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Automation in the metal-working industries is on the rise

Polishing and deburring: DEPRAG simply does it better!

DEPRAG enhances its range of grinding motors for deburring systems

What do metal castings, products made from composite materials, and brake disc blanks have in common? When all of the above items are machined, any sharp edges, burrs, fraying or chips produced during the manufacturing process need to have the edges smoothed and chips removed in a deburring process. Anytime cutting processes such as turning, milling, drilling or thread-cutting are involved, the manufacturing process will almost always also include a deburring stage on the workpiece. This guarantees the quality of the component to comply with technical specifications. Automated deburring systems in which robots undertake many of the tasks such as milling, polishing and grinding, are becoming the norm throughout the industry.

Automated processes are coming to the fore in foundries too. The job of cleaning the raw castings; an expensive and time consuming job is increasingly being carried out as part of the automated production process. The practice can also be observed within the synthetics processing and woodworking sectors. It is generally practiced in the manufacturer of high performance products; in large numbers, where process reliability, quality, productivity and the improvement of working environments are an important criteria in the manufacturing process. A major advantage of automation has proved to be its capacity to reproduce high quality in deburring, grinding and polishing processes.

Stationary Grinder for machine integration

The product might be the shaft of a hip prosthesis, a pressure cooker lid, the rear axle for a heavy goods vehicle or perhaps a synthetic window-frame. Many specialist mechanical engineers have developed a whole series of economically and technically impressive manufacturing solutions to deal with deburring, grinding and polishing. A major component of the deburring system is a high-quality drive to control the milling, grinding and polishing tools.

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"The ideal motor for these applications is a pneumatic grinding motor, that with its outstanding power-weight ratio, can be incorporated into the tight fitting space inside a robot," explained Dagmar Dübbelde, DEPRAG's air motors product manager. The German company which numbers among the leading manufacturers of air motors has brought innovation and continuous improvement to existing product lines.

"We have enhanced our range of high-performance grinding motors. With seven grinding spindle versions our portfolio of grinding motors now covers an output range of between 150 W and 1000 W", said Dagmar Dübbelde, highlighting the increased versatility of DEPRAG's air motor range. For several decades the mechanical engineering and tool-making company has been supplying manually-controlled pneumatic grinding machines for industrial processes. "We have incorporated all the experience we have gained over the years into our grinding motor program to the benefit of users. By expanding the program we are adjusting ideally to the trend towards automated deburring, grinding and polishing tasks."

This refers to the new grinding spindles which are now swelling the existing range: two grinding motors are available, each with a power output of 300 W, and with idle speeds of 30,000 rpm's and 45,000 rpm's. A further three air motors cover the higher spectrum of 500 W (idle speed 20,000 rpm's), 700 W (idle speed 19,000 rpm's) and 1000 W (idle speed 19,000 rpm's).

By expanding its range DEPRAG is now able to supply grinding motors with rotation speeds ranging from 20,000 to 47,000 rpm's; appropriate for any application. Dagmar Dübbelde said, "Our service includes a well-established advisory role. We are the expert partner, from generating low-cost prototypes to series production. From our comprehensive range, it is possible to build an economically priced drive solution into a robot-controlled deburring system, or incorporate the appropriate air motor to serve as the drive unit in manual deburring, grinding and polishing tools. She also added "there are DEPRAG drives for high power density applications too, where it is feasible to deploy a wear-free turbine."

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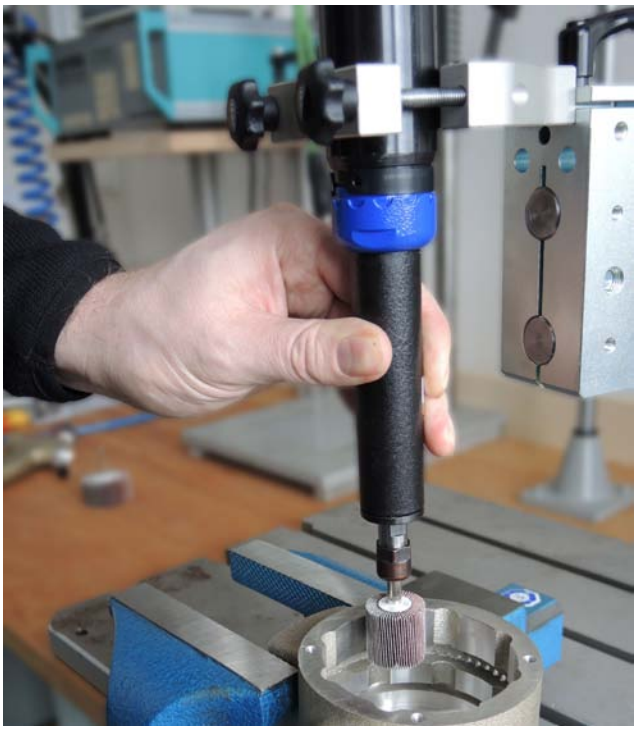
DEPRAG grinding motors are supplied with a robust steel housing. This ensures that the pneumatic motors constantly deliver high precision and operating reliability. The grinding spindles come equipped with an accurate collet chuck with high concentricity precision. Dagmar Dübbelde: “The new product portfolio also has a very attractive price-performance ratio.” Besides an exhaust hose system complete with sound absorber, the motors are supplied with the collet chuck, and the appropriate single head or double head wrench for straightforward polishing or grinding disc changes.

Grinding motors in the 500 W, 700 W and 1000 W power classes are equipped as standard with the new integral DEPRAG speed regulator. This is a huge advantage with regard to air consumption. A centrifugal governor reduces air consumption during idling.

The air motor is lightweight and compact, thus ensuring that the new grinding spindles are ideal for fitting into robotic systems. Dagmar Dübbelde added: “While providing the same power output, the air motor occupies just a third of the size and has a fifth of the mass of a comparable electromotor. The motor’s power-weight ratio and robustness, its ease of installation and service-friendliness, together with its long service life all speak for themselves. If required DEPRAG grinding motors can also be operated without oil.”



Close-up of a precision deburring station

DEPRAG SCHULZ GMBH u. CO, a medium-sized mechanical engineering firm employing some 600 people in around 50 countries, is known throughout the world for its versatile portfolio of air motors. If no suitable drive for a specific application can be found within the product range, skilled DEPRAG engineers can often develop a cost-effective tailored solution, based on standard components. Dagmar Dübbelde concluded: “Our service and advice does not cease once the purchase has been made. We also make sure that any necessary maintenance costs are kept low, customers can buy individual wearing parts or complete replacement units.”

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