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State-of-the-Art Pressing Technology for Advanced Ceramic Applications

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This presentation compares the current demands on the current applications of technical ceramics with the latest developments in pressing technology focusing on axial pressing and spray drying.

The current developments of applications in technical ceramics in the domain of energy and environmental engineering, electromobility, electronics, networking and telecommunication as well as medical engineering and lifestyle rise increasing demands regarding the manufacturing technology of ceramic components. The trend towards miniaturization, precision, flexibility and speed represents the key concept and a great challenge for system suppliers of machinery and equipment.

Therefore, the series of servo-motorized electrical presses has been enlarged by two models of 6t and 12t pressing force. The two machine types are characterized by maximum precision coupled with unequalled speed and dynamics. This innovative concept is completed by filling and removal systems that are especially adapted to the presses.

Solutions for three-dimensional pressing of components are available to realize forming of geometrical complicated parts.

The excellent controllability of the electrical and hydraulic drives ensures high precision and precise process management even in the higher tonnage range. Thanks to the connection with intelligent power filling systems, economically efficient powder compaction is possible of thin substrates and multi-layer components for various applications such as LED wafers, battery components, and bipolar plates for fuel cells or multicolored CAD/CAM blanks for the dental industry.

The integrated approach to successful powder forming always embodies pressing granulate capable of being reproducibly processed. The preferred technology supplied by DORST covers customer-specific nozzle-type spray driers for powder preparation for ceramic bodies and hard metals based on water. The scope of supply has been enlarged by a small, mobile compact system, the so-called SMART SPRAY DRYER. This dryer is the door-opener to an easy and cost-effective entry into the spray drying technology for the preparation of fine high-quality pressing and special granulated.

The presentation will be concluded by a look at INDUSTRY 4.0 for the ceramic and the PM industry from the viewpoint of a press manufacturer.



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