

Metal Finishing News

MFN

Distributed In North & South America, Europe and Asia

**Publication for the Peening , Blasting
and Vibratory Finishing Industries**

Separate Print

Vol. 3, November Issue, Year 2002

**Interview with Dr.-Ing. Frank Wüstefeld of
KSA Kugelstrahlzentrum Aachen GmbH**



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Interview with Dr. Frank Wüstefeld, CEO and president of KSA, an up-and-coming company for contract peening and automation solutions

MFN continues its interview series, this time with Frank Wüstefeld, who has been managing director of KSA Kugelstrahlzentrum Aachen GmbH since its foundation in 1994 and who recently became a shareholder. We had the opportunity to talk with Frank about new projects in the aerospace industry, the key success factors for the automation of shot peening processes and KSA's contribution to this field.

(?) **MFN:** Your company KSA is known for its strong scientific background and for peen forming tank segments for the Ariane launcher. Do you consider KSA to be a university-spin-off?

(!) **F.W.:** I think there's some truth in that since KSA began at the IBF Institute for Metal Shaping in Aachen. By the way, the institute's director has a strong industrial background, originally coming from the aircraft manufacturer Dornier in the eighties.

Today, our success is based on the combination of our in-depth technical knowledge and our experience in the production of about 1000 aerospace components – not only the Ariane tank segments you mentioned but also Airbus fuselage shells for example. And we also provide excellent professional service packages. So although we still have close contacts with the university institute, we are now operating independently in the aerospace industry. However, we are just at the beginning:



Our goal is to support customers worldwide in implementing automated shot peening processes.

(?) **MFN:** An ambitious goal. But tell me first about your current activities. Do Ariane tank segments still form KSA's core business activity?

(!) **F.W.:** Peen forming Ariane tank bulkhead segments is still the major activity within our contract peening business. And we are expanding this business despite difficult market conditions for Ariane. We are introducing 1/4 dome segments to replace the current 1/8 dome segments, which will result in substantial cost reductions and, we hope, will ensure the future growth of our contract peening business. We also shot peen Ariane engine frame segments for Dutch Space on a contract basis. Let me point out that both Ariane partners were convinced not only by the quality of our work but especially by reduced costs and run times.

(?) **MFN:** All that sounds as though you are highly dependent on the Ariane business.

(!) **F.W.:** Well, a young company has to start with initial projects. And the





Ariane project is just perfect for KSA regarding production experience and reference. Still, we recognized the dependency problem a few years ago, so in 2000 we decided to develop further by investing in a new production site with a new shot peening machine. This machine is unique in that it has two robots for double-sided, simultaneous peen forming. As a result of this and our Ariane job-shop experience we can now provide professional services for high-requirement aerospace customers using a state-of-the-art and very cost-effective shot peening facility. We consider ourselves to be ideally equipped for applying what we call 'Shot Peening Process Automation by KSA'. And this strategic investment has already proved successful: Last year we started working with Airbus Germany on shaping

laser beam welded A 380 fuselage shells in an automated way.

(?) MFN: What role does KSA play in the Airbus project?

(!) F.W.: Airbus was looking for a partner who would be able to manage the whole process of implementing automated shot peening at their production site. We started by looking at the whole question of automation feasibility. Then we peen formed a number of test and qualification panels at our site in Aachen. This qualification work is still ongoing and should be finished within the next few months. At the same time we are working together with our Swiss partner Baiker AG, one of the leading manufacturer of peening equipment, on an automated shot peening facility for future serial production which will be operated by Airbus at its Nordenham plant. This machine will handle fuselage shells up to a size of 11 x 2.4 x 1.3 m. While Baiker stands for top quality in terms of machine's operation and reliability, KSA will take on the role of what we call a 'system integrator': The machine and the process, i.e. programs to peen form defined fuselage shells automatically, will be integrated into the production chain at the Airbus plant. The fact that Airbus requires the machine to be ready for automated serial production right from scratch represents a huge challenge for us, but it is also an opportunity to apply our expertise. Our after-sales services will include programing new contours offline and then loading the forming program onto the Airbus facility. We believe that such a comprehensive system integration package is a real innovation in this market and that it will enable customers to automate their shot peening processes.

(?) MFN: You are not the only company to claim to carry out 'automated' shot peening. What do you understand by 'automation' and what are its key success factors?

(!) F.W.: There are several key success factors such as broad expertise, an extensive data base for shot peening applications and high-precision machines. Other essential factors which play a role include offline programing, online control and visualization, shot velocity measurement and short learning curves for new contours. And we also have the advantage of zero defects of original components and short run times in serial production. In addition, the machines must be user-friendly. The operator has a very simple user interface to start the peening program, allowing him to attend to other work directly afterwards. That's our view of process automation.

(?) MFN: Can you name achievements on the way to process automation?

(!) F.W.: We are particularly proud of having peen formed about 1000 aerospace parts to date without losing even one serial component. And we are very pleased to be supporting Airbus Germany in implementing automated shot peening. We hope that this will draw attention to our comprehensive process implementation approach.

(?) MFN: You mentioned shot velocity measurement as one success factor for automation. What do you think of Almen tests?

(!) F.W.: They are stipulated in every specification, as I'm sure you know, and are therefore respected as an industry standard. I don't think any further comment is necessary.

(?) MFN: I see. What other challenges does the shot peening industry face?

(!) F.W.: Most companies still confine themselves to monitoring machine data. In my view complete process control must include more, especially the influences on the component's material: It is important to know what has happened to the surface, where and when.

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Dr.-Ing. Frank Wüstefeld, CEO and President of KSA





(?) **MFN:** Many of our readers might reply: "No, our specs don't ask for such process control."

(!) **F.W.:** We have talked about specs already. Let me put it like this: Specifications do not necessarily reflect the possibilities provided by the latest control technologies. And while we are aware that the level of control and automation described is not needed for all shot peening applications, we believe there are areas where such control and automation would be useful. Perhaps your readers might like to comment on this point.

(?) **MFN:** Sorry, that sounds rather too theoretical. Shouldn't your company be offering practical solutions instead of theoretical discussions?

(!) **F.W.:** You cannot simply offer automation solutions, as we understand them, for complex industrial processes as standard 'off-the-peg' software. If you want to make full use of the advantages in terms of run times and costs, the application and customer's current process/equipment have to be reviewed. New certification has to be carried out where necessary and so on. But although the implementation of customized automation solutions takes

time, the rewards are high.

(?) **MFN:** Let me ask you about your contract peening business. There are a lot of players in the market. How can you be competitive?

(!) **F.W.:** Well, for a start, our prices are competitive due to automation, i.e. low manpower and – we do it differently. Customers are increasingly refusing to accept 'closed shops' which make a secret out of nothing. Since our early days we have provided high quality work with 'transparency'. That means full documentation of all relevant data and, in general, an 'open policy'. Everybody is invited to Aachen to see what we do. We are aiming at a partnership with our customers as well as with our partners in the supply chain.

(?) **MFN:** Are there other aspects in which KSA is different?

(!) **F.W.:** For example, I don't consider KSA as 'my company'. In contrast, we are a small close-knit team of 'equals'. Each of our 6 team members is highly qualified in a specific field and has his own responsibility. Of course it is impossible for such a small team to manage the company's growth without a network of suppliers and supporters.

We are focusing on our core competence and outsourcing other work consequently to partners.

(?) **MFN:** What are KSA's plans for the future? Are you thinking of expanding into shot peen hardening?

(!) **F.W.:** Based on our references and experience we want to position ourselves as a global process specialist for high-end shot peening applications in general. In the short term, we will finish the ISO 9100 certification and, as a result of our work for Airbus Germany, we will gain a reference for other aircraft manufacturing applications. As regards shot peen hardening we have ideas on how to expand into this market, but the customer's applications and needs will determine the strategy. Another growth path is international expansion. For this we are looking for partners who would like to participate in KSA's success and to provide support by giving KSA access to their markets.

(?) **MFN:** Admittedly, customers with high-end shot peening applications might benefit from KSA's new approach. What do you in turn expect from the industry?

(!) **F.W.:** We think our 'different' approach will bring great advantages to the industry. But it will take time and requires an open mind to change. Our team is highly motivated by the opportunity to contribute to substantial improvements in the industry's processes and performance in partnership with the customer. We are willing to take on any challenge and also, of course, to co-operate with others as part of larger projects.

We at MFN would like to thank Dr. Ing. Frank Wüstefeld for this interview.

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