Experimental Studies of New Joint System for Thin-Walled Steel Profiles

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Abstract text:
The results and conclusions regarding the experimental test of the joint assembly of thin walled steel profile with and without strengthening elements (stiffeners) are presented. The entire test series have been performed using the 5 mm thick KB600 thin-walled profiles and 3.5 mm thick KB450. In the paper will be presented the analysis of the joints connecting the KB600-5.5 steel profiles. The KONTIBEAM system is primarily made of two galvanized sheet profiles so denominated as KB, which are joined by means of steel sheets (usually of 10mm thickness), placed in between them. Connecting of this assembly (KB's and connectors) is realized by using M20 bolts put in φ22 holes, which work in friction with two contact planes. The tested joints are connected by means of 8.8 class HSFG bolts (High Strength Friction Grip). The main conclusions of the tests are that the contour bolted connections assure a good behavior between the KB profiles and the joint element. Due to their position the strengthening elements lead to an increase of the bearing capacity up to 30...35%with respect to the yield limit of the KB material. The use of such strengthening elements allows the optimum use of the KB profiles, thus leading to the reduction of the material consumption.

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