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PRESS RELEASE

WITTMANN BATTENFELD at the Fakuma in Friedrichshafen

EcoPower DC – direct current as power source

WITTMANN BATTENFELD will present to Fakuma visitors an all-electric machine from the new EcoPower B8X series driven via a solar power storage battery at the booth of the WITTMANN Group No. 1204 in hall B1.

The concept of operating a machine with direct current generated by renewable energy from solar power was presented by WITTMANN BATTENFELD for the first time at the K 2022, and has met with wide interest. Firstly, supplying a machine with energy generated by an inhouse solar power station enables users to save costs and preserve the environment as well. Secondly, direct current can be stored easily in batteries and is thus an ideal means to cover expensive current peaks and improve the reliability of power supply. An additional advantage is the possibility of saving CO₂ emissions by using direct current technology to increase energy efficiency and save resources.

The all-electric EcoPower from WITTMANN BATTENFELD, equipped with highly dynamic servo motors to drive its main movements, is particularly suitable for use in a DC power network. The machine comes with the patented KERS – kinetic energy recovery system – as standard. This system converts kinetic energy into electric energy during deceleration processes. The resulting electric current is then used within the machine, for example for barrel heating. With KERS, the energy consumption can be reduced still further. This equally applies to a DC compatible robot, which is powered directly via the DC voltage interim circuit of the EcoPower and then also returns any surplus energy to the interim circuit whenever its axes are decelerated. If the machine operates in a DC network, the deceleration energy can also be fed into the DC network. In this way, other machines connected with the DC network can also be powered by this energy, or the energy can be stored in batteries.

Since its first presentation of this technology, WITTMANN BATTENFELD has taken further developmental steps to advance this innovative concept. For optimal counseling of interested parties, the machine manufacturer was searching for a

suitable partner specializing in DC infrastructure, and has now found it in the Swiss company innovenergy® AG.

innovenergy® has been developing and operating energy storage systems with salt batteries for almost 10 years. Originally, it developed the sodium-nickel technology for e- successfully mobility, but it has recently entered the sector of stationary storage batteries for a great variety of different applications. innovenergy® offers a portfolio of 9 kWh to 999 kWh storage capacity and inverter capacities ranging from 3 kVA to 300 kVA. To date, it has successfully installed some 1,000 salt battery storage systems.

In the course of developing its innovations for the industrial sector, innovenergy® found that the issues of energy efficiency, connected load limitations of AC infrastructures, independence and autarky, as well as failure safety in cases of mains interruption, are gaining more and more significance.

All of these aspects can be addressed profitably by what is known as a DConnect system: renewable energy generators (photovoltaics or wind power), energy storage batteries and consumers are linked with each other in a separate DC network, which enables direct use of the generated energy with hardly any conversion loss. Only surplus electricity is returned to the power network. In this way, DC/AC/DC conversion losses between the solar power station and the machine can be reduced by up to 15%. The entire potential of photovoltaic systems on large roof areas can also be utilized without having to invest in a mains connection extension which might otherwise be necessary. The DC-connected salt battery storage systems provide sufficient energy reserves for regular operation as well as for bridging mains network power failures.

With a DConnect, innovenergy® is able to supply an efficient, low-cost overall solution all the way from the initial concept and detail design to the selection of suitable DC components.

For the implementation and installation of the DC network components, innovenergy® will train and support local AC network planners and installation partners, to ensure seamless interaction between the existing AC installation and the DC micro grid.

innovenergy® will present its functional concept to Fakuma visitors in a live demonstration. At the WITTMANN booth No. 1204 in hall B1, the use of direct current without first passing through inverters will be shown on an EcoPower 180/750+ B8X. With a single-cavity mold from the Austrian company Kunststofftechnik Grabher GmbH, a drainage body will be manufactured from polypropylene. The part will be

removed by a modified WX142 robot in DC version from WITTMANN. To enable a live presentation of the DC technology to the visitors, the machine remains disconnected from the mains network of the exhibition hall during the fair and is powered independently via a solar power storage battery consisting of ultra-modern, ecological salt battery technology supplied by innovenergy®. To balance the brief load peaks of the injection molding machine, additional electro-chemical capacitors, known as super-caps, are used to complement the sodium-nickel storage batteries. The battery has a total capacity of over 45 kWh, which is more than sufficient for continuous machine operation throughout an entire 8-hour trade fair day.



Fig. 1: EcoPower B8X 180/750+

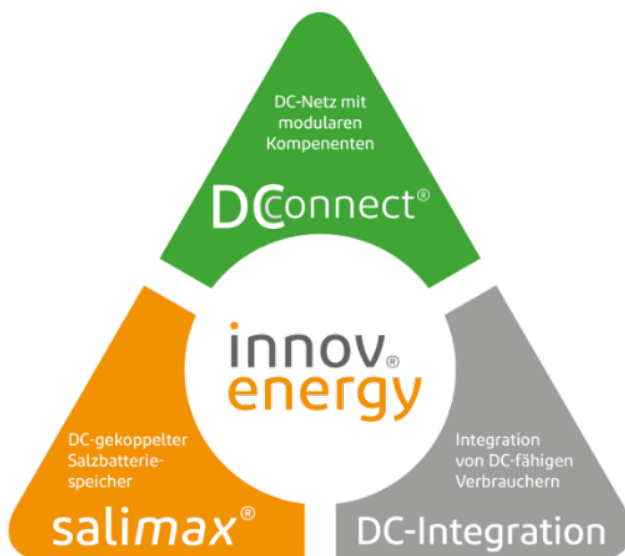


Fig. 2: Schematic diagram of an innovenergy® overall solution for using direct current in the industrial sector (Photo: innovenergy®)

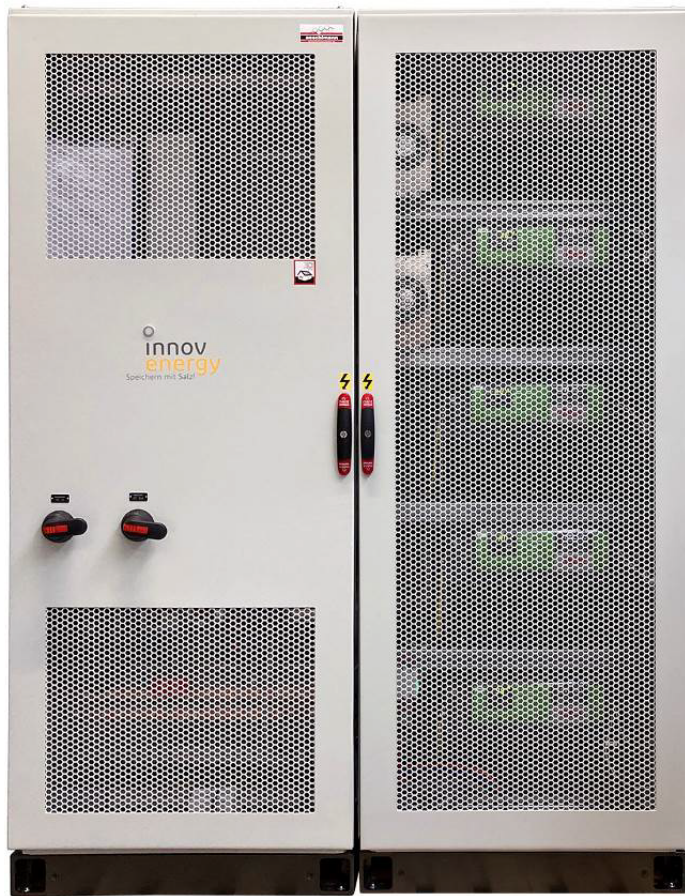


Fig. 3: Solar power storage system consisting of ultra-modern, ecological salt battery technology from innovenergy®



Fig. 4: Super-caps to cover brief load peaks



Fig. 5: PP drainage body, manufactured on DC-powered EcoPower B8X

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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