

GERMANY

ALUMINA SYSTEMS: Innovation Day 2019

On 18.09.2019, ALUMINA SYSTEMS had invited customers, suppliers and network partners to Redwitz/DE to inaugurate a new production facility as part of the company's Innovation Day. The supporting programme had been arranged by Performing Arts, which with breath-taking power acrobatics from the duo "La Vision" (Fig. 1) impressively set the stage to spotlight the company's core focuses such as "joining technologies" and "strong partnership".



Fig. 1
"La Vision" with their interpretation on "joining technologies" and "strong partnership"



Fig.2
Dr Holger Wampers (l.) presenting his welcome address

Introduction

It was important to the Managing Director Dr Holger Wampers (Fig. 2) to present to his guests not only the company's established product portfolio, but also its new product groups as well as to communicate its strategic aspects. Already in the interview published in CERAMICAPPLICATIONS in September 2018, he pointed out that even if ALUMINA SYSTEMS is very successful in HVDC systems (thyristors

and diodes), this product sector is volatile, like last 10 years had shown.

For this reason, the established divisions were extended (divisions: Vacuum Systems, Sensor Systems, X-Ray Systems, Plasma Systems, Battery Systems and 3D Printing Systems). One strength are still the ceramic-metal joining technologies that enable the development of customized components, which can be used directly by the customer.



Fig.3
Presentation of the new printer at the booth of 3DCERAM Sinto at formnext 2019 (f. l. t. r.): Christophe Chaput, MD 3DCERAM Sinto; Richard Gagnon, MD 3DCERAM Sinto; Dr-Ing. Holger Wampers, MD ALUMINA SYSTEMS; and Atsushi Nagai, President SINTOKOGIO, LTD



Fig.4
Guests enjoying the show of "La Vision"

ALUMINA SYSTEMS – battery storage and 3D-printing as strategic growth areas

True to the maxim "A Brilliant Idea behind Every Product" at the event, Dr Kai Sauerzapfe, Head of the Battery System Division, presented battery storage on the basis of sodium nickel chloride, and Dr Thomas Mühler, Project Manager of 3D Ceramic Printing, explained his patent for a new printing process.

The CERENERGY battery system has been newly developed to manage without raw materials such as cobalt and lithium as these are coming in for increasing criticism because of their not always environmentally friendly extraction. Dr Kai Sauerzapfe was able to present energy storage on a scale sufficient to supply a detached house with all the electricity it needs. This is generated by the house's own photovoltaic system. With series connection of more than one battery, entire residential estates, factories and public institutions can be supplied with self-generated electricity. The first batteries will be delivered by ALUMINA SYSTEMS from 2021.

Standing in the new facility, from January 2020, is the biggest 3D-printer for Al_2O_3 components, which was developed by 3DCERAM Sinto/FR. This is equipped with four lasers, has

a working area measuring 600 mm x 600 mm x 300 mm, and is therefore suitable for the mass production of ceramic 3D-components (Fig. 3).

Behind the LIS (Laser induced Slip Casting) patent, acquired by ALUMINA SYSTEMS, is the core idea that only the water between the ceramic particles in the slurry is evaporated. It manages without the usual around 20 % polymer content, which causes high shrinkage of around 24 % and also takes up additional time in the process on account of the debinding process prior to sintering at 1700 °C. In the new process, as described above, only drying is necessary. Shrinkage is much less on account of the lower content of binder. Accordingly, the process becomes much faster. Another advantage is that with the new process much thicker walls (> 8 mm) can be made. Hardly any support structures that have to be removed after printing are necessary.

The 150 guests could take part in the relaxed support programme (Fig. 4) as well as a tour through production. At the end of the day, they left with a lot of new information and the impression that ALUMINA SYSTEMS is staying true to its slogan by committing to further development based on innovation.

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