



Uncompromisingly Simple

Festo cleans up sensitive components process-sure with the Orbitool Double Deburrer

Intersecting bore holes had to be laboriously cleaned by hand up until now. At Festo, the people in charge of this area wanted to venture out in new directions and so looked for a sustainable solution. A small, egg-shaped tool, the double deburrer by Orbitool, now completely removes the burrs from difficult-to-reach places – and absolutely process-sure.



Pneumatic components used in sensitive areas must function absolutely process-sure. High demands are placed on the surfaces of the workpieces, as well as on the edges being free of burrs. "We simply cannot afford to have a burr break into a bore hole at some point and thereby cause a disruption of function – there simply must not be anything else on the workpieces which could get into the air stream and prevent hysteresis, for example, or cause malfunctions," explains Stefan Baizert of Industrial Engineering at Festo. "That's why we try from the very start to optimize our components and processes and to always ensure burr-free processing."

This works even when processing the multi-port connection plate which is fabricated for pneumatic control units. The workpiece, which is available at Festo in twelve different designs distinguished by varying size and number of connecting bore holes, consists of an AlCuMgPb-alloy. Two workpieces are always processed simultaneously on a Chiron DZ 15 with double spindle.

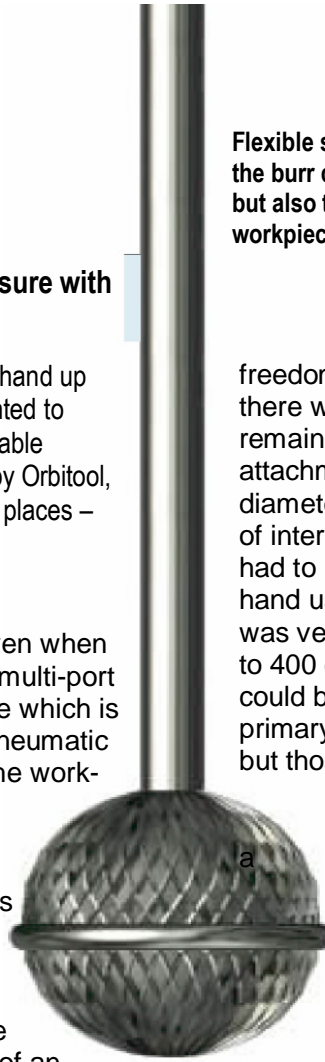
While the bore holes, through which the compressed air is to flow later on, were relatively easy to deal with as far as

flexible shaft ensures not only that the burr can be completely removed but also that the substance of the workpiece itself is not touched.

freedom from burrs is concerned, there were always some burrs remaining in the intersecting attachment bore holes (with a diameter of 6.5 mm) at the points of intersection. In the past, these had to be laboriously deburred by hand using a standard drill, which was very time-consuming – for up to 400 drill holes per day. This could be done parallel to the primary processing time of course, but those responsible felt this was a possible source of error.

What was needed was fast, process-sure solution on the machine, which would completely remove the burrs subsequent to processing. When re-searching on the Internet, Baizert finally came across

the deburring tool known as Orbitool on the web pages of VSH Vertrieb and immediately saw the potential of this procedure. He ordered the tool and began testing it thoroughly. For an experienced tool expert such as Baizert, the Orbitool is a Plug-and-Play tool, which can be used intuitively right away, without orientation time.



After the work is completed: at Festo, Orbitool deburrer gently chamfers the edges on the bore hole interface.



The multi-port connection plate for pneumatic control units is available in twelve different designs at Festo, which vary in size and number of connecting bore holes.

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Stefan Baizert,
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Baizert first used the deburring tool manually, employing the Orbitool-grinder specially designed for the Orbitool for his experiments. His intention: to get a feel for how the tool responded when processing and to draw conclusions for subsequent use on the machine.

The results he achieved from this were convincing. He therefore quickly brought the tool to the Chiron processing center, optimized programming and timing. The process ran within just two hours—and work is being successfully carried out still today using the parameters created at that time.

Festo employs the double deburrer with a diameter of 3/16" without the special

Orbitool holder. The shaft of the tool itself is flexible: this ensures that while the burrs can be completely removed, the substance of the workpiece itself is not touched. Even though it was a new experience for many workers to use a tool with a shaft that bends – the process is absolutely safe and precisely controllable. At Festo, the processing parameters were chosen in such a way that in addition to the deburring, the edge at the interface of the bore holes was also slightly chamfered (rounded).

The manufacturer specified a deburring time of 2 seconds per bore hole. In actual practice, it took about 5 to 6 seconds for the processing at Festo. A time frame that is very satisfactory to Baizert, nevertheless. "If we

were to further optimize the process, we would likely arrive at a time of about four seconds – but further time savings are not relevant for us at this point."

What at first glance seems to be quite a high purchase price for an individual tool – the price list shows almost 200 Euros – paid for itself quickly. "Manually carrying out the deburring was a burden – not only because it was physically taxing, but also because it takes a great deal of time and attention" explains independent set-up man Frank Schulte. "I now have time to deal with more essential matters."

The mounting bore hole is a relatively non-critical feature – ideally, for gathering initial experience. "Today I would not hesitate to use the Orbitool on even more sensitive places," explains tool expert Baizert. "The deburring process using the Orbitool has now matured and functions absolutely process-sure within our operations."



The workpiece is comprised of an AlCuMgPb-alloy. Two workpieces are always being processed simultaneously on a Chiron DZ 15 with double spindle.

**USER OPINION**

User: Festo AG & Co. KG

Tool: Orbitool

Double Deburrer 3/16"

Very fine deburring

Edge break

High tool life quantity (to 50,000)

Good price/performance ratio



Process-sure

Deburring cannot be overlooked

None according to user. The seemingly high investment cost quickly pays off.

Festo AG

Festo is a worldwide leading provider of pneumatic and electric automation technology. The globally-oriented, independent family enterprise has developed into a performance leader in its field over a period of more than 40 years, with innovations and the ability to solve problems pertaining to pneumatics as well as comprehensive industrial training and continuing education programs. In 2004, the Festo Group saw approximately 1.3 billion Euros employees with 11,000 employees at 250 locations.