

Advanced Grinding Solutions announces record machine sales for 2023

Advanced Grinding Solutions (AGS) has confirmed that 2023 was its best year ever for machine sales with orders totalling some £1.8m being received in December alone with a total order intake approaching £14.5m for the year. Leading the way was Rollomatic with large numbers of machines sold to the UK's cutting tool industry with various manufacturing companies located in Ireland also ordering Rollomatic grinding machines for manufacturing medical parts, drills and special tooling for the mould industry.

Chris Boraston, MD at AGS, comments:

"The UK remains a large market for Rollomatic tool grinding machines with more rotary cutting tools manufactured here on Rollomatics than on all other brands put together. 2023 was a remarkable success story for Rollomatic as mainstream UK manufacturers of end mills, drills, burrs and other such tools purchased more machines than ever before. Rollomatic also succeeded to supply a number of their NP machines for the blank preparation (cylindrical grinding) of cutting tools and for more specialised tools for the mould & die industry.

The Rollomatic NP machines are used by many UK cutting tool manufacturers to grind carbide quickly and easily cylindrically and HSS tool blanks to diameter and form shape rather than to do so on multi-axis tool grinders whereby the blank preparation grinding process on those machines takes considerably longer, is more expensive and is generally not as accurate. Previously when in need to increase capacity many companies ordered more multi-axis tool grinding machines but that will always compound the problem of lengthy cylindrical grinding times as those machines cannot grind anywhere near as efficiently as the NP variants. More tool grinding companies are realising that using NP machines really does release many hours of manufacturing time from the front end grinding cells thus streamlining production due to the cycle time savings that are made. The last week of December rounded off a fabulous year here for Rollomatic with an Irish manufacture of drills purchasing their first Rollomatic grinding machine.

It was also extremely pleasing for us to sell more 6-axis Rollomatics for the manufacture of carbide inserts. The Rollomatic 630XW grinding machine has a general working range of grinding tools from 0.1mm to 20mm in diameter, (3.9mm to 25.4mm IC dia on inserts) has a high-speed multi-pallet pick and place loader with positions for up to 1,360 tools as standard, and as standard a 6-position grinding wheel changer holding up to 24 wheels. The ultra-efficient synchronous grinding spindle motor provides constant rotation speed and torque regardless of the load on the motor and this combined with the latest linear motor technology provides benefits such as an enhanced surface finish and reduced maintenance costs. The oil that's used for cooling the linear motors is the same as the coolant oil; this ensures constant thermal stability during production.

Machines may be specified with an optional retractable grinding wheel dressing unit with an in-built Dittel acoustic sensor and are equipped with a touch probe that determines the exact location of the insert blank after clamping; this in order that the software can grind the tool geometry according to the virtual centreline of the blank. This ensures that a run-out of just 2 microns can easily be achieved. As with all Rollomatic grinding machines it comes with their industry leading 3 years parts and labour warranty that is provided by Rollomatic at no additional cost and free of charge software and free unlimited software updates for life.

2023 also saw the UK sale of another of Rollomatic's very special laser machines for the manufacture of PCD tools. The Rollomatic LaserSmart®810XL is engineered with cutting-edge laser technology, ensuring unparalleled precision in machining operations. Whether it's intricate special low batch production or high-volume production, this machine delivers exceptional accuracy. Embracing the Industry 4.0 ethos, the machine is equipped with advanced automation. This not only enhances productivity but also reduces the margin of error, making it a reliable choice for modern tool manufacturing facilities. Designed to produce cutting tools in ultra-hard materials and featuring 6 simultaneously interpolated CNC axes, the LaserSmart®810XL is ideally suited for machining tools up to 300 mm (12") in diameter, 350 mm (14") in length and up to 15 kg (33 lbs.) in weight. An automatic robot with a capacity of 30 parts is included as standard. The LaserSmart®810XL is the perfect solution for machining ultra-hard tools used in the automotive, aerospace and woodworking industries. To summarise Rollomatic sales to the UK and to Ireland for 2023 were at a record level with machines of every single type across the range being sold including 5 and 6 axis tool grinding machines, NP30 and NP50 cylindrical and special purpose grinding machines, and Laser machines as well."

Tschudin also enjoyed record UK sales of its centerless grinding machines with several more being supplied into the UK and Ireland comprising of multiple Cube machines and a proline400 machine. The Tschudin Cube centerless grinding machines enable end users to achieve significant productivity gains and the machines particularly quick and flexible changeover times help to minimise machine downtime. What sets the Cube machine apart in particular is its very small size and radical open design for easy access. Users only need access to the rear of the machine to perform maintenance and servicing tasks, which means that several machines can be positioned together without any gaps. The Tschudin Cube centerless grinding machine uses Tschudins patented W-axis which has the workrest blade mounted onto its own CNC axis that allows for parts to be loaded to it outside of the grinding area making loading efficient, fast, and very safe. Traditional centerless grinding machines require parts to be loaded to a fixed work-rest blade that sits inside of the machine between the grinding wheel and control wheel making loading difficult, more expensive, and sometimes unsafe. This also makes changeovers more complex and therefore lengthier. The Tschudin machine overcomes

all of these issues and claims to be the world easiest and fastest centerless grinding machine to set-up. Linear direct drives on the X, U and W axes ensure flexibility and productivity with the Cube being specifically developed for the grinding of small components with part diameters of up to 20mm.

The Tschudin proLine400 machine sold and supplied by AGS in 2023 was manufactured in a record timeframe after a UK customer needed a new machine extremely quickly and Tschudin literally worked night and day to make sure the machine was there when needed. This is a 4 axis machine with a capability to plunge grind parts up to 150mm diameter and 280mm long and weighs some 10 tons. The proLine centreless grinding machine also has a patented fourth CNC-axis for the vertical movement of the regulation wheel. The work rest and dressing tool of the regulation wheel are fixed in position at the height of the grinding wheel. This feature means that the machine can be auto corrected to take into account wheel wear and ensures that no matter what the wheel wear is the grinding point can be kept constant at all times.

Most of the machines sold by AGS in 2023 were equipped with Comat Superfiltration systems. Comat designs and manufactures super-filtration systems that deliver a filtration quality of under 3um throughout the entire working cycle thus maximising the quality of parts produced on machine tools whilst minimising lifetime running costs and maintaining maximum coolant consistency. Comat systems can be customised to meet specific client's needs allowing for maximum efficiency of the filtration process and oil is actually filtered to a better quality than new unused virgin oil on Comat systems. The remote monitoring of the performance of their filtration systems from their HQ near Milan in Italy ensures effective after sales support with systems being monitored in real-time during manufacturing processes and customers filter systems fine-tuned by Comat to ensure that the optimum filtration quality is obtained at all times. Today, more than 20,000 machine-tools use Comat Filtration Systems, with more than 20,000,000 litres of metal working oil super-filtered every single day. Comat operates globally and have a 30-year history in developing the most advanced filtration systems that are available.

The final machine sale for AGS in 2023 was for a Magnetfinish deburring machine for the deburring of small pins for a major automotive parts manufacturer. This £500k machine will be equipped with 3 robots and will automatically deburr and then wash and dry parts before placing them back into pallets with an output of some 180 parts per hour. After being produced by a grinding process; parts of all types can suffer from having micro sized burrs. These can impact heavily upon the lifetime of components and cutting tools and can affect their performance. When milling, drilling or tapping at extreme speeds the resulting high temperatures that develop at the cutting edges on tools are the main source for such problems because the tool becomes highly susceptible to wear. The patented Magnetfinish technology addresses this problem. The Magnetfinish

process polishes the flutes on all types of HSS and Carbide rotary tools such as endmills, form cutters and drills, provides the perfect conditioning or “edge honing” of the cutting edges (micron rounding of the edge) and is also used to polish profiles on taps and coated cutters. The Magnetfinish polishing process of the tools flutes results in a superior chip flow leading to the increased productivity of the tool.

The tools primary cutting edges are machined to allow a defined and reproducible radius of between 3µm and 50µm to be created. This edge preparation process can increase the lifetime of tools such as ball nosed end mills by a factor of 4 and also allows more consistent machining results to be achieved as from using the tools for the very first time. The processing times for cutting tools are extremely fast with the average machining time for smaller tools being in the region of 5 to 10 seconds.

AGS's principals will be supporting them on their stand 18-328 at the forthcoming Mach show and further information on all the machines may be downloaded from the AGS website www.advancedgrindingsolutions.co.uk or contact AGS on +44 (0) 2476 22 66 11