

The new German standard DIN 18204-1: Design of tents and halls with PVC-coated polyester fabrics

Natalie STRANGHÖNER*, Jörg UHLEMANN*

*University of Duisburg-Essen, Institute for Metal and Lightweight Structures, Universitätsstr. 15, 45141 Essen, Germany, natalie.stranghoener@uni-due.de

Abstract

With DIN 18204-1 [1], a design and product standard existed in Germany since 2003 which standardized the design of tents and halls made from light PVC-coated polyester fabrics. In 2018, it was extensively revised, restructured and extended to the standard series DIN 18204 “Components for enclosures made of textile fabrics and plastic films” [2, 3]. The title is more general now, aiming to cover also other structures than tents and halls in future like e. g. ETFE-roof structures. However, the published Part 1 of this standard series regulates the design of tents and halls which are made from PVC-coated polyester fabrics classified in three material classes. Alongside with updates of normative references, the structure has been fundamentally changed so that the standard can also cover additional textile and plastic structures in new parts to be developed in future. Material specifications have been purified and adapted to new test standards. Moreover, the design concept has been gently revised. It now has a modern semiprobabilistic design concept, rules for connections and edge details including latest scientific knowledge and provides technical specifications for the fabric materials to be used. The new part 101 regulates the conformity assessment for tents and halls.

The present contribution describes the background of DIN 18204-1:2018-11 and -101:2018-11 and shows how the concept and the specifications can be utilized in the current development of the CEN Technical Specification for Membrane Structures.

References

- [1] DIN 18204-1:2007-05, Components for enclosures made of textile fabrics and plastic films (awnings) for structures and tents – Part 1: PVC coated polyester base fabric.
- [2] DIN 18204-1:2018-11, Components for enclosures made of textile fabrics and plastic films – Part 1: Structures and tents.
- [3] DIN 18204-101:2018-11, Components for enclosures made of textile fabrics and plastic films – Part 101: Conformity assessment for tents and halls according to DIN 18204-1.