

German honing specialist Kadia has launched a range of compact high-end machines for prototype and series manufacturers. PES reports.

Manufacturing companies that produce highly precise bores in small to medium batch sizes often hesitate to invest in their own precision honing machines as the rate of utilisation can simply be too low.

The alternative is that these manufacturers may turn to simpler machines that cost less but are not sufficiently precise enough for rigorous honing tasks. With its new single-spindle ‘eco’ honing machine, Kadia says it is now addressing the needs of these kinds of end users.

The ‘E line’, as it is called, is the ideal solution for entry into high-precision honing. And in the event that production quantities rise, it can meet the demand as the machine concept also offers options for series production.

In view of rising quality requirements every micron matters when honing is used for finishing of precision bores. The limits of what was once technically possible have now become the norm. In this field, high-end machining equipment and highly developed technology are prerequisites to be considered as a supplier.

Kadia says working productively and precisely to the last micron is its speciality. The honing machine builder from Nürtingen, Germany has targeted professional users, with a focus on those producing small to medium diameters on their machines.

Advanced and eco

To put all the technical possibilities into a machine that also carries the ‘eco’ brand is a new approach from the technology developers at Kadia, nevertheless it says it has achieved this balancing act with the new E line.

“The new single-spindle E line is a cost-effective, productive honing solution for the highest precision parts. With this machine we have completed our series in the smaller range,” comments executive director Henning Klein.

The machine is described as ultra-compact, requiring just 2.5m² of floor space. The control cabinet is integrated into the side and all the components that require regular maintenance are easily accessible. Potential users who have restricted production space will also be glad to learn that the machine can be installed as close to a wall is possible.



Up until now, Kadia has developed mostly multi-spindle machines for use in large series production, especially by automotive manufacturers and large suppliers.

Mr Klein continues: “The E line is aimed on one hand at these current customers, especially at prototype developers, but we see the second user group as manufacturing companies that want to either produce small volumes

especially flexibly or produce in series economically, all in the high-precision range.”

An in-house option

Normally such companies have two options: they either handle the honing themselves or they contract out the demanding precision work to external service providers. The latter can work when the company does not view honing as one of its core competencies but still wants to accept orders from customers with highly precise requirements for boring quality as professional honing providers can carry out such tasks quickly and reliably.

However, Kadia says its new E line is the ideal alternative, especially when honing is a central part of the company’s manufacturing requirements and highly economical but extremely precise work is important. In these circumstances, the special entry-level features of the E line and the quality of output are not mutually exclusive, since the same components that Kadia uses in its other machines to produce a high-quality workpiece down to the correct micron also feature in the E line.

Mr Klein affirms: “The E line is on the same level as our larger machines when it comes to quality. It’s a highly dynamic, lean high-speed honing spindle with an intuitive high-performance control.”

Smart and dynamic spindles

The experts at Kadia have now developed their second-generation LH spindles with the current type designations LH2 and LH3. The update includes a range of further developments that take into account current technology. The smaller LH2, with a material removal rate of up to 18mm³/second, performs its work in the eco machine. Its performance is notable due to its ultra-precise run-out and its highly dynamic nature. Inside the machine, its modern direct drives provide the rotation and strokes which allows honing processes to be achieved to high levels of quality and maximum output. The honing specialist also provides a five-year warranty on the linear drive for the strokes.

A few years ago, Kadia introduced the HMC100, a machine control system of its own development. The company says that at that time there was no comparable solution on the market that was specifically tailored to honing. The control system features the newest technologies and measuring techniques and visually presents all processes on a large 19” panel. The design engineers in Nürtingen now integrate the HMC100 into all of their honing machines.

The statistical analysis is an especially convenient feature. Both components also work with the E line and make it an eco-honing solution for the highest standards.

“The two key components, the honing spindle and the honing control system, are important parts of Kadia’s Smart Dynamic honing technology. This is a concept that connects with smart manufacturing and follows our motto ‘Less complexity, more efficiency’.



Typical parts produced by the the E line

Like all Kadia honing machines, the E line is also available in a variety of configurations. In its basic configuration the machine contains a fixed table, which for prototype parts and small batches should usually be sufficient. The option of installing a rotary table with multiple stations, usually honing, measuring and loading stations, is also possible.

“Users have the option of integrating a handling system for automatic placement,” explains Mr Klein. This provides a productive honing solution for medium to large batches.”

Depending on the number of units being produced, the provision of coolant may also be required. As a compact solution, an integrated coolant and extraction system is available to E line operators. This will usually be sufficient for prototype or small batch production. For larger production volumes and fully automatic operation, an external coolant system may be advisable.

Kadia first started producing honing machines in 1969 with its first deburring machine following in 1981. Today the company has plants in Nürtingen and Homburg, Germany and Brighton, Michigan USA. The company has 190 staff and clients nationally and internationally from the automotive industry and its suppliers worldwide.

Kadia
<https://kadia.de/en/>

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