



Behaviour of high strength steel moment joints

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Finite element analysis of damage in pipeline bends

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P-I diagrams for linear-elastic cantilevered Timoshenko beams including higher modes of vibration

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partially automated philosophy is restricted to steel grades up to 540. With the recent development of

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stress of 460 N/mm², 520 N/mm² and 900 N/mm², respectively) to provide insight into the nonlinear behaviour of moment joints of the latter type. Findings from a comprehensive research programme carried out in the Delft University of Technology are collected. The major contributions of this study are (i) the characterization of the rotational response in the framework of the component method, (ii) an evaluation of current EN 1993 specifications for joints and (iii) the ductility analysis of high strength steel moment joints. Test results show that the tested joints and components comply the current design provisions for stiffness and resistance and satisfy reasonable deformation demands.

Keywords: Ductility, end plate connections, experimental testing, high strength steel, joint, moment, rotation capacity, stiffness, T-joint, web shear panel

Introduction

For decades the use of high performance steels was not very popular from the designers' and manufacturers' standpoint. Designers claimed that the benefits of using high-strength steel were little because there was no corresponding increase in the Young modulus as the yield stress increased, which could make problems of serviceability of structures being dominant. Manufacturers of steel structures, on the other hand, pointed at the higher costs of welding because of the special precautions that were required