Concrete Paving with the SP 62i at Keflavik Air Base

Wirtgen slipform paver constructs 75,000 m² of operational facilities by concrete paving

The project involved the extension of the apron and a hazardous cargo pad at the military air base on the international airport at the port of Keflavik, about 50 km from Iceland’s capital, Reykjavik. As the overall project was commissioned by the U.S. government, all measurements used during the paving project were in imperial units.

At the end of the construction project the SP 62i had paved a total of 35,000 m³ of single-layer concrete paving with a width of 7.62 m (25 ft) and a thickness of between 41 cm (16 in) and 45 cm (18 in). On average, 900 m³ of concrete were paved every day.

Highest Quality, Despite the Challenging Deadline

Due to the climatic conditions on the Reykjanesskagi peninsula in the south west of Iceland, the time window for the project was set for the beginning of July to the end of September of the year. To squeeze the work into this timeframe, the decision was made to do without prior placement of fixed formwork for the individual strips.

Despite the tight deadline, the paving team was able to deliver highest quality results, not least due to state-of-the-art machine technology like the high-precision steering and leveling system and the automatic super smoother.

Precise Edges Are Essential for Optimal Surface Water Drainage

Operational areas on airfields generally have only a very slight cross-slope and, in Keflavik, the specified value was 1%. The area was paved in 31 separate strips that were connected to one another by tie bars inserted along the sides to ensure the correct height of the individual sections. The outer edges of the strips posed a particular challenge for paving with the slipform method. They had to be precisely perpendicular from end to end and faultlessly paved with absolutely no fall. Only this can ensure that rainwater drains away as it should during future operations, and that no water collects in the expansion joints.

Wirtgen Application Engineers Provide Assistance with the Formulation of the Concrete Mix

Essentially, concrete is always a mixture of cement, water and variously sized aggregates. However, in order to fulfill the future load-bearing and wear-resistance properties of the construction in question, further additives and a more precise consideration of the above-mentioned main ingredients was needed. The required properties in the case of the extension work at Keflavik Air Base included, for example, a concrete with the compressive strength class C35/45. In order to achieve the desired compressive strength of 45 N/mm² (cubic concrete specimen), the ideal formula for the concrete mix was determined with the assistance of Wirtgen application engineers and optimized for paving with the slipform paver.

In situ paving of the first pilot strips was able to begin immediately without trial areas. These showed optimum quality in all specified parameters such as density, compressive strength, profile-compliant placement and surface roughness, i.e. grip characteristics.

Maximum Evenness over the Entire Operational Area

When it comes to the operational areas of airfields and airports, demands for surface evenness are generally very high. At Keflavik Air Base, the specified maximum permissible unevenness was 4 mm on 4 m. In reality, the evenness measured according to TP Eben 2007\* showed that deviations were significantly lower and that the evenness achieved was far better than the target value.  
 \* Technical testing regulations for evenness measurements on road surfaces in longitudinal and transverse directions. A clear sign of the quality that can be achieved only with a perfectly coordinated team and the right equipment, as Hendrik Wendt, Site Manager & Concrete Technologist, HIB Infra GmbH & Co. KG subsequently explains: “On this project, we once again enjoyed the excellent experience of working together with the team from Wirtgen. The team provided excellent advice and valuable support in both the planning phase and as on-site consultants. Not least thanks to this, we were able to complete the project on time with as good as no problems at all on the construction site.”

**Facts and Figures of the Extension Project at Keflavik Air Base**

**Project Dimensions**

Parking apron length: 280 m

Parking apron width: 235 m

Hazardous cargo pad length: 120 m

Hazardous cargo pad width: 76 m

**Paving Data**

Specified cross-slope: ≤ 1%

Paving width: 7.62 m (25 ft)

Paving thickness: 41 cm (16 in) – 45 cm (18 in)

Daily paving performance: 900 m³

Overall paved surface area: ∼ 75,000 m²

**General**

Construction contractor: HIB Iceland Ehf

Project timeframe: 07–09/2021

Wirtgen machines deployed: SP 62i

**Photos:**

  
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At Keflavik Air Base, the Wirtgen SP 62i delivered precise single-layer concrete paving with a width of 7.62 m (25 ft) and a thickness of between 41 cm (16 in) and 45 cm (18 in).

  
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The concrete was placed in front of the SP 62i slipform paver by an excavator and then evenly distributed with the machine’s spreader plow.

  
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Perfectly perpendicular edges are essential for ensuring the quality of the butt joints between adjacent strips. The two-track SP 62i slipform paver once again proved to be the ideal choice for the job.

  
Keflavik\_Air\_1

The extension of the parking apron is realized in the form of 31 separate strips connected to one another by tie bars inserted along their sides.

  
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“Teamwork is an essential factor when it comes to assuring our success. And that is why we truly appreciate the value our long-established partnership with the Wirtgen Group. Product management, application engineers, and service teams on the construction site work hand-in-hand with us, always with a single goal in mind: finding the right solutions to ensure the success of our project.” (Matthias Neumann, CEO, HIB Infra GmbH & Co. KG.)

Note: the photographs shown here are only previews. If you wish to publish them in other media, please download the higher resolution (300 dpi) versions from the Wirtgen Group websites.

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