

Press Release

The optimal balance between the grinder and abrasive

Top efficiency when grinding cast iron components

Make savings of over 30% using a turbine grinder with high-quality abrasives

Grinding as a geometrically undetermined machining process is widely employed, whether processing molds or removing leftover material in foundries, in machinery, tool or jig construction, in industrial steel construction or the automotive industry. Abrasives are used to process the surfaces of widely varied materials such as metal, wood or plastics or used to separate materials. Every grinding process is based on two components, whether manual or used in stationary applications, the grinder and the abrasive, and they must be carefully matched to obtain an optimal end result.

Dr. Michal Hubálek, Head of Development at DEPRAG CZ a.s. is responsible for the pneumatic tool product area. DEPRAG INDUSTRIAL gives us the inside story and reveals that it is this balance in particular which is indispensable for efficient and ergonomic processing within the industry. When this balance is right, it can mean enormous savings in time and costs for many applications.



“Our customer, a well-known manufacturer of cast iron pump housings, came to us requesting that we re-examine their working procedures and find out where they can optimize,” recalled Dr. Hubálek. “First of all we analyzed the current situation on site. It is important at this point to not only inspect the grinder but also the abrasive used in the customer’s application,” explained Dr. Hubálek. His customer could reach a maximum grinding speed of 32 m/s. Upon closer inspection of the technical details it was discovered that the abrasive being used would allow for a maximum speed of 15,000 rpm. The customer opted for the straight design grinder with vane motor GDS100-190BX for the processing of its cast iron parts. This can

be found in the comprehensive standard catalog of DEPRAG INDUSTRIAL tools. This grinder has a power output of 1 kW and an idle speed of 19,000 rpm and is the optimal solution for that abrasive previously in use.

After examining the situations of our customer, the DEPRAG technicians become active. "Our goal is to increase productivity. This is basically attained by increasing the grinding speed. For optimal processing of the cast iron parts we selected the straight design grinder type GDST100-280 BX with power output 1 kW and idle speed 28,000 rpm for the customer". In order to enable this turbine grinder to be effective a suitable abrasive, which allows higher speeds, is also required. The application technicians at DEPRAG found this abrasive straightaway. The recommended abrasive allows speeds of 29,800 rpm, almost double the speed of the abrasive previously in use. "However our customer was not pleased when he first heard the purchase price of this high quality abrasive. It seemed that 2.90 Euro per piece was too high in comparison with the previously used cheaper abrasive at 0.70 Euro a piece," recalled Dr. Hubálek. The customer's reaction to this suggested that we find a new solution.

"But it is not as simple as that. Whether a solution is economically viable is proven in field tests. This field test was carried out with the turbine grinder and alternative abrasive on-site" said Dr. Hubálek. A grinding speed of 47 m/s was achieved using the innovative turbine grinder. This is around a 46% higher speed than previously achieved in this application. And that is not all, "this field test proved that the change to a turbine grinder not only saves processing time but also that the new abrasive lasts 4 times longer. The customer had not initially taken this increased lifespan of the abrasive into consideration," explains Hubálek.

Dr. Michal Hubálek relates the fact in comparison to the customer's running operations. They work in shifts and process 1500 cast iron parts per week. "1 shift session was not sufficient without overtime under the previous grinding solution. But due to the faster processing of the turbine grinder type GDST100-280BX and corresponding abrasive so much time is saved that overtime is no longer necessary. Together with the 4 time higher lifespan of the abrasive, the total cost comparison is a saving of over 30%!"

The customer wanted to know what other advantages could be gained as well as the cost saving. Dr. Hubálek explains "There is also the oil-free and almost maintenance free operation. Grinders with vane motors must have their vanes changed regularly but this is no longer necessary with turbine drives". The turbine grinder scores highly on its wear-free magnetic brakes with which the run time of the grinding tool is considerably decreased by over 30%.

Furthermore, an integrated speed regulator reduces the air consumption dependent on load. Additional plus points of the 1 kW output GDST100-280 BX are the lightweight body and low sound level of only 75 dB(A). The robust



Application Example: Grinding a casted product a high speed with the DEPRAG-Industrial Turbine Inline Grinder GDST 100-280BX

design of the DEPRAG INDUSTRIAL grinders ensures a high lifespan of the tool in continuous industrial use. "Application cases such as with the cast iron housing, are not unusual", states Dr. Hubálek. "We often deal with similar starting situations even though it is easy to save costs by making the right choice of the grinder and abrasive". The components of the grinding process and the correct grinder and abrasive cannot be considered separately. The turbine grinder type GDST100-280BX with collet and the corresponding abrasive enable DEPRAG to provide the customer with an overall solution to optimize working procedures. The application specialists at DEPRAG have developed a customized solution to produce the highest possible economic advantages. Dr. Hubálek continues, "with our wide range of grinders we can draw on unlimited resources to offer the most economical solution for every customer".

DEPRAG's comprehensive program includes die grinders with collets in power ranges from 90 W to 1,200 W at idle speeds of 11,000 to 100,000 rpm. These grinders are available in straight or angle design. Furthermore, there are radial grinders with power ranges of 500 W to 2,400 W at speeds of 4,000 to 17,100 rpm. Additionally, DEPRAG



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offers high-powered angle grinders in power ranges 500 W to 4,500 W for grinding disc diameters of 100 mm to 230 mm available from the manufacturer. Angle grinders are available with direct drive or angle gears. Belt grinders are available at 300 W and speed 30,000 rpm and 500 W at speed 16,000 rpm. For stationary use the company has a wide variety of air motors available.

DEPRAG offers optimal and efficient customized solutions in over 50 countries of the world. DEPRAG SCHULZ GMBH u. CO. has its headquarters in Amberg, Germany and is represented with over 600 employees in more than 50 countries. As well as

the range of pneumatic tools the core competencies of the company include screwdriving technology, automation and air motors.

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