

Lightweight HPC beam OMEGA

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Abstract. In the design and construction of precast bridge structures, a general goal is to achieve the maximum possible span length. Often, the weight of individual beams makes them difficult to handle, which may be a limiting factor in achieving the desired span. The design of the OMEGA beam aims to solve a part of these problems. It is a thin-walled shell made of prestressed high-performance concrete (HPC) in the shape of inverted Ω character. The concrete shell with prestressed strands is fitted with a non-stressed tendon already in the casting yard and is more easily transported and installed on the site. The shells are subsequently completed with mild steel reinforcement and cores are cast in situ together with the deck. The OMEGA beams can also be used as an alternative to steel - concrete composite bridges. Due to the higher production complexity, OMEGA beam can hardly substitute conventional prestressed beams like T or PETRA completely, but it can be a useful alternative for specific construction needs.