

## FOUNDRY REVIEW 7-8'2021

### - SUMMARIES -



### 25 YEARS IN GOOD SHAPE

Hüttenes-Albertus Polska Sp. z o.o. was officially established on 4<sup>th</sup> October 1996. The seat of the company was placed in the city of Lublin which, at the time, was known in Europe for its major foundry plant: Zakłady Metalurgiczne URSUS. In 2021, we are celebrating the 25<sup>th</sup> anniversary of that event. In order to compete on the new western markets in other ways than cheap labour, Polish foundry needed an input of modern technologies and materials, in particular the cold-box technology popular in the Western European countries. It was the Hüttenes-Albertus Polska that introduced the technology in Poland and gave foundries the opportunity to start serial production of cores using this method. Various solutions were applied. Most often, modified machines working in the hot-box technology were used, or second-hand machinery purchased after relevant adaptations and repairs. Currently Hüttenes-Albertus Polska is ready for new challenges that may appear in the foundry sector. Owing to continuous cooperation with the R&D Department of HA Group in Düsseldorf, as well as CoC (Centre of Competence) in Baddeckenstedt, we are acquainted with new technical achievements in the sector. Our technical advisors and the team of technologists are always ready to perform tests aimed at solving issues at hand, and thus to further improve our die-casting processes.

ZBIGNIEW RONUDA, ADAM NOWAK

### INDUSTRY 4.0. ASSUMPTIONS AND PRINCIPLES OF THE FOURTH REVOLUTION, STRATEGIES FOR THEIR IMPLEMENTATION

The article presents the main assumptions of Industry 4.0 as the fourth industrial revolution, integrating production technology (OT) with information technology (IT), digitally controlled machines with the Industrial Internet of Things (IIoT) and information technologies. The Smart Factory – Modern Foundry created in this way, thanks to the maximum use of its technical and organizational capabilities, is characterized by competitiveness, efficiency and production flexibility. The two main pillars of Industry 4.0 were characterized, which are an intelligent factory based on new and developing technologies and the Industrial Internet of Things. World and national initiatives shaping

the development of Industry 4.0 were presented. Requirements for production resources, resource management systems and human capital development for Industry 4.0 were discussed. The effects and benefits as well as barriers for implementation of the fourth industrial revolution were indicated. Examples are given of how to implement the principles of Industry 4.0 to modern production companies, including foundries. The Lexicon of terms used in Industry 4.0 was presented.

## **WE'RE BACK IN THE GAME. THE FAIR INDUSTRY IS OPEN. INTERVIEW WITH ANDRZEJ MOCHÓŃ – PRESIDENT OF TARGI KIELCE SA**

On June 2, 2021, after a break of more than 14 months, in an act of solidarity with the exhibition industry, fair facilities all over Poland and the most important buildings in cities shone with green light. Undoubtedly, the return to the game was a great joy for the exhibition industry. Andrzej Mochóń, the president of Targi Kielce, gave an interview to the editors of *Przegląd Odlewnictwa*. In the interview he stressed that the organization of a fair event depends on many factors, and above all on time. Exhibitors must be persuaded to decide to participate in the event. Each company has a budget, marketing plans and PR, so making a decision takes several months and it has to follow a well-thought-out concept. You also need to add time to collect the necessary equipment or build it. So it is impossible to organize an exhibition in just a few days. For the same reason, the first events that will take place at Targi Kielce will not be held until September.

## **EXPERTS IN UNTERNEUKIRCHEN OFFER TAILOR-MADE METALLURGICAL SOLUTIONS**

ASK Chemicals is not only a company that produces chemical products. In addition to foundry chemicals, power supply production in Germany, Spain and Turkey, it also has a core production plant in Fuldabrück / Moosburg-Germany, as well as a metallurgical production plant in Unterneukirchen.

ASK Chemicals Metallurgy is the only German ferrosilicon producer that produces metallurgical products in large arc furnaces in Hart an der Alz. These products include mortars and modifiers, in particular mold modifiers and cored wires.

By systematically adding various alloying elements, ASK Chemicals Metallurgy can tailor a wide range of FeSi-based alloys to customer requirements. As a result, most of the products manufactured in Bavaria are tailored to the customer's requirements. Foundries that use and trust ASK's metallurgical products mainly produce castings with a higher standard and safety.

ASK Chemicals' experienced metallurgical team works closely with customers around the world to develop tailor-made solutions and accompany the introduction of these products into an ongoing production process. During this time, clients have the opportunity to take advantage of the rich experience and proven knowledge of six team members.

## **THE DISAMATIC® D5 IS HERE: FUTURE-PROOF MOULDING PERFORMANCE FOR LARGE CASTINGS**

DISA has launched the DISAMATIC® D5, a new green-sand vertical moulding machine for large castings. Based on the revolutionary D3 platform, the D5's multiple innovations and cutting-edge technology deliver the fastest throughputs, highest yields and maximum uptime.

Replacing the popular DISAMATIC 240 and 250, this new member of DISA's flagship D Line is available in three mould sizes up to 650x850mm and 500mm thick. With three speeds up to 450 uncored moulds per hour, it combines premium mould quality with breathtaking speed, short-run flexibility and minimum maintenance.

### **3D PRINTING INNOVATIONS WILL TAKE OVER POZNAN**

With the increase in the availability and functionality of 3D printers, more and more companies decide to introduce additive technologies as a production improvement. Such trends are also observed by the exhibitors of 3D Solutions. They are getting ready for the meeting in Poznań and today they reveal what they plan to present at their stands.

The 3D Solutions fair, like the accompanying ITM INDUSTRY EUROPE, will take place after a two-year break. It is a cyclical event that attracts 3D printing enthusiasts to Poznań.

### **WHY ARE GRAPHITE ELECTRODES SO IMPORTANT IN STEEL PRODUCTION?**

The first contracts for graphite electrodes at Metalshub have been concluded in recent weeks. This milestone is just one example of Metalshub's development from a ferroalloy focused market towards a purchasing platform for all raw materials for steel mills. While careful validation, registration and supplier training remain an important part of Metalshub's service offer, it extends the range of products that are available on the platform from its initial ferroalloy focus to a much wider range: cored wires, carburizers, scrap, pig iron, lime, etc. Before giving more detailed information on the development, Metalshub shares some insights into the graphite electrode market.

KATARZYNA LISZKA, WITOLD DOBOSZ

### **SITUATION OF POLISH FOUNDRY INDUSTRY IN 2020**

The article was prepared on the basis of a survey conducted among Polish foundries. It presents the state of the Polish foundry industry in 2020 and the impact of the COVID-19 pandemic on the level of domestic production as well as indirect factors such as the level of employment or the volume of exports. The background for the analyzed results is data from 2019 and the general situation in the global and European foundry industry.

The prepared study can become a base for representatives of the Polish foundry industry in their encounters with economic authorities and non-governmental organizations, and an important tool for promoting and building competitiveness on the international arena, especially in contacts with

international organizations such as the World Foundry Organization and CAEF –The European Foundry Association.

## **OTTO JUNKER LAUNCHES RETROFIT OFFENSIVE FOR FOUNDRY AND THERMOPROCESSING EQUIPMENT**

Otto Junker are specialists in developing, installing and maintaining foundry and thermoprocessing plants. The company now launches a retrofit offensive in order to highlight the risks caused by outdated control technology and offers a customer-oriented concept for a successful modernization.

DAVID HRABINA, PETR FILIP

## **ADVANCES IN THE POURING OF STEEL CASTINGS WITH A SHROUDED METAL STREAM**

Thin oxide films rapidly form on a liquid metal surface when exposed to the atmosphere. These protect the melt from further oxidation or gas enrichment. However, these surface films become brittle, tear and are then entrained in the molten metal. The melting temperatures of most oxide films are far greater than the temperature of the melt, so once formed they remain solid. These films float through buoyancy forces, as they have a lower density than molten metal, but this process is slow due to their extremely small size (just several nanometers having almost no volume). Oxide bi-films generated within conventional molten metal casting process have no time to float. They unfurl and agglomerate during the casting process. These bi-films have high surface activity and grow into bigger non-metallic agglomerations as solidification advances. Foundries increase pouring temperature hoping gas bubbles and related impurities float, but an increased pouring temperature is not beneficial to castings quality and cast surface appearance.