# TCM 180i: The exquisite technician

When placing dual-layer concrete on the A7, the Wirtgen paving train – comprising 2 SP 1500 slipform pavers and the TCM 180i texture curing machine – is the key player.

The A7 is being widened between Hamburg and Bordesholm from four lanes to six, and in some places to eight, to ensure that the motorway remains an efficient traffic artery. Aiming to create a pavement which would offer a high degree of driving comfort while withstanding the loads of heavy-goods traffic, the motorway consortium Via Solutions Nord and the joint venture ARGE A7 Hamburg-Bordesholm opted for steel reinforced concrete paving with an exposed aggregate concrete surface when widening the 60km stretch located in the Schleswig-Holstein region. BT Beton-Technik GmbH, commissioned with the job, have been specialized in concrete pavement construction for many years. Managing Director Mirko Pokrajcic has been relying on technologies and machines from Wirtgen for just as long: "I insist on 100% quality – and this is precisely what Wirtgen have been delivering for over 25 years."

Kick-off: Well-rehearsed moves

The concrete paving work was carried out by 2 Wirtgen SP 1500 slipform pavers. As the first paver advanced, its inset mould laid the concrete slab as specified, 14.5m wide and 23cm thick. A total of 41 curved electric internal vibrators ensured optimum material compaction by means of high-frequency vibrations. Dowel bars were inserted into the fresh, pre-compacted bottom-layer concrete at 25cm intervals parallel to the direction of travel and tie bars were inserted transverse to the pavement. The top-layer concrete was simultaneously loaded by excavator into the receiving hopper of the belt conveyor, transported over the top of the first SP 1500 and deposited directly on the bottom-layer concrete in front of the second SP 1500. The second machine compacted the material by means of 29 electric T-vibrators, as they are known, while paving it in a 5cm-thick layer. The duo from Wirtgen paved some 4,000m³ of concrete each day in this way.

“Man of the Match”

Player No. 3, the TCM 180i self-propelled curing unit, followed hot on the heels of the pavers. With working widths up to 18m, it is an ideal team mate for the two SP 1500s and is the team's technical player. Its task is to spray a special combination of anti-evaporation agent and surface retarder onto the new concrete pavement. The anti-evaporation agent protects the fresh concrete from premature drying during its hardening phase.

The retarder enables the surface mortar to be swept off, exposing the high-grade broken aggregate in the top-layer concrete. Depending on weather conditions, this can be done some 4 hours or more after paving. This gives the concrete pavement the required peak-to-valley depth and lasting grip. A curing agent is once again sprayed over the exposed aggregate.

TCM 180i: Key player in concrete paving

Unlike in the process selected for the A7, in other countries, the TCM 180i is also used to create the desired texture. In this process, the machine moves a brush across the entire concrete surface. When used in this way, the Wirtgen texture curing machine can create a range of different surface textures to meet requirements. In addition to the well-established functions of transverse brushing and spraying, longitudinal brushing and spraying – and even the application of a diagonal finish – are possible. Meander spraying is a special option: this method permits transverse spraying during uninterrupted travel. What is more, Wirtgen are continually advancing the associated components to ensure an optimum surface texture. The brush-cleaning unit of the TCM 180i is one prime example.

Special Feature: Hot-water system for easy cleaning

Cleaning the spray systems of curing machines economically is something of a challenge. With this in mind, Wirtgen have integrated a hot-water system with a 90-liter tank in the TCM 180i. With this system, curing agent adhering to the inside of the pipes can be completely removed with water up to 60°C hot and the entire spray system quickly and reliably cleaned – all at the push of a button and by shifting two ball cocks. “Wirtgen have struck gold with the new hot-water system of the TCM 180i. This added practical benefit will be a great asset to us in the future, too.” Deni Pokrajcic, Site Manager BT Beton-Technik GmbH.

Photos:

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|  | W\_photo\_TCM180i\_00005\_PR With working widths up to 18m, the TCM 180i is the ideal team mate for the two SP 1500 pavers. It ensures optimum curing of the new concrete pavement. |

Photos:

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|  | W\_photo\_Jobsite-Kaltenkirchen-Highway\_00001\_PR Dual-layer wet-in-wet concrete paving: BT Beton-Technik used cutting-edge paving technology to build 14.5m-wide dual-layer concrete pavements precisely, economically and quickly – while reliably meeting the client's tight schedule. |

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|  | W\_photo\_TCM180i\_00011\_PR A dazzling performance: this well-versed team was able to achieve paving rates of 400 to 500m in 12-hour shift operation. “For us, the reliability, cost-efficiency and precision of Wirtgen are the decisive factors.” Mirko Pokrajcic, Managing Director, BT Beton-Technik GmbH |

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|  | W\_graphic\_TCM180i\_00019\_PR The lateral brush-cleaning unit of the TCM 180i removes slurry build-ups which adhere to the brush during changes of direction when applying a transverse brush finish. Before the brush is lowered back down to the concrete surfacing, it is set to the optimum angle of incline via the adjustable system to meet customer requirements. This prevents deep impressions which might damage the edge of the concrete pavement. |

*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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