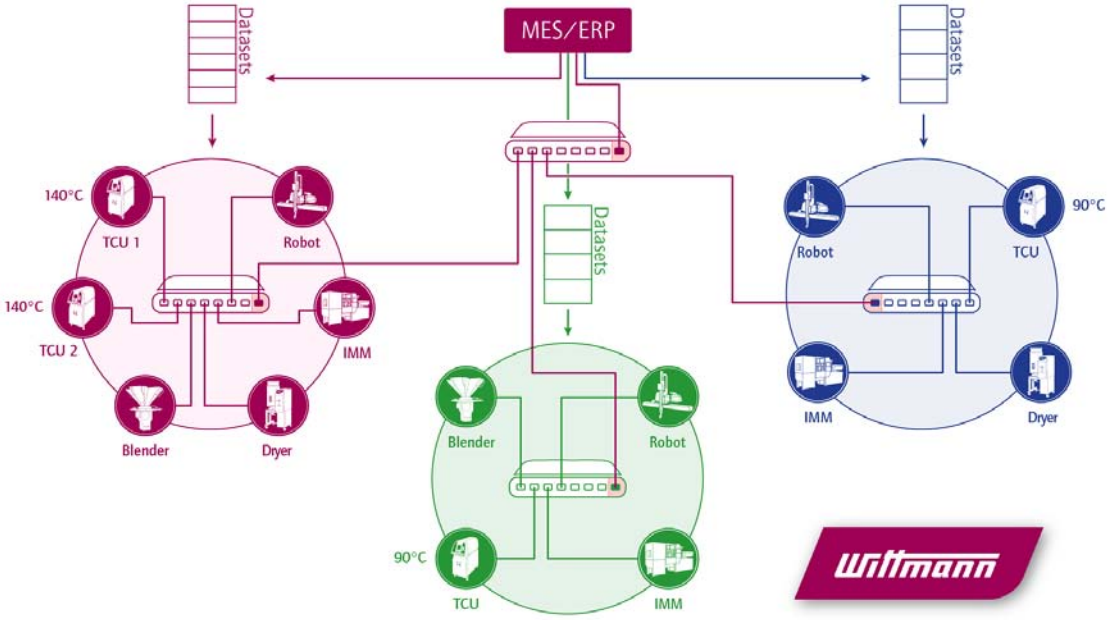
NEWS RELEASE *February 19, 2018*
[Witt-NR-03-2018_Plug-&-Produce]

A major breakthrough: WITTMANN 4.0 *Plug & Produce*

*An important feature of **WITTMANN 4.0**, the WITTMANN Group's Industry 4.0 solution, is known by the name of **Plug & Produce**. The term **Plug & Produce** in **WITTMANN 4.0** stands for the fact that this concept is able to make mold change easier and safer.*



Schematic representation of the production network's hierarchic structure, as created through the WITTMANN 4.0 Router.

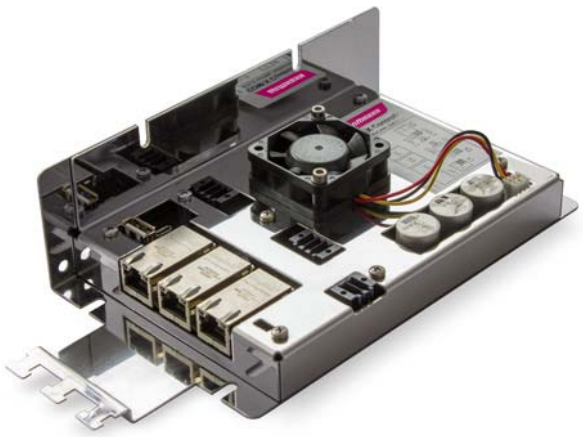
To make a plastic part in the required good quality, a number of peripheral appliances are normally needed in addition to the processing machine, which work together with the injection molding machine in various ways. These include primarily mold temperature controllers and chillers, material dryers and gravimetric or volumetric blenders. The injection molding machine and the appliances connected to it – where necessary also including a robot with downstream automation and quality inspection – are all combined with each other to form an injection molding production cell. To ensure faultless production of a part, all these individual appliances within the production cell must be programmed with the correct mold-specific parameters.

In a **WITTMANN 4.0** production cell, these parameters – together with those of the mold itself – can be saved in the injection molding machine's **UNILOG B8** control

system. As soon as a given mold data set is selected on the machine's control system, the appropriate settings are transmitted to all other appliances in the production cell. The means of communication used in this case is an Ethernet network operating with the standardized Industry 4.0 OPC UA application protocol.

A special characteristic of the plastics industry is that injection molding production cells are formed in an extremely flexible way when it comes to the peripherals included. Depending on the part to be produced in each case, several different peripherals or peripherals with different settings are required. For example, the injection molding machine must be provided with a number of temperature controllers equal to the number of tempering zones inside the mold.

Thanks to **WITTMANN 4.0** ***Plug & Produce***, there is no need for machine operators to acquire any knowledge in the area of IT technology, except to realize that the network cables of the required appliances must be plugged into the network switch of the production cell. They are thus free to concentrate on the mechanical work such as connecting the peripherals via tempering hoses or material feed lines. The IT configuration of the production cell, which is still necessary, is handled by the **WITTMANN 4.0 Router** specially developed for that purpose.



WITTMANN 4.0 Router

The **WITTMANN 4.0 Router** combines all appliances in the production cell and represents the entire production cell externally with a single IP address. In this way, the coherence of the relevant data is also ensured for any MES system which is required to collect data from an injection molding machine and the peripherals connected to it, without the risk of having the data of, say, a temperature controller in another production cell erroneously assigned to a given injection molding machine. In the opposite direction, the **WITTMANN 4.0 Router** also makes sure that an injection molding machine can only recognize those peripherals which are present in its own production cell.

As soon as a production cell has been equipped with the necessary peripherals for a new product, the data set with the production parameters can be distributed within the production cell. If this data set is not already recorded in the injection molding machine, the machine can also retrieve it from an MES system to which it has access. In this case, the data are routed via the firewall integrated in the **WITTMANN**

4.0 Router. The parameters (e.g. dosing formulation, robot teach program, drying parameters, settings for tempering and cooling) are subsequently distributed from the machine to the peripherals and the robot in the production cell. Once this is done, production can start immediately.

All in all, **WITTMANN 4.0 *Plug & Produce*** leads to substantially faster and easier product changeovers, consequently to a significant reduction in downtimes and ultimately more competitive production.

The WITTMANN Group is a worldwide leader in the manufacturing of injection molding machines, robots and peripheral equipment for the plastics industry. Headquartered in Vienna/Austria, the WITTMANN Group consists of two main divisions, WITTMANN BATTENFELD and WITTMANN, which operate 8 production facilities in 5 countries, including 33 direct subsidiary offices located in all major plastics markets around the world.
WITTMANN BATTENFELD focuses on the independent market growth in the manufacturing of state-of-the-art injection molding machines and process technology, providing a modern and comprehensive range of machinery in a modular design that meets the actual and future requirements of the plastic injection molding market.
WITTMANN's product range includes robots and automation systems, material handling systems, dryers, gravimetric and volumetric blenders, granulators, mold temperature controllers and chillers. With this comprehensive range of peripheral equipment, WITTMANN can provide plastics processors with solutions that cover all production requirements, ranging from autonomous work cells to integrated plant-wide systems.
The syndication of the WITTMANN Group has led to connectivity between all product lines, providing the advantage plastics processors have been looking for in terms of a seamless integration of injection molding machines, automation and auxiliary equipment – all occurring at a progressive rate.

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