

# LIGHTER, COST-EFFECTIVE, LOW-MAINTENANCE BRIDGE DECKS

## MARSHAL JOZEF PILSUDSKI BRIDGE, TORUN, POLAND

"The Marshal Jozef Pilsudski Bridge project is a fantastic showcase for pultruded composites in civil engineering. Nearly 1 km long, the new walkways highlight not only the weight-saving and durability benefits of composites, but also the on-site cost and time advantages of a large-scale custom profile design. The PulStrand® 4100 product performed beautifully during fabrication."

— Izabela Reich, Fibrolux GmbH

### Project Overview

**More than 300 tons of Owens Corning® PulStrand® 4100 (19200 Tex, single-end roving) was used to manufacture pultruded composite bridge deck components for Fibrolux GmbH's largest civil engineering project to date.**

Originally constructed in Münsterwalde, Germany in 1909 as a road and railway crossing, the main bridge structure was disassembled and moved to Torun in north-central Poland in 1934. The Marshal Jozef Pilsudski Bridge now links the southern part of town with Torun's UNESCO World Heritage Site, Old Town.

In need of a functional update, it was determined to widen the current pedestrian/bicycle areas of the bridge deck. With the existing bridge structure unable to support the weight of wider steel pathways, engineers needed a solution that was lightweight, cost-effective, and low maintenance.

### Project Results

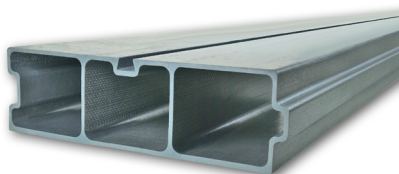
Engineers, architects, and specifiers are building smarter with next-level materials. Using Owens Corning® PulStrand® 4100 single-end glass roving, Fibrolux fabricated and supplied more than 16 km of large-scale, custom fiberglass pultruded deck panels that enabled a lighter, more durable, and low-maintenance solution for the refurbishment of the 1-km-long bridge.

The 19200 Tex of PulStrand® 4100 allowed Fibrolux to produce larger-than-normal parts without impacting line efficiency. Their team found the product to possess smooth handling and processing, and good wet-out, with the desired mechanical properties.

The bridge enhancement included an interlocking deck formed from eight massive triple-cavity pultruded profiles, 500 mm x 150 mm per section. The design expanded the walkway area from 2 m to 4.5 m in width, creating a safe space for pedestrians and cyclists.

The pultruded sections were delivered to the site, cut to length, assembled using custom stainless steel fasteners, and then coated with an anti-slip coating, creating panels approximately 4 m x 10 m that could be lifted into position using a small crane due to the low weight of the pultruded sections.

Fibrolux will also supply a range of standard fiberglass pultruded sections that will directly fasten to the composite walkway slabs and will be used to support the rainwater drainage system for the refurbished bridge.



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