

# COMPETENCE



2024

GROUNDBREAKING COLLABORATION

– TWO PARTNERS IN THE 21ST CENTURY



strong. precise. customized.

# RENK AND BURKHARDT+WEBER – TRUSTED PARTNERS

RENK and BURKHARDT+WEBER, Trusted Partners – two traditional companies with roots in the 19th century have entered into a groundbreaking collaboration in the 21st century!

RENK-America is launching 21st century machining technology in their Muskegon, Michigan facility with the purchase of a BURKHARDT+WEBER MCX 1250 Horizontal Machining Center and development of a streamlined turnkey process. Project Manager, Uwe Brunner is pleased to report that implementation of the new machining and assembly system will result in the following benefits to the customer:

## BENEFITS



- + Greater through-put and shorter processing time
- + Improved quality through improved precision
- + 85% Less floorspace consumption
- + Simplified in-house logistics



Development of the new machining and assembly process required a high degree of collaboration, reports Knut Weller, Technical Sales at BURKHARDT+WEBER. "We were successfully able to consolidate the machining and assembly process from 35 steps to only 11 using 1 modern machine tool instead of 18 aging single purpose machines." The new process allows crankcases to be completely machined in 8 operations on 4 workholding fixtures and oil pans in one operation. The BURKHARDT+WEBER MCX 1250 is equipped with a 6-position pallet pool which enables all fixtures to remain ready to go, eliminating set-up time, reducing floorspace consumption and work in process inventory.

RENK leveraged an already beneficial relationship with BURKHARDT+WEBER in Germany where the German partners had worked together to machine high precision gearbox housings on their BURKHARDT+WEBER machines, so the accuracy and durability of BW machines was an expectation from the beginning.

But the BW machine brings more than that! All fixtures are hydraulically actuated using through table hydraulic systems, eliminating the need for manual clamping and alignment. The table is capable of handling loads of up to 8,000 kg / 17,636 lbs while the heavy-duty automatic tool changer allows tools with a mass of up to 75 kgs (165 lbs) and 1,200 mm (47.24") in length to be changed through the tool magazine.



Elimination of a special line boring machine was necessary to complete the modernization of the process, so the machine's Z-axis stroke was extended to 2,500 mm (98.42") to facilitate the use of a 1,600 mm (63") long boring bar which is picked up by the spindle from the table and fed through the fixture for boring the 7 main journals with excellent concentricity. The line boring bar is also equipped with a facing slide which in conjunction with the V-axis allows machining of the thrust face perpendicular to the crank bore.

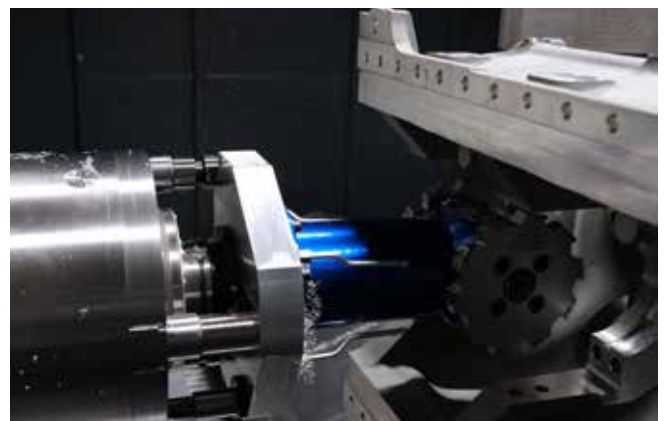


Caption: The joint project team from RENK and BURKHARDT+WEBER

Thanks to the experience and geographical proximity of Regional Sales Manager, Tracy Ellis, who is responsible for the whole US market, the complex and collaborative process of developing a winning process plan was particularly effective and characterized by trust throughout. When making such a leap in process technology from single purpose machines to flexible multi-function equipment the customer is dependent on the strength of the machine supplier.

"We are pleased that we were able to develop a customer specific machine and process plan from BURKHARDT+WEBER's extensive experience building large displacement engines for the most demanding manufacturers world-wide" says Project Manager Uwe Brunner, who traveled to the factory in Muskegon, Michigan. RENK's Manufacturing Engineer, Terry Knoll, stated that "BURKHARDT+WEBER's many references in the field of large cylinder block and crankcase machining really tipped the scales in favor of BW."

Another technical highlight of this customized MCX 1250 is that it is equipped with a new C-axis functionality that allows in-process adjustment of the angular position of special BENZ angle heads to work radially around the centerline of the spindle. These heads are quite substantial and are not able to be automatically changed by most machining centers on the market.





## A brief profile of BURKHARDT+WEBER Fertigungssysteme GmbH

More than 135 years of experience in machine tool manufacturing and over 60 years of experience in building machining centers for the challenging machining of steel, titanium and cast parts. The in-house design and manufacturing of all core components by BW, as well as the excellent skilled staff provide the premium quality for which BW is renowned. In short: bundled machining competence, THAT is BW's strength.



BURKHARDT+WEBER – Since 1888 in Reutlingen.

## A brief profile of RENK

At RENK America, we are committed to developing, integrating, and manufacturing innovative, best-in-class, complete mobility solutions for combat vehicles. Every product in our defense portfolio is built to perform in grueling combat conditions and is rigorously tested to ensure that it will not fail the warfighter. We are passionate about the future of our industry and put great time and effort into the continuous improvement and development of groundbreaking components and systems that help support our military partners. We go to great lengths to offer dedicated service and support that allows the service members using our products to stay safe and focused on the mission at hand.

# RENK

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