managers disposal within a sort of cockpit. The data is presented in a clear and easy-to-understand format for the purpose of monitoring and optimizing production. In so doing, Coperion enables an overall solution for the customer along the entire production process, even in the digital arena. Moreover, extruder manufacturer Coperion is implementing the OPC 40084 open interface, built on OPC UA, into its machines, enabling seamless use in heterogeneous, networked production environments.

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User-Friendly User Interface

For the first time, the new GUI design creates a uniform look and feel across the various equipment families and provides an improved operator and user experience. Furthermore, the optimized user interface has been expanded to include additional functionalities. Its presentation focuses on the essential parameters, settings, and functions. Essential data regarding speed, throughput, melt temperature, head pressure, “specific energy input” or “next tasks” can be identified at a glance.

Reducing the complexity, together with the clear, optical structure, provides intuitive user guidance that eases users’ onboarding and reduces the risk of operator error. In addition, functions such as user-specific registration and profiles (multilevel user concept), note function / digital shift log, as well as simple recipe management were integrated into the interface.

Intelligent Diagnosis and Monitoring Functions

Coperion extruder controls enable integration of intelligent functionalities, summarized under the heading Smart Machine Features. Among these functions, for example, are alarm-based handling recommendations. These display the most probable causes as well as corresponding solution approaches for rectifying errors when they arise. The machine can thus return to normal operation more quickly, saving time and costs.

Even implementation of predictive maintenance based on diagnostic data will be possible with these new functions, since maintenance intervals — i.e., for changing wear parts or utilities — are displayed. The required parts can then be procured using the C-Beyond 4.0 online platform. Operation-critical maintenance is displayed as a notification as well as in the overview list in the controls. In this manner, maintenance tasks can be better aggregated and planned to minimize machine downtimes. Coperion’s service department can be notified of pending maintenance via a Coperion ServiceBox built into the extruders and can work with the customer to create an optimized maintenance plan.

Moreover, these new functionalities enable process monitoring, directly programmed into the controls, in real time. No additional expensive sensors are necessary. Using the essential parameters on the basis of existing signals, process stability is evaluated to identify deviations and errors early on. Thus, for example, process influences regarding material feed, raw material

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properties or mechanical disruptions in the machine are detected. The long-term goal of intelligent process monitoring is to reduce costly sampling and quality analyses in the laboratory.

Furthermore, the Smart Machine Features encompass an intelligent empty run function for feeding systems. All or selected feeders run concurrently empty at a particular point in time. Intelligent communication between the extruder and feeder enables this function, making it possible for machine operators to save on both cleaning times at material changes as well as waste from remaining material in the feeder. In total, time expenditure and downtimes can be reduced, leading to clear cost savings for product changes.

Production Monitoring and Optimization App

The Overall Equipment Effectiveness (OEE) app provides machine monitoring, delivering an overview of the machine's overall efficiency to the involved production staff. It includes the performance, availability, and quality parameters. On this basis, the app provides production engineers or leaders with an extensively automated evaluation and visualization of the corresponding operational data, leading to increased transparency in production whereby problems such as maintenance backlogs can be identified early. Downtimes are classified into categories, which enables specific technical or organizational solutions. Within the app, Coperion contributes its comprehensive process experience to give customers a benchmark for performance in various processes, made possible with the aid of the "Coperion Performance Indicator".

Along with the OEE app, Coperion will be showing an Intelligent Spare Parts Catalog, representing an evolution of the established MyCoperion customer portal.

Open Interfaces for Networked Production

Beginning in 2020, Coperion extruders' controls will be equipped with OPC 40084 interfaces, uniform standard interfaces based on OPC UA for extruder communication with higher ranking manufacturing execution systems (MES). OPC UA is a platform-independent interoperability standard, providing secure and reliable data exchange in the field of industrial automation. The OPC 40084 specification has been jointly established by the umbrella organization of the European Plastics and Rubber Machinery Manufacturers Association (EUROMAP), the German

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Mechanical Engineering Industry Association (VDMA), and leading machinery manufacturers for the plastics industry.

“Coperion is supporting the plastics industry on its path to digital production using Industry 4.0-capable control interfaces, interoperability, and intelligent diagnosis and monitoring functions. Beginning in January 2020, the Smart Machine Features will be integrated into the extruder controls. The new GUI will be implemented next year, first into our new extruder controls, and then further applications will follow. The new OEE app, as well as the Intelligent Spare Parts Catalog, will likewise be available to our customers”, explained Markus Schmutde, Leader of Research and Development, Compounding & Extrusion, at Coperion.

Coperion is the international market and technology leader in compounding and extrusion systems, feeding and weighing technology, bulk materials handling systems and services. Coperion designs, develops, manufactures and maintains systems, machines and components for the plastics, chemicals, pharmaceutical, food and minerals industries. Within its four divisions – Compounding & Extrusion, Equipment & Systems, Materials Handling and Service – Coperion has 2,500 employees and nearly 30 sales and service companies worldwide. Coperion K-Tron is part of the Equipment & Systems division of Coperion. For more information visit www.coperion.com or email info@coperion.com.



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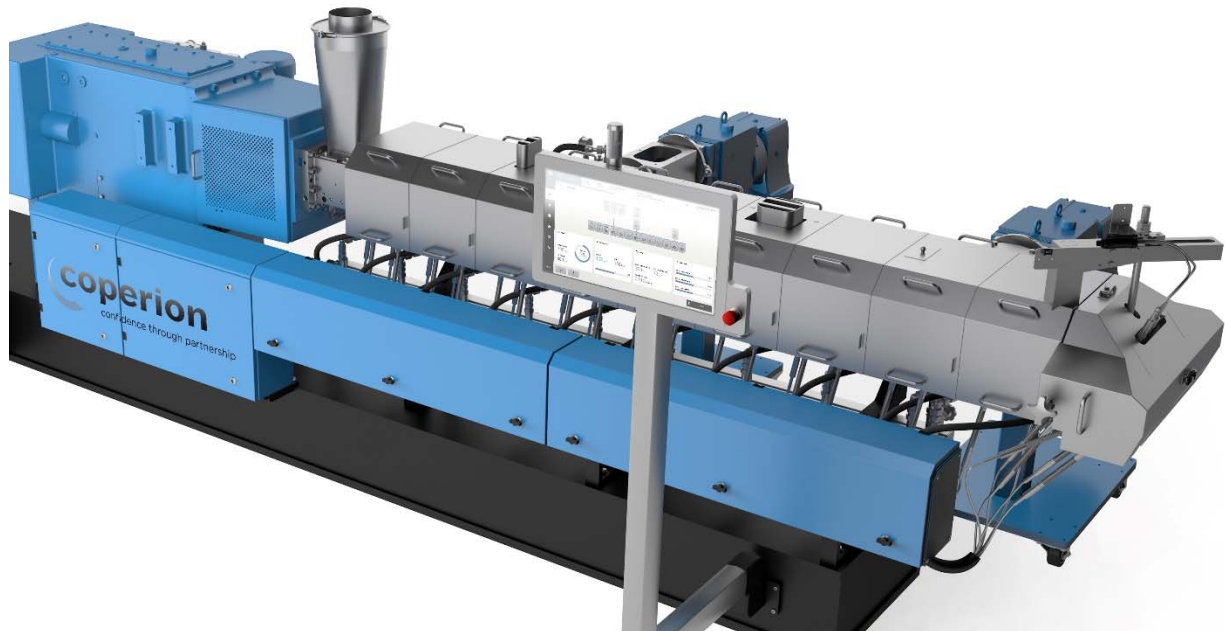


Image caption: The new Coperion extruder controls not only possess a new, intuitively operable graphical user interface (GUI), but also contain smart support programs with intelligent diagnosis and monitoring functions that contribute to increased productivity and machine availability.

Photo: Coperion GmbH, Stuttgart