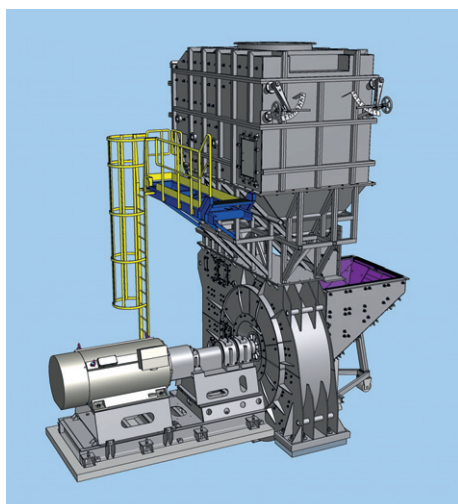


IVITAS BEATER WHEEL MILLS CAN MAKE A MEASURABLE DIFFERENCE ON YOUR MILLING OPERATIONS

IVITAS is an engineering company that focuses on the design, planning, construction and (partially) on the delivery for conventional power generation. An example of one of their many unique solutions include boiler designs for the Tusimice II Power Plant, which were awarded the prestigious gold medal at the 2012 International Engineering Fair in Brno. There are currently three new IVITAS-designed boilers under construction for the 250MWe units at the Prunerov II Power Plant. Their unique solution respects new emission limits which will not become valid until 2016 and does not use additional cleaning of gas-generated pollutants by secondary measures. IVITAS specialises in technology for coal boilers with dry bottom furnaces. In this respect, the professionals at IVITAS improve their know-how by development of their own components, for example pulverized coal burners and mill circuits for coal preparation. To learn more about this subject, we paid a visit to the Chairman of the Board, Pavel Dostal, to ask him several questions.



Beater wheel mill – 3D model

Mr. Dostal, why have you focused on the development of beater wheel mills?

Our goal has been to design a complex system of technology for an efficient combustion process in a pulverized coal boiler in order to be ready for emission reductions in heating and power plants according to regulations. In 2009, we started construction of our own combustion testing facility. At this facility, we test different types of coal from the perspective of combustion and emissions. The second step was development of the beater wheel mill; its prototype has been used for about 2 years in the Melnik II Power Plant. We are now perfecting the solution of a low-Nox burner for black and brown coal. Development programs are rather expensive and we managed to get financing thanks to the MPO subsidy program. The Mill Project was also realised thanks to CEZ Group. From a technical point of view, we collaborated on development tasks with well-established partners such as MORE, UAM Brno and Vitkovice UAM.

How long did it take to design a beater wheel mill and has the new mill proven itself?

Development took about 3 years. In November 2011, it was handed over for testing and was installed. It has been proven to function very well and after almost 2 years of operation, we are able to say that the positive features of this solution are more than obvious. It can be recommended for use with other pulverized coal-fired boilers that use beater wheel mills for coal preparation. The interest from international companies is a sign that it is a high-quality solution and it is very likely that it will be installed outside of the Czech Republic. The results were presented at several conferences, e.g. the 2013 Boilers Conference and

the Energetics and Environment Conference, which was organized by the Technical University of Ostrava.

What do you see as the biggest advantages of your solution?

The main advantages of our solution are the major improvement in power regulation, extremely good grinding fineness and especially the increased durability of the grinding components (beaters). These are protected by utility models. As for the grinding components (boards and beams), abrasion caused by ground coal leads to a change in their geometry and makes the grinding parameters worse. Therefore, it is desirable to preserve the geometry of the grinding components during operation as long as possible. Our solution for the beaters significantly improves this parameter as shown in the diagram. The operator then achieves a longer period of time between machine downtime for repairs and the performance parameters during operation are more stable. The license agreement for the grinding components solution (boards and beams) was given to UnionOcel for realisation of supplies.

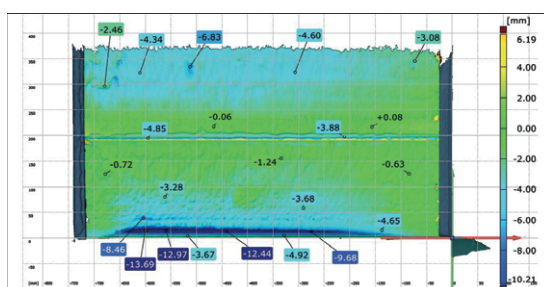
If I understand correctly, it is possible to install grinding components into older types of mills and improve the features of the machinery?

Yes, that is correct. However, in such cases it is preferable to consider the application in a wider perspective. You need to assess the condition of the machinery and its current usage. In such cases, we are ready to offer assessment and optimisation of mills. These days, operators have e.g. a problem with the supply of coal. We carry out a further study if the type of coal is changed. Coal from different mining sites has different qualities that need to be taken into account. Above all, it is about the safety, performance and durability of the mills.

To conclude our conversation, how would you characterise your company and what other projects are you currently working on?

We are an engineering company that focuses on the design of technological units for investment projects. It was founded in 1996 and currently has more than 40 employees. The fundamental values of our company include providing highly-qualified services and keeping a long-term partnership with our clients. Readers can find our main references on our website at www.ivitas.cz.

*Thank you very much for the interview.
Miroslav Bindac*



Grinding element (beater)
– laser scanning after 1,230 hours of operation



Grinding element (beater)
– beater wear after 1,230 hours of operation

