

HYBRID SOLUTIONS
CLASSIC SERVICES AND DIGITAL
PRODUCTS COMBINED

**THE PERFECT SOLUTION FOR
THE MOST CONFINED SPACES**
QUICK SOLUTION AT EICKHOFF

READING, HEARING AND SEEING ABP:
ALL CHANNELS AT A GLANCE
BLOG, PODCAST, VIDEO, NEWSLETTER



Introduction

This year has truly posed great challenges for us: Not only the fact that we are already in the midst of a digital transformation process. We have also had to deal with the corona pandemic, which placed great demands on all employees at ABP, but also on every customer – and this is still the case today. But there is hope: By this I mean, of course, above all the positive signs in terms of a vaccine, where researchers have achieved a great deal. But I also mean how positively our digital solutions and the constant presence of our employees in the market have been received. The pandemic may have accelerated the issue of digitalization, but from the daily feedback I also gather that our solutions are quickly becoming a very valuable asset for our customers. We will continue our journey along this path in the future – let's do it together, for a better 2021.

*With best regards
and Glück auf!
Till Schreiter, CEO*

The best of both worlds

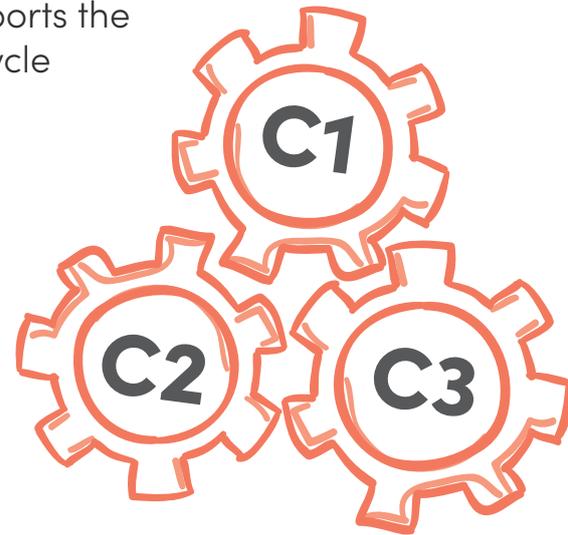
Hybrid solutions: ABP supports the complete equipment lifecycle

ABP Induction unites the best of both service worlds: The digital solutions and classic services are truly impressive in combination as hybrid solutions. ABP Induction now offers various packages to optimally support the entire lifecycle of companies.

Because ABP Induction can offer hybrid solutions covering the entire lifecycle of the systems by combining service and digital tools. Conventional products such as installation and commissioning, repairs and spare parts as well as modernization are all combined with digital solutions such as the ABP Portal, digital Expert on Demand, the ABP Intelligence apps and the ABP Virtual Academy.

The concept is based on the well-established Circle of Service, which is comprised of levels C1, C2 and C3. C1 refers to installation and commissioning: This way customers directly benefit from their investment. ABP Induction's C3 service team provides support during the complete commissioning phase of the system and trains employees to operate systems productively and efficiently.

C2 deals with repairs and spare parts. The most important thing about C2: The productivity of the system is guaranteed. Preventive maintenance contracts also pay attention to the wear and tear of parts. In addition, we also offer round-the-clock customer service. Finally, C3 refers to modernization. This makes it possible for customers to remain successful in the future, because C3 takes aspects such as



modernization, overhaul and audits into account.

So, why do we combine classic services and digital solutions? Because hybrid solutions are the ideal way to achieve both competitive advantages and increased performance. For instance, we integrate on-site customer service with the remote „Digital Expert on Demand“ solution, and we combine on-site maintenance and ABP Intelligence. We also provide upgrades for DICU 3 and Prodapt in conjunction with ABP Intelligence.

All of our services are combined in various packages. How does this benefit the customer? Regular services can be planned, in terms of time as well as financially. At the same time, this also results in a higher availability of the systems, lower maintenance costs, lower investment costs and higher productivity.

You can find more information on the following page and at www.abpinduction.com.

ABP C2 Intelligence

ABP Intelligence

- 24/7 equipment monitoring
- Get alarms if your equipment needs your assistance
- Real time production data
- All available ABP intelligence apps included

On-site maintenance (mechanical/ electrical)

- 3 onsite visits from our engineers during support contract period
- Spare parts stock recommendation
- Service milestone recommendations

ABP Portal

- Access to equipment life-cycle management tool e.g.: Equipment digital profile, ticket system, Service milestone & downtime planning
- Documentation management
- Access to digital trainings
- Access to remote support

Advantages

- Maintenance process improvement
- Higher availability
- Lower maintenance costs
- Higher production volume



CONDITIONS

On request, for example for a term of 36 months

ABP C2 Remote

ABP Expert on Demand (EoD)

- Unlimited remote support
- The EoD app can be used in 9 different AR glasses
- The EoD app can be used with iOS & Android smartphone or tablet
- AR glasses training
- Priority support during business hours

ABP Portal

- Access to equipment life-cycle management tool e.g.: Equipment digital profile, ticket system, Service milestone & downtime planning

- Documentation management
- Access to digital trainings
- Access to remote support

On-site repair (mechanical/electrical)

- 3 onsite visits during support contract period
- Recommendation for acquisition and calibration of required tools

Advantages

- Reduce traveling cost and maintenance
- Shortened downtimes due to faster repair
- Predictable OPEX



CONDITIONS

On request, for example for a term of 36 months

ABP C3 Upgrade



ABP Intelligence

- 24/7 equipment monitoring
- Alarms if your equipment needs your assistance
- Real time production data

ABP Portal

- Access to equipment life-cycle management tool e.g.: Equipment digital profile, ticket system, Service milestone & downtime planning
- Documentation management
- Access to digital trainings
- Access to remote support

Modernization

- Modernization of equipment (e.g. Prodapt, DICU 3)
- Installation of sensors, e.g.: Thermal imaging camera, Flow rate calculator & vibration / noise sensors

Advantages

- Higher availability
- Lower maintenance costs
- Higher production volume
- Dilute investment

SAMPLE CALCULATION

DICU 3 Upgrade

DICU 3, Edge PC, Sensors, ABP Intelligence, ABP Portal
on request, for example for a term of 36 months

Highest competence in the tightest of spaces

Thorough project work, a great deal of creativity and fast implementation convince Eickhoff Gießerei GmbH to opt for ABP Induction when replacing one of its furnaces

In such a densely populated area as the Ruhr region, modernization is always a challenge – and the challenge is even greater if the available space within a foundry is kept to a minimum. The installation of an FS20 at Eickhoff Gießerei GmbH in Bochum has now proven that ABP Induction is truly up to the challenge: The two-tonne system had to be integrated in an extremely confined space between two other furnaces. The fact that Eickhoff chose us was due to the thorough project work and the ingenious conception of the modification to the system configuration, as well as the rapid implementation potential offered by ABP.



Eickhoff is a globally active family-owned company that has been deeply rooted in Bochum since its foundation in 1864. Steeped in tradition, the long-established company manufactures machines and gearboxes that have to perform under extreme conditions all over the world, whether underground in mining or at altitudes of one hundred meters as wind power gearboxes. Eickhoff is located in the south of Bochum, in the Wiemelhausen district. „That means: The company is based in a densely populated area. Now the time had come to modernize the tradition-rich headquarters – we are making this possible with our special design of the replacement system,“ says project manager Lutz Walther, explaining the demands of this project. The challenge was to

accommodate a larger furnace with higher output within a very limited installation space. „We managed to do this by means of a compact design of all units and consistent use of water cooling; this also applies to the converter transformer,“ the expert goes on to say.

For Oliver König, production manager at Eickhoff, other factors also played a role: For example, the foundry wanted to have a broader base with ABP as a further furnace manufacturer. „On top of this, there are very practical considerations such as proximity to service and to the manufacturer’s contact person in Dortmund – so someone is always readily available,“ explains the production manager. The price factor also played a role in making the decision.

Despite the fact that the old furnace

at Eickhoff was still fully functional, it no longer complied with future safety regulations. One example was the lack of a melting process control system, which would have resulted in a shutdown of the system. We kept the old furnace running until the very last day before the ABP team could get down to work.



The new furnace

The objective of the order was to replace the existing ABB 1.5 t MF crucible furnace, which is technically obsolete in terms of safety technology, with a 2 t MF crucible furnace of the type ABP FS 20 with a higher output (1,000 kW instead of 790 kW). The system is further enhanced by a furnace scale and cooling system including air/water cooler as well as the PRODAPT® Advanced melting processor; it calculates the energy requirements based on the furnace contents and automatically controls the energy supply for melting and holding operations. Eickhoff puts this configuration to use for melting various iron and steel alloys (GJL, GJS, cast steel, ADI, wear-resistant cast iron Ni-HARD, GX and austenitic cast iron Ni-Resist).

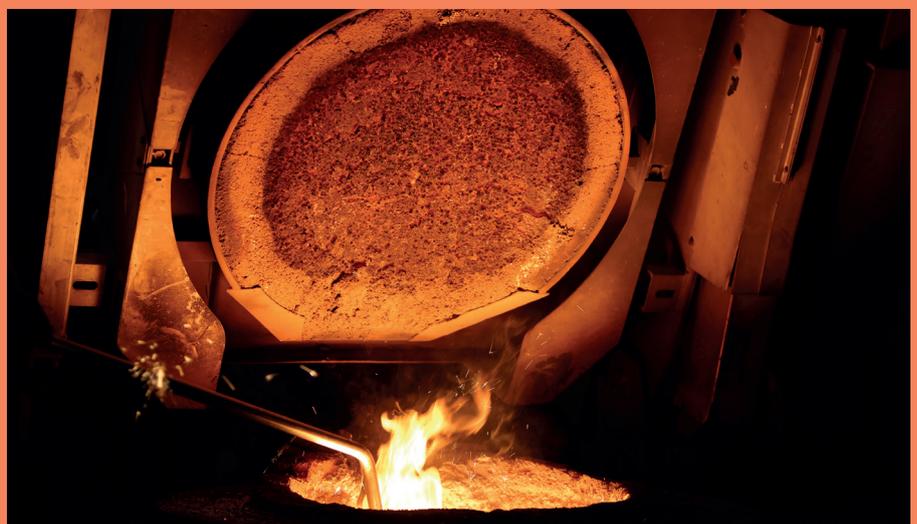
Dismantling in such a confined space was one of the greatest challenges. „Some issues only became apparent once the system was dismantled - but that was something that we were expecting,“ says Lutz Walther. For instance, we found an old wall and a hydraulic system beneath the furnace. The dimensional conditions were then taken into account in the further planning, so that the downtime could be kept relatively short: We took the old furnace out of operation on February 28, 2020, and the new furnace was up and running on May 15, 2020. „The redesign process went smoothly - it was clear to our team that we had to remain flexible during the implementation, after all this is definitely not a brand new building on a greenfield site“. Regular operations in the foundry were not affected during the dismantling and rebuilding phases. For the replacement furnace, we opted for a compact design. A new



room was built for the transformer unit. There were a few special measures required to be able to build efficiently given the available space. „We considered our needs in advance and then decided on the two-tonne system,“ explains Oliver König. After all, Eickhoff works in three shifts, with two employees working on the furnace at the same time. „But they quickly became accustomed to the new control system, which has a completely different work interface with its visual display and touch control panel than their colleagues are used

to. The employees on the new FS 20 process around 60 alloys. When the system was put into operation, ABP employees were constantly on site to provide support. This meant that initial teething problems could be solved on site before the two-tonne system could be fully integrated into production.

A further advantage for Eickhoff: The FS 20 furnace can be monitored and managed with myABP: „Our open concept for new digitization solutions for the foundry industry offers enormous potential for the future here,“ assures Lutz Walther.



First ESP line in the USA to be built at U. S. Steel

ABP's parent company Primetals Technologies has succeeded in creating an ultra-thin endless strip

ABP parent company Primetals Technologies is supplying an Arvedi ESP line for the production of continuous strip to United States Steel Corporation (U. S. Steel) for the Edgar Thomson steel mill at its Braddock, Pennsylvania, production site. This is the very first ESP line to be built in the USA. The casting-rolling mill has a nominal capacity of 2.5 million tons of high-quality ultra-thin strips. With a maximum rolling strip width of 1956 millimeters, it will be the widest ESP line that has ever been built.

The Arvedi ESP line is designed for the production of strip with a thickness between 0.8 and 6 millimeters ranging from 965 to 1956 millimeters in width. The ABP parent company Primetals Technologies is primarily responsible for the engineering of the Arvedi ESP system and supplies mechanical equipment, media supply, technology packages and automation systems. ABP Induction in turn supplies a transverse field heating system as the core element of the ESP technology. The entire system has a fully integrated basic

automation (Level 1) plus process optimization (Level 2) to control all casting and rolling operations. The scope of supply also includes a level 3 automation system, which also includes the transformers and the transformer station for the power supply. And it also includes a modular coil transport system for coil transport.

With this investment, the Mon Valley plants will become the main source of substrate for the production of the company's industry-leading steel grade XG3™. This modern high-strength steel (AHSS) enables automotive manufacturers to comply with today's fuel consumption specifications. Besides producing sustainable AHSS steel, this project will improve the environmental performance, energy efficiency and carbon footprint of the Mon Valley site.

The Edgar Thomson mill in Braddock, Pennsylvania, as part of the U.S. Steel-operated Mon Valley plants, is an integrated steel producer that also includes three other separate facilities with a total annual crude steel capacity of 2.9 million tons.

The site is responsible for the basic steel production of the Mon Valley plants. The facility features two blast furnaces, two BOF converters, equipment for vacuum degassing and ladle metallurgy, and a twin-strand continuous slab caster. The slabs are subject to further processing in another Mon Valley facility.

The Arvedi ESP process produces hot-rolled coils in a combined casting and rolling mill directly from liquid steel in a continuous and uninterrupted production process. The line starts out by casting a thin strand which is then rolled down to an intermediate thickness of 10 to 20 millimeters in a three-stand high reduction rolling mill positioned at the end of the continuous caster. Following the reheating process using induction heating, the transfer strip is rolled down to the desired final thickness in a five-stand finishing rolling line with subsequent laminar strip cooling.

The strip is then cut with high-speed shears immediately before the coils are wound. The full range of steel grades can be flexibly produced on Arvedi ESP systems. The energy consumption and corresponding costs of rolling mills of this type are up to 45 percent lower than those of conventional rolling mills with separate casting and rolling processes. They also tend to have significantly lower CO2 emissions. In addition, with a length of only 180 meters in this case, the dimensions of these rolling mills are considerably more compact than those of conventional casting and rolling mills.



On all channels: Reading, hearing and seeing ABP

Podcast, video, blog, newsletter: Find out more about all of ABP's channels!

Exciting new things are happening every day at ABP Induction, whether in product development, technical service or digitization. And because the developments are sometimes so innovative and fascinating, we simply have to show you all this – and we do this on the most suitable channel for each topic. That's why we invite you to browse through our channels, from YouTube to Spotify, Apple Podcast & Co. to our Expert Blog.

Let's start with the **Expert Blog**: Here you will find a new presentation from our ABP experts on current trends and developments every month. How does the low-pressure die casting principle work? What do you have to bear in mind when it comes to Augmented Reality solutions? And how does coil repair work? You can find out more about this straight from our experts in the ABP Expert Blog, which can be found at www.abp-blog.de.

If you want to take our experts with you on the road, you can access the **ABP Podcast**. It bears our claim „People.Technology.Success“ and is available on all standard podcast platforms, i.e. Soundcloud, Spotify, Apple Podcast and Google Podcast. There, our experts talk to journalist Michael Braun about the latest topics, explain new developments in detail and point out where the advantages of new processes, products and solutions are – exciting dialogues, not just for technology enthusiasts.

And our video format on YouTube adds the visual component. This is called „**100 seconds ABP**“, and here you will get to know ABP

employees, their areas of responsibility and the innovations in which they are involved in short video clips. Video is of course the perfect format to learn about visual highlights such as augmented or virtual reality.

Our **newsletter** concept is also entirely new: So the latest ABP innovations will automatically be delivered to your mailbox. In short news presentations, we not only show you what's new, but also invite you to experience the innovations first hand: There you will find links to exclusive demos, free test sessions and much more – register now if you haven't already done so!

Of course, this applies to all formats: You as reader, listener or viewer can choose in which language you

want to be informed. Practically all episodes and contributions are available in German and English. You can easily subscribe to the podcasts, videos and of course the newsletter – so you are always up to date when new episodes are available.



Take part now!

All of our ABP media naturally strongly thrive on participation – which is why we invite both employees and customers to join in our formats. If you have an exciting idea for ABP News, or would like to contribute to the ABP Expert Blog, please feel free to contact us. This also applies to our video series „100 seconds ABP“ as well as to our ABP podcast „People. Technology. Success.“. Feel free to send your ideas and topics to Ulrike Szymura, ulrike.szymura@abpinduction.com, who will collect all suggestions and coordinate them. We look forward to your feedback!

Our award-winning Virtual Academy

In November 2020, our digital training and further education idea „ABP Virtual Academy“ reached the finals for the KVD Service Management Award 2020. Our idea prevailed over almost a dozen competitors, including such well-known companies as Endress+Hauser, and was presented by our Vice President Global Service & Digital Products, Markus Fournell, at the Service Congress of Europe’s largest service association, the KVD. There, participants and thus practitioners from the technical service sector determined who would be among the winners: And to our great delight, the ABP Virtual Academy was awarded second place – a great success not only for the digitization team, but for all ABP employees. This award clearly shows us that our strategy is on the right track for the future. The award is also a mandate for us to continue working in this direction.



Successful trade fair presence with subsequent personal challenge

Being successful means facing new challenges, setting goals and developing visions that provide additional motivation. Along with our customers, we accept the challenge of transforming the metal industry into a cleaner, more efficient and cost-effective industry. ABP’s digital portfolio is the key to making this a reality.

Our large ABP team is committed to following this path. A perfect example is the outstanding representation at the metal fair in China in August 2020. Our colleague Zero Wu and his team presented the visions of ABP there – only to then go on to tackle his very own challenge: The Cross Country Endurance Race in Central China: Zero and his team completed 70 km in 3 days and ended up in the TOP 10 of the 80 competing teams – congratulations not only on the result, but also for accepting the challenge and consistently working towards the goal. That’s ABP.



Imprint

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