

COMPETENCE



SPRING 2018:

AIRCRAFT PHILIPP

THE SKY IS THE LIMIT



strong. precise. customized. digital.

TWO SOLID, MIDSIZE BUSINESSES CONQUER THE SKY ...

Vacations in the most remote corners of the world, shelves bulging with the most exotic fruit whatever the season, short business trips within Europe or life-saving patient transport by helicopter – many things that we take for granted today are only possible thanks to aviation.

And this is exactly where BURKHARDT+WEBER (BW) and Aircraft Philipp come into play – because Aircraft Philipp components are virtually present in all aircrafts – and they are machined on a robustly designed machining center made by BW.

Germany plays a leading role in the international aerospace industry and the sector is considered a growth market for many years to come. The basis for this strong position in the world market is technological and innovative leadership in development and production, paired with the highest level of quality and reliability of German companies – and this doesn't just

apply for large enterprises, but also for medium-sized German companies, like Aircraft Philipp and BW. Although the project with Aircraft Philipp was one of the first in the aerospace industry in BURKHARDT+WEBER's recent history, all team members quickly became familiar with the new material, titanium. "We can do more than just iron and steel – now we can do titanium too", jokes Benjamin Braun, Key Account Manager for Aerospace at BW.

Aircraft Philipp is based in three locations – Salzburg, Übersee and Karlsruhe – and has around 250 employees. As one of the big metal-cutting service providers in the aerospace industry, the company has supplied prestigious customers like Airbus, Airbus Defence and Space, Boeing and many other manufacturers in the industry for many years. Parts supplied by the model company fly in every Airbus, for instance: Engine components, structural components for fuselage or wings and different components for landing gear and doors.

Where quality, precision, flexibility and innovation are required, customers from sectors such as aerospace, the chemical industry, machine manufacturing, medical technology and semiconductor technology have high-quality individual and series parts as well as complete assemblies manufactured within the Aircraft Philipp Group. And to deliver this premium quality, Aircraft Philipp now relies on the expertise of BW. Because BURKHARDT+WEBER also promises its customers first-rate quality according to the brand claim **strong. precise. customized. digital.** And the company keeps its promises.

User-oriented machine program

BURKHARDT+WEBER is renowned for very extensive and varied families of machines, regularly adding innovations ready for series production to its programs. As a result users of all sizes can adapt virtually any machining mode and capacity to their exact require-



MCR 900 HVC at Aircraft Philipp in Karlsruhe.

ments. Developing technological advantages for a broad group of users is one of our strengths, says Stephan Vogel, Area Sales Manager at BW, who supervised the cooperation with the Karlsruhe company as project manager and adds, "Everything from one source, that's our philosophy. We at BW don't just see ourselves as a machine manufacturer, but far more as a technology partner."

The Aircraft Philipp project required titanium materials to be machined from solid material with a very high cutting proportion. For Managing Director Timm Dinges, careful evaluation of the machine performance has always been very important. At the end of extensive investigations, comparisons and machining tests, the decision was made to use an MCR 900 HVC 5-axis CNC machining center from BW.

"BURKHARDT+WEBER convinced us in many respects and put together a package individually tailored to our needs", Timm Dinges explains his decision.

After the initial contact between the two companies, it quickly became clear during a visit to the company's premises in Reutlingen, that BW is a suitable partner for aerospace specialists. Even in the only slightly adapted standard version, the MCR 900 HVC machining center is ideal for the highly demanding precision machining of aerospace parts.

"I was particularly impressed by the high degree of individuality of the machines. We didn't have to compromise on any of our relevant criteria such as precision, chip removal rates or flexibility. We also recognized many parallels in our working methods – BW is also a medium-sized company like us, it has flat hierarchies and uncomplicated decision-making processes".

Jürgen Gärtner, Production Manager at Aircraft Philipp.



Structural wing part for a business jet from a titanium forging from voestalpine BÖHLER Aerospace GmbH & Co KG.

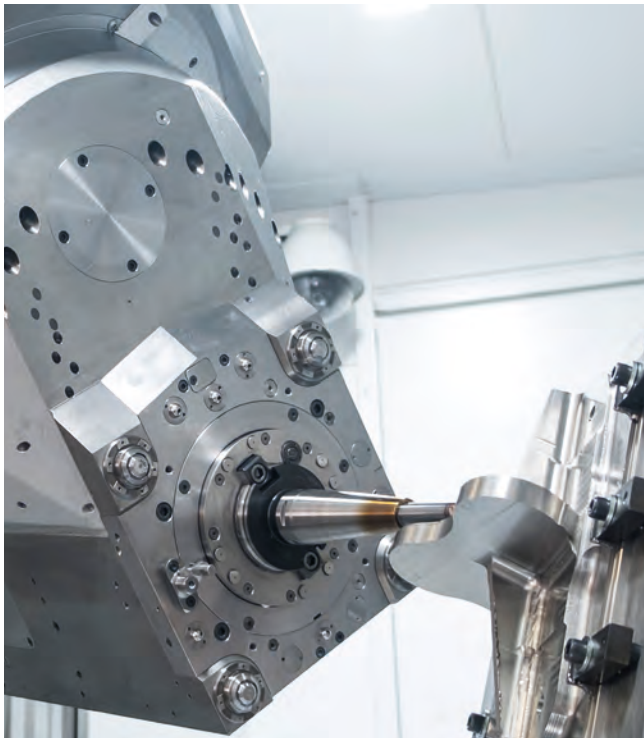
The machining center, equipped with large flat guides, was delivered at the end of 2017. It features a tool magazine for 128 tools and an NC-controlled gear spindle with a maximum torque of 1,400 Nm. With traversing paths of 1600 mm in the X-direction, 1250 mm in Y and 1800 mm in Z, the large swivel range of the HV-axis of $\pm 225^\circ$, with a spindle speed of 8,000 rpm and a maximum table load of 3500 kg, the MCR 900 HVC is ideally suited for 5-side complete machining of complex integral and structural components. The 128 tools in particular can cover a broad machining spectrum and entire families of parts, thus minimizing the need for retooling. The modular tool magazine can take up to 608 tools in its maximum configuration level.

Due to the excellent cushioning properties and temperature resistance, the machine bed and frame of the MCR 900 HVC are also filled with mineral casting. The well-dimensioned slide guides of the MCR series bring adequate stability to the process and prevent micro-

vibrations. The active cushioning eliminates cutting vibrations directly at the source and ensures high precision, surface quality and reduced tool wear during the demanding machining of titanium materials. All standard and special tools up to 600 mm (optionally up to 1,200 mm) in length and with a max. weight of 75 kg can be exchanged automatically via the tool magazine.

Unique selling points are necessary for success

In this project BW once again demonstrates its ability to handle the terrain in terms of the customer's special requirements. Tools with a special support can be exchanged via a separate unit, which is placed on the third pallet changing station. This support holds the tool using a mandrel and is fixed to the spindle by means of the BW 4-point clamping. Tools with an oversized diameter can thus also be used in the process reliably and stably. In a nutshell: Fewer vibrations mean less wear, a longer tool life and greater process reliability.



5-axis finishing of a bracket with the proven BW HVC head.

The MCR 900 HVC 5-axis CNC machining center from BURKHARDT+WEBER stands for integrated production processes, from rough machining through to precision machining, and offers the optimal ratio between rigidity and machine dynamics.

Digital

strong. precise. customized. digital. – is BW's promise to its customers – and Aircraft Philipp took it at its word. The theme of digitalization played an important role in the cooperation between the two companies and led to BW developing a new bespoke application, entirely in line with Industry 4.0 and the smart factory.

"As a manufacturer we see it as our duty to design our customers' production to be as simple and efficient as possible in the networked digital age. We are committed to continually improving and expanding our service according to our customers' needs. Our control technology, both for individual machines and for complete production lines, represents the core of our vision for the 21st century."

Michael Wiedmaier, Sales Manager at BW.

BW's new visualization module, appropriately named BW.smart.4.u., makes it possible to provide a statement about the machine's status at any time. Not only does this simplify work in production for the machine operator, but it also provides added value in terms of analysis and tracking. "Our new application has a modular design – the CMI interface and the integration of the IPC provide the basis, a 'starter kit', so to speak," explains Benjamin Rother, Manager Electrical Design at BW. "We have created this visualization of the machine availability, which can be called up either on the control panel or online, exactly in accordance with the wishes of Aircraft Philipp. However, it can be simply expanded by further features using remote access. By analyzing this information, the machine availability can be increased by up to 15%."

Publisher

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