# Surface course rehabilitation: Compact milling machine is a class of its own

**VORO, a milling contractor based in Kassel, Germany, brought the versatility of the W 100 CFi Wirtgen compact milling machine into play when rehabilitating the surface course of a federal highway.**

The B3 extends over a distance of 755 km from Buxtehude in the north of Germany through to the Swiss border in the south. The job involved milling areas of damaged asphalt on one side of the highway in the vicinity of the municipality of Jesberg in the federal state of Hesse. As the project progressed, a free flow of traffic had to be maintained on the opposite lane. A total of 1,200 m² asphalt surface course had to be removed to a depth of 4 cm. The entire milled area was divided into 13 individual sections, each 3.50 m wide and located at intervals of 50 to 100 m.

**Maneuverable and versatile but as productive as its big brothers**

"We decided to use a type W 100 CFi Wirtgen compact milling machine for this job, as it achieves a high area output with low fuel consumption and, with its compact design and maneuverability, can be easily transported from one job site to the next," explained Alexander Emde, Operations Manager of VORO Straßenfräsdienst GmbH.

In the Wirtgen Compact Class, customers can choose from no less than eight models with standard milling widths ranging from 1.0 m to 1.5 m and milling depths of up to 330 mm. Combined with the Flexible Cutter System, milling widths of 8 cm to 1.5 m are possible. The entire machine range – encompassing the W 100 CF / W 100 CFi, W 120 CF / W 120 CFi, W 130 CF / W 130 CFi and W 150 CF / W 150 CFi – delivers on performance and economic efficiency. It covers classic small milling machine applications such as partial road repairs as well as the removal of entire road pavements – a task which is normally the preserve of large milling machines. Wirtgen compact milling machines are therefore not only extremely versatile. In combining the advantages of the large and small milling machine classes, implementing a uniform operating concept and, in particular, incorporating pioneering control technologies, the Wirtgen compact class is now one thing above all: The next step in the development of cold milling.

**Effective operation and increased performance**

The Wirtgen W 100 CFi is equipped with a powerful, 257-kW diesel engine and, despite its high capacity, meets the stringent requirements of the exhaust emissions standards EU Stage 4 / US Tier 4 Final. The drive unit is designed for a maximum milling depth of 33 cm. The mechanical milling drum drive transmits the engine torque to the milling drum with a high degree of efficiency.

"Wirtgen's Generation X point-attack cutting tools cut through the 4-cm surface course with ease and produced very smooth and excellent milling results," reported Sigbert Werner, milling machine operator with VORO. "The noise insulation on the machine is also very good. The engine runs very quietly at full load," commented Werner.

In addition, the driving dynamics package supports a travel speed of up to 7.5 km/h, enabling the machine to move swiftly to the next surface to be milled. As the entire job site extended over a 1.2-km stretch, this was essential to ensure a fast milling procedure.

**New control technology sets standards**

The new operating concept with a multifunctional armrest and fully integrated LEVEL PRO PLUS leveling system guarantees optimum milling results. After all, it leaves the operator free to focus almost entirely on the milling work itself. "After a brief induction on the brand new control system, the machines are a great deal easier to use than ever before," commented Sigbert Werner, describing his experiences with the new operating concept. One highlight is the ergonomic multifunctional armrest. This is used to show all important information – including the compilation and visualization of job data – in color on the operating display. Four "favorites" buttons integrated into the armrest can, for example, be programmed with any of 20 different functions. In addition to the steering wheel, the operator also has access to an extremely sensitive, fingertip steering function in the multifunctional armrest.

The large number of added and automated functions make life easier for the operator and also save time. For example, the automatic button-activated folding in of the compact milling machine's right rear crawler track also speeded up the milling work on the B 3. The track can be folded in without lowering the milling drum or manually loosening a bolt. In addition to the "basic position", the new "outside" position – in which the right rear crawler track is located within the cutting diameter of the drum, enabling the machine to be easily positioned along the right-hand milled cut – and the "folded in" position are possible. The first milled cut on the B3 ran alongside a safety barrier. For this reason, Werner moved the crawler track into the "folded-in" position to be able to mill along the outer edge of the roadway with the zero-clearance side. To prevent the side plate from sinking into the surface when working on loose substrate – for example gravel or on the adjacent grass verge as in Jesberg – it has an active floating position. It ensures that the side plate is lifted at specific intervals.

To support the leveling and milling process, the milling machine operator Werner was also able to use an automatic lowering function when positioning the W 100 CFi in the milled cut. When the milling drum unit reaches the surface to be milled, the lowering speed is adjusted automatically so that the milling drum slowly penetrates the material down to the set depth. In addition, the height of the crawler units can be adjusted in steps of 1 mm or 5 mm using the new millimeter height function to precisely set the milling depth. The most frequently used height settings can be stored in three height-adjustment memories and called up quickly at any time.

**Optimum visibility concept for safe working on confined construction sites**

As traffic continued to flow on the opposite side of the highway during the rehabilitation project and the job called for frequent machine relocations, the Wirtgen compact milling machine was the ideal candidate for these job sites. The sophisticated visibility concept enables the operator to maneuver with millimeter accuracy. The chassis of the W 100 CFi is distinctly narrower and affords the operator a better view to the front. In addition, the operator's stand can be hydraulically displaced 200 mm beyond the edge, thus providing a perfect view ahead of the milling drum assembly and onto the front right-hand crawler track. Thanks to the camera system, the left-hand milled edge or material discharge is always clearly visible to the machine operator on the high-resolution display. "The dust extraction device on the discharge conveyor also makes work very pleasant," Werner adds.

**Best quality at top speed**

The milling work was completed within a few hours. Alexander Emde was satisfied with the results: "The W 100 CFi not only created a very smooth milled surface over the entire area, but also worked with minimum wear." It was possible to pave the new surface course immediately after the milling work had been completed. This job was done by a Vögele road paver.

Photos:

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|  | W100CFi\_00955 Working on the job site while traffic is flowing in the opposite direction is no problem for the Wirtgen W 100 CFi. The considerably narrower chassis that also provides the driver with an optimum view of the milled edge is an additional advantage here. |

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|  | W100CFi\_00958 With its compact dimensions and low weight, the Wirtgen W 100 CFi can be transported easily and without requiring additional permits. This is ideal for working on several sites on one day. |

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|  | W100CFi\_00966 The ergonomic multifunctional armrest of the Wirtgen W 100 CFi features four "favorites" buttons that can be programmed with any of 20 functions as well as a color operating display. All important information is shown on a small screen – for instance the compilation and visualization of job data. |

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|  | W100CFi\_00993 With the increased steering angle of the front axle, the Wirtgen W 100 CFi can describe very small turning circles. What's more, the hydraulically operated folding discharge conveyor can be swiftly folded up, making this machine an excellent choice for tie-in milling jobs in confined conditions. |

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|  | W100CFi\_00949 The operator's stand, which can be hydraulically displaced 200 mm beyond the edge, provides a perfect view ahead of the milling drum assembly and onto the front right-hand crawler track. |

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|  | W100CFi\_00473 The diesel engine of the Wirtgen W 100 CFi is equipped with both an oxidation catalytic converter and an SCR catalytic converter for effective exhaust gas treatment and meets the stringent requirements of the highest current exhaust emissions category EU Stage 4/ US Tier 4f. |

*Note: These photographs are only intended as a preview. For printing in publications, please use the photographs in 300 dpi resolution that are available for download from the Wirtgen GmbH / Wirtgen Group websites.*

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