

# PRODUCTIVITY INCREASED BY 30 PERCENT

BLOHM CASE STUDY: MALICHAUD ATLANTIQUE

**Arrival in Rochefort-sur-Mer. A refreshing sea breeze reaches us in front of the Malichaud Atlantique company building. It carries with it the scent of vacation and allows us to relax for a moment. The team around François Bellec, Head of Engineering, also seems relaxed, even though things are anything but calm at Malichaud Atlantique. Are the two new BLOHM PROFIMAT RT 1000s contributing to the good mood?**

Malichaud Atlantique is a specialist in the manufacturing of high-precision turbine guide vanes and blades as well as turbine shrouds for the aerospace industry. Grinding machi-

building in record time and acquired two new, additional surface and profile grinding machines.

convinced of the constant quality and high technical availability of BLOHM's production machines. «Competitors were also in the running for the last tender. In the end, we decided again in favor of BLOHM because we simply get a secure value there,» François Bellec explains the decision. He took as a reference a 20-year-old BLOHM RT, which is still performing superbly today in its production line.



*Christophe Beauchaud, technician creepfeed grinding. He is used to the user-friendliness of BLOHM and is also enthusiastic about the new PROFIMAT RT 1000.*

ning accounts for a large part of their production. The machinery at Malichaud is impressive: The grinding division alone includes 15 production machines from BLOHM and eight machines from other manufacturers.

«Aerospace is experiencing strong growth. We have to produce more and faster to meet our customers' demand,» explains Anthony Mainenti, Project Manager Engineering Department at Malichaud Atlantique. However, production capacity was reaching its limit, and Malichaud Atlantique could no longer achieve the target volumes with the existing infrastructure. In 2018, they built a new production

## DEMANDED: 25 PERCENT MORE OUTPUT

The main requirement was to significantly increase productivity. «We clearly had the requirement to produce more parts per shift,» explains A. Mainenti. A new principle of component machining was needed to reduce the setup time and thus the machining time. The solution: to carry out the setup during the grinding of the workpiece, i.e. parallel to the machining time. This is what the BLOHM PROFI-

MAT RT 1000 offers. It is designed as a classic travelling column machine and offers a user-friendly solution thanks to the indexing table used and the center partition. The loading and unloading of the workpieces is ensured without interrupting the grinding process. The only actual downtime is the indexing of the rotary table.

## 20 YEARS OF TRUST

Malichaud Atlantique has maintained a close partnership with Blohm Jung GmbH for 20 years. Why for so long? The aviation supplier is

**SURPRISINGLY SIMPLE INTEGRATION** Malichaud Atlantique prepared the technical details of the project at the beginning of 2017, and the handshake with Blohm Jung took place

«The response time from Blohm Jung is always quick, support is always there for us. Together we optimize every second we can gain to be even faster and more productive»

FRANÇOIS BELLEC, HEAD OF ENGINEERING

ce that same summer. A good year passed before the final installation in Rochefort. The engineering team from Malichaud Atlantique traveled to Hamburg for the pre-acceptance. With a uneasy feeling, after all, a «foreign» tooling had to be integrated on the machine rotary table of the standard machines, including a customer-specific chuck. The workpie-





*The two PROFIMAT RT 1000s in operation at Malichaud Atlantique in Rochefort.*

ce-specific chuck is a true innovation from Malichaud Atlantique and a result of years of experience and further development in the grinding of turbine blades. «Of course, we already sent our CAD data during the project planning phase to coordinate the interfaces and, together with Blohm Jung's project management, we made sure that the customer-specific designs could be integrated without any problems later on. That paid off. We were surprised how easy it was to get our own tooling onto the rotary table and it worked flawlessly straight away,» recalls Anthony Mainenti. For Malichaud Atlantique, the factory test at Blohm Jung's production facility in Hamburg was a great support. «Everything we were able to look at, implement and realize on site in Germany made the subsequent integration process easier for us.» The team worked for four days in the Hanseatic city until all customer-specific settings were a perfect fit. The final acceptance in Rochefort was then quickly completed. Only one week passed before the machine operators were trained on the two PROFIMAT RT 1000s and the fine tuning was completed. «We always modify a new machine according to our own needs, integrate our own filter and coolant system. That normally takes some time. Not so with the two PROFIMAT RT 1000 machines, here we hardly had to make any adjustments. This is also due to the fact that the RT 1000 has an impressive degree of standardization at a high technical level. The project went like clockwork. We were able to meet all milestones on schedule, I really can't find fault with the process,» adds François Bellec.

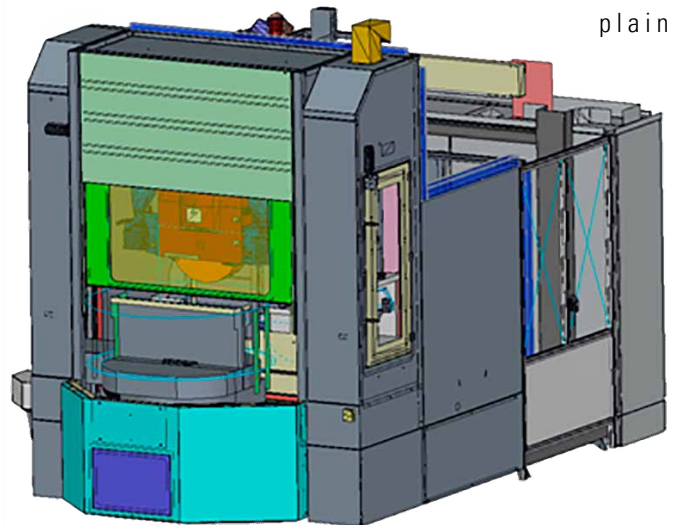
### 30 PERCENT MORE PRODUCTIVE

The two RT 1000s deliver a large output while maintaining quality. «We were able to increase our productivity by 30 percent. Between us, there were eight-hour shifts in which the machine operators got even more out of it,» Philippe Tregoat, head of the grinding department at Malichaud Atlantique, tells us. The workpieces are so-called Low Pressure Turbine Blades (LPT), which are used in the LEAP-X engine type. They are ground to a tolerance of +/- 20 µm, always with consistently high quality. Massive reductions in non-productive time are achieved thanks to loading and unloading on the rotary table while the machine is running the grinding operation.

The reject rate on the PROFIMAT RT 1000 is almost zero percent, which is partly due to the machine's optimum thermal behavior. A practical feature is that fixtures can be easily and quickly transferred from one machine to another without having to completely readjust the settings. This is achieved by using fixed attachment points. This saves downtime even when changing fixtures directly.

### THE PROFIMAT RT 1000 IN DETAIL

The BLOHM PROFIMAT RT 1000 is a rotary indexing table machine and designed according to the principle of a travelling column machine. «The PROFIMAT RT 1000 as a highly productive grinding machine is always used when high production numbers are required and a small parts family has to be manufactured» explains



*The PROFIMAT RT 1000 is designed as a classic traveling column machine and offers a user-friendly solution thanks to the inserted indexing table (1) and the center partition (2).*

Ulrich Haar, Head of Sales Turbine Europe at Blohm Jung. In a moving column machine, all linear axes are accommodated in the moving column. One advantage of the moving column principle is the very small footprint of the machine in combination with the capability to realize large and heavy table setups. The indexing table used, which holds the chucked workpieces in the fixture package, indexes



180° in two positions and accurately places the workpiece in the required grinding position with  $\mu\text{m}$  precision. This eliminates negative influences in accuracy and dynamics. The grinding spindle can move freely in all three linear axes to ensure high-quality workpiece machining with high stock removal rates. The overhead dressing process, also called continuous dressing (CD), ensures that the grinding wheel topography remains continuous in its characteristics. High stock removal rates and cool grinding with consistent workpiece quality are thus ensured.

The BLOHM PROFIMAT RT 1000 is ideally suited for the machining of aircraft turbine parts – especially for rotor blades, which are ground highly productively taking into account the CD grinding process. The machining possibilities range from the difficult-to-grind and high-temperature alloys such as titanium, to alloys

«The RT is like a solid rock. The machine produces consistent quality with near-zero scrap.» »

ANTHONY MAINENTI, ENGINEERING

used in tool and die making. The BLOHM PROFIMAT RT 1000 is also established in other sectors, such as the automotive sector.



*The team: Christophe Beauchaud, Technician Creepfeed, Anthony Mainenti, Engineering, Philippe Tregouat, Head of Grinding, Ulrich Haar, Head of Sales Turbine Europe BLOHM JUNG (I.t.r.)*

#### ABOUT MALICHAUD ATLANTIQUE

Malichaud Atlantique was founded on October 8, 1990, in Rochefort-sur-Mer. The company specializes in the machining of turbine and compressor blades in the aerospace sector. To meet the needs of its customers, Malichaud Atlantique has also set up a factory for brazing and manufacturing honeycomb structures since 2004. The continuous improvement of the processes is given by the ISO9001 and EN9100 standards. Malichaud Atlantique is a subsidiary of Chromalloy.

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