

PREON – The Flexible Standard in Hall construction

Dipl.-Ing. Ole Josat, MSc
Product- + R&D Manager
VALLOUREC &
MANNESMANN TUBES
Düsseldorf, Germany
Ole.Josat@vmtubes.de



Ole Josat, born 1973, is Product and R&D Manager since 2004. Before his engagement for V&M, he works at a huge chemical industry company. One of his main objectives is the development of end-user oriented structural solutions and functional details. He received his master degree in 2002. He is member of the Technical Committee of CIDECT since 2004 and the German Institute of Standardisation (DIN).

Summary

PREON is a girder truss system primary used for heavy steel constructions. PREON insists of 2 different girder truss constructions. On the left and right hand side traditional lattice girders are used. The middle section insists of a Vierendeel truss. PREON combines the desire of the architect to design a light and filigree structure and the wish of the steel construction company to produce a fast and simple and cost effective construction.

Keywords: Performance-based design, Sustainability, durability and innovation, Form finding and free form design

Vallourec & Mannesmann Tubes produces and sells each year app. 3 Mio t of seamless steel tube and pipe. These tubes are destined primarily for the oil and gas and power generation sectors, and other industrial applications. Among these app. 160 kt/a of hot formed hollow sections according to DIN EN 10210 are produced. Mannesmann structural hollow (MSH) sections are characterized by their high load-bearing capacity, easy processing options and aesthetic appearance. These rectangular, square and round sections are widely used within well known architectural master pieces like football stadiums, airports buildings or railway stations. In order to widen the range of application within other fields of steel constructions, a development of primary steel structure for standardized hall construction was engaged. This common development was launched together with the static design office Dittmann + Pollmann at Hagen two years ago. The patented modular PREON system consists of standardized end sections made of traditional lattice girders, and a middle section made of Vierendeel girders. The modular construction allows combining standardized manufacturing with the highest flexibility to respond to customer's wishes. Meanwhile 18 projects of industrial halls have been carried out. Among these projects single halls with 1.500 m² as well as complex hall constructions with up to 200.000 m² have been realized.

1.1 Application Area

PREON is a girder truss system primary made of hot formed seamless MSH sections (Mannesmann Steel construction Hollow section) and is used for heavy steel constructions. The larger the span, the higher the loads and the longer the distance of the columns, the better for the system.

Application areas for are:

- Production halls
- Storage buildings