PLAC PIĘCIU ROGÓW

Five Corners in Warsaw

Plac Pięciu Rogów (Five Corners Square) in the centre of Warsaw is slated to be transformed into a lively urban space with the help of STRABAG Sp. z o.o. A concept was soon drafted, but the realisation is not as easy – in part because of the architectural concrete slabs weighing more than two tonnes each.

CONTRACT VALUE:
PLN 14.76 million
(approx. € 3.18 million)
PROJECT SCHEDULE:
March 2021 – end of June 2022
CONCRETE SLABS:
1,427
WEIGHT OF A SINGLE SLAB:
> 2 t

A total of 1,427 concrete slabs weighing up to two tonnes each had to be laid on the construction site.

Poland. Plac Pięciu Rogów is a buzz of activity. This is where five streets – Bracka, Chmielna, Krucza, Zgoda and Szpitalna – come together. To date, the intersection has been dominated by car and bus traffic. Now there are plans to create a lively urban square here with a wide pedestrian zone. The area will be traffic-calmed, landscaped with over 20 trees, and enhanced with a fountain and new street lighting. Along Krucza and Szpitalna streets, public transport and bicycles will be allowed to pass through the pedestrianised square. Paying respect to the history of the location, the square will also include the outline of a former tenement house that used to stand here before the war.

A DIFFICULT UNDERTAKING

In this project, nothing is left to chance. The surface of the square rests on large slabs that were specially designed to meet the needs of the location. Project manager Karol Kulik, together with site manager Robert Stępniak and the rest of the team, faced a very big challenge here – in the truest sense of the word: What is the best way to install several large concrete slabs weighing up to two tonnes each?

An undertaking of this magnitude cannot be carried out by human power alone. “We fitted our machinery with special new equipment for laying architectural concrete slabs,” says project manager Kulik. “We had to lay 1,427 of these slabs on the construction site, including 757 large slabs measuring 2,185 mm × 2,185 mm × 180 mm and weighing more than two tonnes each,” adds site manager Stępniak.

To lift and lower the heavy concrete slabs with pinpoint accuracy, the team used a special machine with suction cups specially designed for handling large loads. “We chose the WOLF 4000, rented from CATCHSHIFT with the assistance from STRABAG BMTI,” says road construction manager Dawid Janulewicz, adding, “For us, using a machine like this is a first.”

Road construction manager Dawid Janulewicz next to the WOLF 400, which allows the slabs of several tonnes each to be laid with pinpoint accuracy.

ABSOLUTE PRECISION

Before the work of installing the slabs could begin, it was necessary to create the right subsoil conditions. Moreover, the team uncovered several archaeological finds during project execution and came across underground infrastructure that clashed with the planning documents, making it impossible to carry out the work as intended.

The WOLF 400 is mounted on a Liebherr 918 Compact mobile excavator. The machine is suspended from the arm of the excavator, attached by means of chain slings. Three suction pads, each with a maximum load capacity of 1,200 kg, are suspended from a 1.8-m-long beam. The pads lift the heavy slabs so the excavator can transport them to the right place. After applying the blinding layer of granite chippings on top of the slabs, the excavator operator presses the button to release the suction cups so the excavator can remove the device from the slab. “During installation, the team working around the excavator has to ensure a pre-set spacing of 15 mm between the slabs,” says Janulewicz.

The WOLF 400 offers plenty of advantages. It is easy to operate and does not require any special training – a brief introduction by the manufacturer is usually enough. “The biggest challenge is the final moment of installation, which requires precision and composure,” says Janulewicz. “The operator must also pay close attention to the instructions of the workers at the slab. Sudden movements must be avoided at all cost to avoid damaging the slab and to ensure the safety of the people working nearby. A steady hand is a must,” Janulewicz continues.

The work is progressing well, and the average output of a team working with this machine is about ten slabs a day – including preparation of the blinding layer. “That is an enormous logistical achievement. After all, we have practically no space to store the materials or machines here in the centre of Warsaw,” says Kulik.

All three colleagues agree: When the project is completed this summer, the area will no longer be known as another crossroads dominated by cars, but as a quiet place for pedestrians.

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The team was able to lay about ten slabs a day.

The cramped conditions in the centre of Warsaw were a challenge, with practically no space available for man and machine.