ABP INDUCTION NEWS
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MEGATREND DECARBONIZATION

KOVIS FOCUSES ON INDUCTION AND DIGITALIZATION

NEW OFFICE IN SHANGHAI

INSIGHT INTO THE NEW ABP OFFICES IN CHINA

SWITCH TO INDUCTION

ZML DECIDES IN FAVOR OF CO2 NEUTRALITY

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Feb. 3, 2022, 10-11 a.m.
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Introduction

Anyone who has been following the developments over the past few months has been able to identify two major trends that will be of great significance to us in the near future: Decarbonization and digitization. These two trends are even directly related to each other, as the examples in this issue illustrate.

We have been focusing on digital business models for quite a few years now - not in order to have another mainstay to absorb any potential changes in our traditional core business, but rather we see completely new development opportunities here to establish ABP as a digital player.

These changes are not easy: They require courage, also when it comes to making and communicating unpleasant decisions. This calls for a new mindset, the ability to see potential and to develop perspectives. I would like to wish you this entrepreneurial spirit, for the new year, and beyond.

Best regards and
Glück auf!
Till Schreiter, CEO

On the way to CO2-neutral production

Kovis successfully switches from cupola furnace to induction furnace

A new era is beginning at the traditional foundry Kovis in Slovenia: The specialist for the production of castings made of gray and nodular iron has switched melting operations from conventionally heated cupola furnaces to CO2-neutral medium-frequency induction furnaces from ABP. „Good ideas create the future" is Kovis' slogan, which the company has once again succeeded in demonstrating with this conversion. As a technology leader, ABP Induction is playing a decisive role in this megatrend in the foundry industry: With the IFM series, it boasts high-performance induction melting furnaces with state-of-the-art process control for demanding foundries worldwide in its portfolio. Kovis has made use of this: The plant is already in reliable day-to-day operation.

Kovis in Slovenia is a well-known player for its combination of tradition and continuous development in the production of castings. Development and innovation open up entirely new business opportunities for Kovis, and so the switch from the cupola furnace to the promising induction technology was a logical step when the foundry was due for modernization in 2019: Furnace system, molding system, sand preparation and many other components were to be replaced. In doing so, Kovis is also taking into account the challenges involved in environmentally friendly production: In 2050, the European Union wants to be CO2 neutral. Many industries are feeling the pressure to take action to decarbonize. Given the long amortization periods for capital goods in many industrial sectors, this already affects today's budgets. A key field in this context is the switch to low-CO2 and, in the long term, climate-neutral production technologies in the metal processing sector – as it still accounts for a dominant share of CO2 emissions in industry today. The increase in process and material efficiency as well as induction melting offer great ecological and economic potential. Kovis and ABP are consolidating all of this here, and in this respect the changeover at Kovis from cupola furnace technology to CO2-neutral production with induction furnace technology is not only a logical step, but the investment was also a far-sighted one.

Increase capacity, reduce CO2

„Our primary goal in switching to a different type of furnace was to increase the capacity and productivity of our foundry by 80 percent," explains Anže Tekavčič, production manager at Kovis, „in addition, the environmental factor was also very important in our decision. For one thing, the induction furnace reduces the carbon footprint compared to the cupola furnace. Furthermore, the energy efficiency of induction furnaces is much higher than cupola furnaces. Energy consumed per ton of molten iron decreased by nearly 50 percent." Still, the induction furnace offered far greater flexibility in feed material, both when looking at part size and steel-to-pig iron ratios. „The latter is very important, especially nowadays," says Anže Tekavčič, referring to high prices and material shortages on the market.

The important step in this project was the simulation of the potential needs and the corresponding future system of Kovis. The ABP Meltshop Designer was able to show off its skills as a tool: „This involves software developed in-house, which we can use to demonstrate which solution is best for the customer when it comes to material flow in the foundry," explains Alexander Keller, who played a key role in managing the project in Slovenia on the ABP side. The ABP experts can develop simulations for different foundry situations, present alternatives in the furnace design, and incorporate different configurations from the ladles to the filling of the molding plant. Regardless of whether the current production environments or variations for future melting processes are important to the customer, it is basically a matter of finding the bottleneck in the simulated environment that could disrupt production – in other words, optimizing processes and operations.

Huge potential for digitization for the plant

„This collaborative, innovative advance planning and ABP's technology expertise enabled us to take a decisive leap towards placing the order," says Alexander Keller. „In addition, one of our existing customers arranged a visit with Kovis so that the company had the opportunity to obtain detailed information from the ABP network." Ultimately, the ABP solution offers massive potential benefits in terms of operation and maintenance, especially about efficiency, system availability, and environmental friendliness. And so, once the contract was awarded, the system was installed and accepted in September 2020. Two IFM 7 induction furnaces with 6.1 MW power (TWIN-POWER®) and 11.7 t capacity have been used since then. The ABP automation package also includes the melting processor PRODAPT® Enterprise for demand-oriented control of the system and the melting process.

The interaction between ABP experts and Kovis staff on site went off without a hitch. The excellent handling of the project is also evident in the adherence to the planned project timeframe and the smooth commissioning. „The order from Kovis is therefore a great success for ABP Induction in Slovenia and an excellent reference for the entire Southern and Eastern European market. At the same time, the system represents the current state of the art in terms of digitalization," explains Alexander Keller. The environmentally friendly operation of the ABP induction furnaces type IFM is based on different modules. Thanks to the TWIN-POWER® principle, converter power can be distributed freely, continuously and without additional switches to both furnaces. As such, scenarios such as melting with one furnace and simultaneous sintering or holding with the other are now possible. The concept results in increased inverter utilization, lower maintenance costs and lower investment costs compared to separate power supplies. In addition, with the PRODAPT® Enterprise melt processor already mentioned the PRODAPT® Enterprise melt processor takes over the demand-oriented control of the energy supply for melting and holding operation, cold start-up, sintering and communication with charging. Operating data and statuses are recorded and displayed in the HMI and processed for targeted data exchange with the plant management system. And thanks to ABP's global presence, the sun never sets in the ABP world – so there is always an employee available digitally for Kovis whenever needed.

About Kovis Group

Kovis Group is one of the leading companies in Europe in the field of development and production of components for the railroad industry: brake discs, bearing housings and various parts for the railroad industry as well as other industrial sectors. With a 40-year tradition, the group today consists of four companies. In addition to the parent company Kovis also Kovis Foundry, which produce high quality castings from nodular and gray iron, then Kovis BP for machining and finishing of bearing housings for freight cars and Kovis Transport, where logistics services and internal / external transport is provided.

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Do you already know the ABP Newsletter? It provides regular information on the latest ABP solutions, as well as tips on everyday foundry operations, links to videos and other sources of information, and keeps you up to date on the ABP portfolio. Sign up now for ABP's regular, free newsletter - just go to www.abpinduction.com/newsletter, and you'll find your subscription options under Contact. In the upcoming year, we will also be offering a series of topic-specific newsletters in which we will carefully and thoroughly prepare specific specialist topics for you. In addition, you will have a direct line to your ABP experts - look forward to it!

ABP Induction moves into location in Shanghai's high-tech district Baoshan

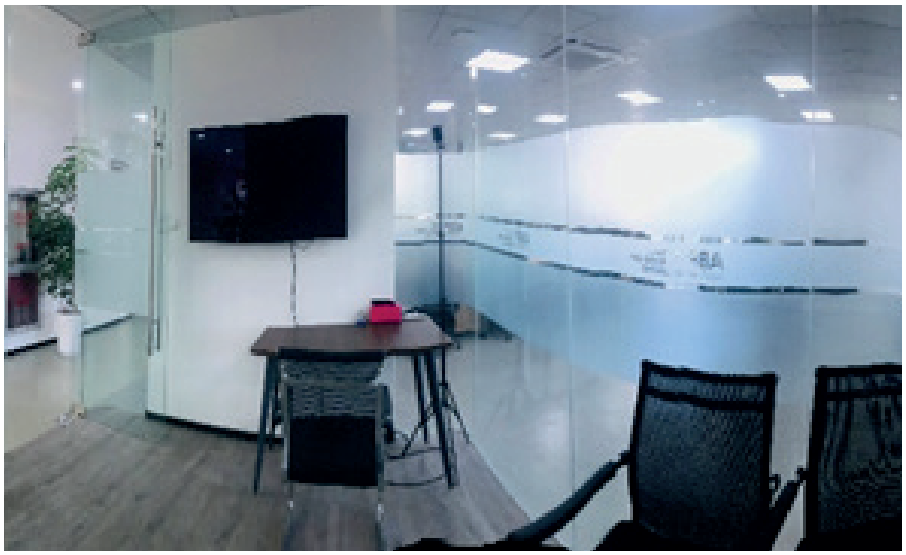
Virtual and augmented reality tools can be tested in the visitor center

The location could hardly be better and more symbolic: ABP Induction has chosen the high-tech district of Baoshan in the north of Shanghai for its new branch in China. In a central location, ABP will thus be part of the massive development of the district into a showcase project of China in terms of research and industry, especially on the topics of „new energies", advanced materials, „artificial intelligence" and digitalization. The district is also home to Shanghai University with the Rim Industrial Park and the headquarter of the Baosteel Group with the largest iron and steel processing plant in China.

Welcome to ABP: From now on we welcome our guests in China in our new office at the Baoshan district in Shanghai.

In China, ABP Induction has of course been present for a long time: ABP dominates the high-end market for melting and heating applications there. To date, high-quality equipment and services have been supplied to leading companies in the sectors of engines, automotive parts, machine tools, wind energy, steel and other industries. ABP Induction is considered a reliable partner in China for high-end customers such as FAW, DF, Foton, Weichai, Yuchai, CRRC, Kocel and Tisco.

This year, ABP Induction moved into its new office building in Shanghai, where it also established a new customer center. This allows direct contact with customers at virtually any time, including direct presentations of the digital tools that ABP has developed in recent times. Customers can experience ABP's new digital reality first-hand in Baoshan, benefiting from the combination of ABP's more than 100 years of experience and the latest development in digitalization: Foundry knowledge combined with the benefits of artificial intelligence and deep data analytics.



In the visitor center, customers and interested parties can try out ABP's digital tools live.

The long-term investment in the new offices in the High Tech district is also a signal of ABP's commitment to the Chinese metals industry. Here, ABP is laying a strong foundation for its technology-driven growth strategy. ABP Shanghai is the production base of ABP Induction Systems Group in China, the sales center for new systems, the center for spare parts supply and after-sales service, and has a production facility that meets ABP's global quality standards.

Great response to digital ideas at Prozesswärme conference

The event also focused on the switch to induction in the steel environment

The 11th Prozesswärme conference „Melting & Casting" took place on November 10 and 11, 2021. The focus this year was on the digitalization of the foundry industry. Experts from ABP and other companies discussed the current challenges with the participants and provided answers to industry-specific questions. In workshops, tools such as the augmented reality solution „ABP digital Expert on Demand", the virtual reality solution „ABP Virtual Training", the virtual training environment „ABP Virtual Classroom" or the „Foundry Cloud" from Zorc Technology GmbH were presented. Furthermore, it was about the change towards a climate-friendly steel production.

Wolfgang Baumgart from ABP partner ZORC presented the ZORC Foundry-Cloud as an important module of myABP.

The first day focused on „Industry 4.0 and digitalization in the melting business to increase productivity". Markus Fournell and Dr. Marco Rische presented ABP's digitalization concept for foundries, CEO Till Schreiter delivered an emotional keynote speech in which he called on the participants to have the courage to change and digitalize. ABP partners Siempelkamp and ZORC demonstrated the need to enter into partnerships in order to be fit for the future. Dr. Georg Geier from Siempelkamp spoke about digitalization as a way to secure a location, Wolfgang Baumgart from ZORC demonstrated the ZORC Foundry Cloud, which can be used to simulate processes in the foundry and make metallurgical processes more productive. On the second day, Robin Czarnetzki and Mick Ruppert presented augmented and virtual reality solutions. Conference participants were able to try out the digital Expert on Demand and ABP Virtual Training live. Markus Fournell presented the ABP Virtual Classroom together with Andrei Petker. One of them was present at the conference, the other was connected to the classroom at the service desk in Dortmund. In the second part, Dr. Marco Rische and Markus Hagedorn went into detail when talking about inductive melting in the steel environment. On the one hand, strategies for converting cupolas to induction furnaces were outlined, and on the other hand, examples of applications for inductive melting plants in the steel industry were shown.

ABP CEO Till Schreiter asked for more courage for digitalization and change.

TIPP
A video with highlights of the event can be found directly on the YouTube channel of ABP: bit.ly/PW2021ABP

ABP converts ZML from cupola to induction furnaces

Climate-friendly, CO2-neutral melt shop after conversion

The conversion of melting operations from thermally fired cupolas to CO2-neutral medium-frequency induction furnaces is a major trend of the foundry industry. Technology leader in this field, ABP Induction offers the IFM series of high-performance induction melting furnaces with state-of-the-art process control for demanding foundries worldwide. ZML Industries S.p.a. has now made use of this.

Having been part of Gruppo Cividale since 2006, the Italian company is considered a leader in the field of aluminum die-casting, gray cast iron or ductile cast iron, as well as in the production of enameled wire. The company is a sought-after partner on the European market for the most prestigious brands in the household electrical appliance, automotive and mechanical engineering industries.

The tradition-steeped foundry was faced with the decision to fundamentally modernize its own facilities. Previously, the site in Maniago, Italy, had relied on cupola furnaces, but now it needed to switch to more flexible and environmentally friendly induction furnaces. Unlike cupolas, induction furnaces generate fewer emissions, slags and waste. The overall CO2 direct emissions of the Cast Iron division will be reduced by 95%. What's more, users are more flexible in day-to-day production, including fluctuations in production and regular switching between varying gray and ductile iron grades. The respective compositions of the casting alloys can be adjusted precisely. The energy is induced directly into the melting material without any chemical reaction. ABP Induction's IFM crucible induction furnaces are known here for their repeatably fast melting times, high reliability, operational safety and serviceability. The capacity of IFM furnaces ranges from eight to 65 tons with available power supplies between one and 42 megawatts (MW). They can be employed for ferrous and non-ferrous alloys.

ZML has selected 2 IFM 9 (23.2 t) / 12 MW TWIN-POWER® and 2 IFM 6 (9.9 t) / 6.1 MW TWIN-POWER® furnace system, for production of gray iron and ductile iron components. The final commissioning of the overall melt shop is slated for September 2022. The first deliveries will take place in December 2021, and production with the IFM 9 tandem is scheduled to commence in March 2022. Demolition of the cupola furnace plant at the site will take place afterwards. Delivery of the IFM 6 tandem is then scheduled for June 2022 at the current cupola installation site. The ABP furnaces will be the core of the renewed melting shop highly automized from scrap charging to iron preparation and transportation.

ABP was able to convince the customer with its high competence in the field of induction furnace technology and its experience in the conversion from cupola furnaces to induction furnaces. This was topped off with compelling references for plants in high performance classes and TWIN-POWER® converters with high production capacities, which are already in operation in the ABP customer network. ZML employees had also already gained experience with ABP IFM furnaces and particularly appreciated the high quality and high availability. Finally, the coherent ABP service concept, which includes local representation in Italy by Carutti Srl was convincing for a successful start of a long lasting business partnership.

Efficiency of operating the ABP induction furnaces type IFM is based on different modules. Thanks to the TWIN-POWER® principle, the converter power can be freely distributed to both furnaces. As such, increased inverter utilization, lower maintenance costs, and lower investment costs compared to separate power supplies can

be achieved. In addition, the melt processor PRODAPT® Enterprise, and the ABP customer portal MyABP provide intelligent solutions for the progressing digitalization and networking of processes at ZML. The melt processor PRODAPT® Enterprise is responsible for the demand-oriented control of the energy supply for melting, holding, cold start-up and sintering between the two furnaces. Operating data and statuses are recorded and displayed in the MyABP portal and processed for targeted data exchange with the plant management system. The technical furnace parameters, captured via the digital inverter control, are converted into recommended actions for energy-efficient charging via the patented OptiCharge® system. When starting up a batch with a partial charge of ferromagnetic melting material, small portions of this material are automatically refilled. This results in measurable energy savings and production increases in daily production operations compared to uncontrolled charging. Studies show that induction furnaces produce less than half the scope 1 and scope 2 CO2 emissions for melting one ton of cast iron compared to cupolas. Thanks to the ABP plants, not only ZML Industries will reap the benefits of this in the future, but also the environment.

Starting a career at ABP as a working student

Practical experience – also a benefit for the company

An internship is always an excellent opportunity to gain knowledge about business processes and working methods in companies. While pursuing a degree, practical knowledge and scientific expertise can be perfectly combined when you work as a working student. This can also be very beneficial for starting a professional career after graduation.

Alexander Lienau was most recently active in this area, working as a student trainee at ABP's Dortmund location in parallel to his master's degree in industrial engineering. Before that, he had already completed an internship at ABP and had left a lasting impression. „As a working student, I gained plenty of insights into the various departments at ABP, which was also important for my studies as well as my later master's thesis," explains Alexander Lienau.

„I was able to do a lot of my work independently, I was involved in production and sales, so I came into contact with a lot of departments and was even involved in customer meetings," he explains. The short lines of communication and quick decisions were what he appreciated most about the way people worked at ABP. ABP also benefits from the perspectives of a working student as Sarah Culhaci-Rosenbaum, HR Advisor Human Resources at ABP, explains: „Both sides benefit: For our organization, it brings a breath of fresh air, different perspectives and new knowledge." A further advantage is that working students can deal with specific topics in much greater detail. For Alexander Lienau, it was important to gain practical experience, also in dealing with colleagues in a corporate environment.

2 podcast episodes on digitization

How can a melting operation be fully digitized? ABP Induction demonstrates this together with its partner ZORC Technology. The heart of the system is the myABP portal, which provides an overview of all relevant systems and processes in the company and is the platform for the ZORC Foundry Cloud. In two podcast episodes, ABP CEO Till Schreiter and Wolfgang Baumgart from ZORC talk about the conceptual approach and explain how simple the digitization of a foundry can be. There is also technical background on digitization. Listen here: bit.ly/ABPPodcasts

Open session for testing of the ABP Virtual Classroom

Important trainings in the Virtual Academy: schedule for 1st quarter 2022 is set

The dates for the trainings and courses in the ABP Virtual Academy for the 1st quarter 2022 are confirmed. In the ABP Virtual Classroom all important trainings for employees in the foundry environment take place location-independent and without influence of Corona. This includes trainings on the control of GJV production with the Digital Twin, trainings on the ABP cooling water systems as well as dates for imparting knowledge on basic maintenance and servicing work on the induction furnace or also on the thyristor converter. Here are all dates at a glance:

Control of GJV production with the Digital Twin
German: February 22, 2022
10:00 a.m. to 12:00 p.m.

ABP Cooling Systems (Basics)
German: March 8, 2022
10:00 a.m. to 12:30 p.m.
English: March 8, 2022
10:00 a.m. to 12:30 p.m.

Basic maintenance of the crucible induction furnace and its basic operation
German: February 23, 2022
10:00 a.m. to 12:00 p.m.
English: February 24, 2022
10:00 a.m. to 12:00 p.m.

ABP Cooling Systems (Advanced)
German: March 10, 2022
09.00 a.m. to 12:00 p.m.
English: March 17, 2022
09:00 a.m. to 12:00 p.m.

Basic maintenance and servicing work on the thyristor inverter and its basic function
German: March 22, 2022
09:00 a.m. to 12:00 p.m.
English: March 24, 2022
09:00 a.m. to 12:00 p.m.

Registration at www.abp-blog.de/veranstaltungen

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