

NEWS RELEASE

[Witt-NR-05-2024_Tempro_plus_DC_en]

July 2024

WITTMANN Tempro plus DC:
straight from the sun to the temperature controller –
saving energy with direct current

Direct power supply to plastics processing machines and auxiliary equipment with direct current instead of alternating current promises a rise in energy efficiency and profitability of up to 15%. WITTMANN is the pioneer in the field of DC injection molding technology and was setting the next milestone at the Competence Days 2024. With the Tempro plus DC temperature controller, it has now become possible to use DC power generated by solar power directly without conversion loss.



Temperature control without conversion loss: the Tempro plus DC temperature controller can be integrated into a DC network.

The development of renewable energy moves power supply via direct current networks into focus. Solar power, wind power and other types of renewable energy

are all generated in the form of direct current (DC). However, the normal power supply comes in the form of alternating current (AC). Therefore, transformers are interposed to enable the use of alternative energies. For transport and distribution, DC is transformed into AC – and in some cases converted back into DC at the point of consumption. In both industrial production and normal daily life, DC is constantly being transformed into AC and vice versa, and some of the energy is lost with every conversion. This reduces the energy efficiency of the applications. Here, the creation of DC networks parallel to the existing AC power supply offers the advantage of providing the generated DC power unconverted for direct use. The conversion losses still incurred on the way from an in-house photovoltaic system through direct voltage converters to the processing machine are by comparison absolutely minimal. WITTMANN has set itself the goal of tapping this efficiency potential so far still unexploited.

All set for series production

At the K2022, WITTMANN presented for the first time a DC-powered all-electric EcoPower injection molding machine as a conceptual study. A robot from the WX series, also directly supplied with DC current via a joint interim circuit, took care of handling the finished molded parts.

Together with its partner company innovenergy, WITTMANN has now brought DC injection molding technology up to series production maturity. innovenergy specializes in installing DC networks in industrial plants and other areas, as well as developing and producing particularly sustainable solar power storage batteries operating with sodium chloride (common salt). The interim storage of solar current in batteries is also significantly more energy-efficient in DC networks than with using AC networks and inverters.

Twofold increase in energy savings

For the Competence Days 2024, WITTMANN has been extending the range of injection molding components available for use in DC networks by adding temperature controllers. The new Temprom plus DC reaches exactly the same high performance rates as the equivalent conventional Temprom plus AC-powered models. For instance, the Temprom plus D90 DC presented at the Competence Days, suitable for temperatures of up to 90°C, has a heating capacity of 9 kW with 750 V DC. The cooling capacity is 40 kW for a differential temperature of 75 K.

The DC version already comes with a 1.1 kW synchronous motor and an inverter as part of the standard equipment package. The motor drives a seal-

less submersible pump with a maximum working pressure of 7.5 bar and a maximum flow quantity of 60 l/min. In cavitation-free operation, practical values of up to 40 l/min and 5 bar are reached. The inverter enables direct connection to the machine's interim circuit as well as speed control in line with the desired process parameters. In this way, conversion loss is prevented and the pump speed is adapted to the requirements of the process. The result is a two-fold increase in energy efficiency.

The WITTMANN Group

The WITTMANN Group is a globally leading manufacturer of injection molding machines, robots and auxiliary equipment for processing a great variety of plasticizable materials – both plastic and non-plastic. The group of companies has its headquarters in Vienna, Austria and consists of two main divisions: WITTMANN BATTENFELD and WITTMANN. Following the principles of environmental protection, conservation of resources and circular economy, the WITTMANN Group engages in state-of-the-art process technology for maximum energy efficiency in injection molding, and in processing standard materials and materials with a high content of recyclates and renewable raw materials. The products of the WITTMANN Group are designed for horizontal and vertical integration into a Smart Factory and can be interlinked to form an intelligent production cell.

The companies of the group jointly operate ten production plants in six countries, and the additional sales companies at their 36 different locations are present in all major industrial markets around the world.

WITTMANN BATTENFELD pursues the continued strengthening of its market position as a manufacturer of injection molding machines and supplier of comprehensive modern machine technology in modular design. The product range of WITTMANN includes robots and automation systems, material handling systems, dryers, gravimetric and volumetric blenders, granulators, temperature controllers and chillers. The combination of the individual areas under the umbrella of the WITTMANN Group enables perfect integration – to the advantage of injection molding processors with an increasing demand for seamless interlocking of processing machines, automation and auxiliaries.

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