Vögele │ Spectacular race track construction in the mountains of Japan

Four Vögele machines create a demanding circuit

Tight corners and uphill gradients of up to 19%: a private racing circuit has been built against a breathtaking backdrop not far from Tokyo. Three Vögele pavers, a SUPER 1800-3i, a SUPER 1803-3i and a SUPER 1900-2, paved almost 100,000 square meters (about 120,000 square yards) in four layers. A MT 3000-3i Offset material feeder ensured additional efficiency and quality.

Unique race track

It’s a spectacular project commissioned by CORNS & Company Limited about 70 km (just over 43 miles) from Tokyo and close to the town of Minamiboso, namely an extensive leisure facility for sports car enthusiasts which includes Japan’s first race track for customers with their own vehicles. The 3.5 km (2.2 mile) circuit features steep downhill gradients of up to 16% and uphill gradients of as much as 19%. The longest straights extend for 800 meters (875 yards), allowing for truly high-speed racing. In between, chicanes as well as tight bends with a 14 meter (875 yard) radius demand top-level driving skills.

Vögele paving train in operation

Maeda Road Construction Co., Ltd used four Vögele machines to manage the challenging new-build. Two SUPER 1800-3i and SUPER 1803-3i Universal Class pavers and a Highway Class 1900-2 paver carried out the actual paving, while a MT 3000-3i Offset material transfer vehicle transported the asphalt from the trucks to the pavers' receiving hoppers.

Four layers on about 100,000 m² (120,000 sq.yds)

The three pavers paved four layers totaling just under 100,000 m²(about 120,000 square yards): an 18 cm (7.1 in.) non-bonded base course, a 12 cm (4.7 in.) bonded base course, a 6 cm (2.36 in.) binder course, and a 4 cm (1.6 in.) surface course. In addition to the racing circuit covering an area of 36,000 m² (43,000 square yards), paving work involved another 60,000 m² (72,000 square yards) of run-off zones, as well as the pit lane and service roads. The main paving works on those secondary areas, as well as the base courses, were handled by a SUPER 1900-2 paver, which the general contractor has been using successfully for many years.

Wheeled and tracked pavers working effectively as a team

The pavers worked mainly “hot to hot”: two machines paved together at a slight offset to produce an asphalt surface without joints and measuring 8 to 12 meters (26.2 to 39.4 feet) across the full width of the carriageway. This ensures that the carriageway has both high resistance to deformation and a long service life. The paving team also exploited the benefits of the different undercarriage concepts: the SUPER 1800-3i tracked paver provides excellent traction, and maintains consistent straight-line travel, while the SUPER 1803-3i wheeled paver is particularly good at producing corners with a tight radius, as its undercarriage enables it to steer very sensitively and smoothly. So the paving team primarily deployed the SUPER 1803-3i on the insides of bends.

Material feeder guarantees quality

Besides the pavers, another Vögele machine was also crucial in achieving the high standard of paving quality: the MT 3000-3i Offset material feeder. The PowerFeeder decouples the transfer of material from the truck to the paver to ensure a constant, efficient paving process. Conical augers in the receiving hopper of the material feeder convey the material crosswise to render it thermally homogeneous. With an effective heating system that heats the conveyor and the transfer points, the material feeder actively counteracts cooling and segregation of the mix. That’s why Vögele material feeders are frequently used on job sites like the one in Minamiboso, where the highest quality is demanded, and tight schedules have to be met.

Pivoting conveyor enhances efficiency

Another characteristic of the material feeder was important in the mountains of Japan: the “Offset” version of the machine has a height-adjustable conveyor which can pivot 55° to the left and right. The discharge point into the extra material hopper of the SUPER paver is at a height of up to 3.60 meters (11.8 ft.), and optionally up to 3.90 meters (12.8 ft.). The paver is ergonomically controlled via a joystick. It forms part of the ErgoPlus3 operating concept, a highly intuitive system specially designed to meet the requirements of material feeder operators. Despite the extreme grade and slope, the pivoting conveyor meant that on the race track job site the MT 3000-3i Offset could continuously feed two pavers with material alternately, without having to maneuver constantly. That dramatically increased efficiency, and so also the paving quality.

**Photos:**

  
JV\_Job\_Report\_Japan\_Race\_Track\_001.jpg  
Unique race track near Tokyo: three pavers and a material feeder from Vögele handled the four-layer paving operation in this undulating landscape.

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JV\_Job\_Report\_Japan\_Race\_Track\_002.jpg

Paving with no joints: the Vögele pavers worked “hot to hot” to deliver a high-quality asphalt surface across the full width of the track.

  
JV\_Job\_Report\_Japan\_Race\_Track\_003.jpg

Extreme uphill gradient: The Magarigawa Club circuit features uphill gradients of as much as 19%, with downhill gradients up to 16%.

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