

EXPERIMENTAL TESTS ON STEEL JOINTS SUBJECTED TO BENDING

Goal of the project

The project goal was to characterize experimentally the response of in-line connections between rectangular hollow sections which are able to transmit bending moment. The particularity of the joint consist of the limited dimensions to the RHS section for a discrete appearance.

Short description of the project

Due to the multiple parts involved in the connection, the project focused on the failure mode and failure sequence of the connection components. The experimental work used a 500kN actuator, linear variable displacement transducers and a digital image correlation system to record the data necessary for the response curve of the joint.

Implementation period

January – April 2018

Main activities

The main activity of the project was related to the goal of the project i.e. monitoring the force vs deformation of the assembly by testing two specimens for the welded connection between the RHS and the end plate and two specimens for the bolted connection for the continuity of the elements.

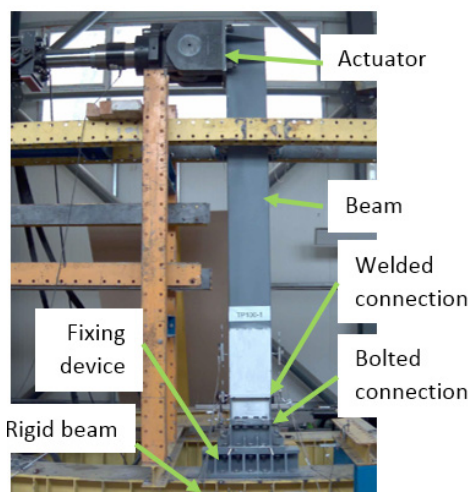


Fig. 1 Test setup for the bolted connection assembly
Beside the connection, tensile tests were performed on standard specimens from the base material of the components.

Results

The tests highlighted the deficiencies of the welding and the deformation and bearing capacity of the joint.

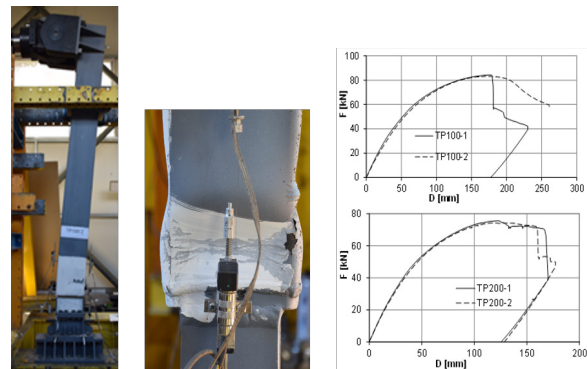


Fig. 2 The deformed shape and the response curve of joints

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