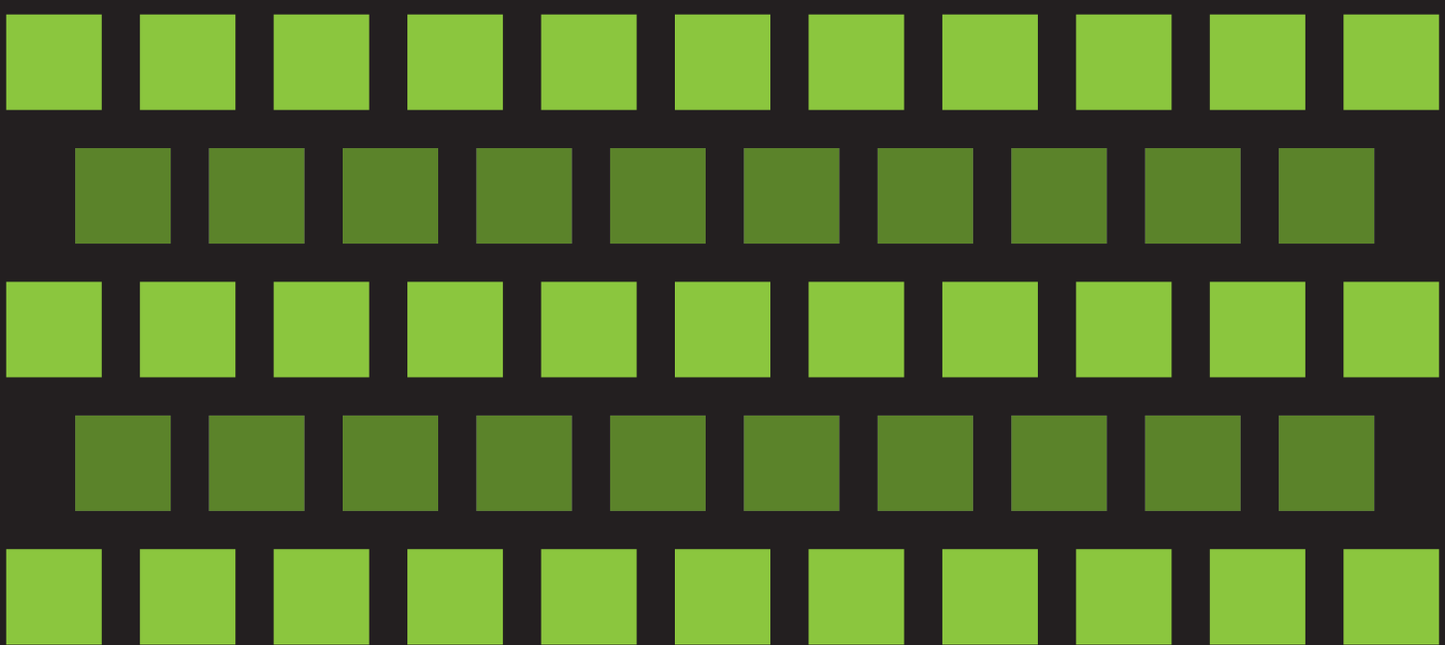
STP-PT-036

BOLTED FLANGED CONNECTIONS IN ELEVATED TEMPERATURE SERVICE



ASME STANDARDS TECHNOLOGY, LLC

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BOLTED FLANGED CONNECTIONS IN ELEVATED TEMPERATURE SERVICE

ASME STANDARDS TECHNOLOGY, LLC

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FOREWORD

The early research in design and analysis of bolted joints was conducted in the 1930s and 1940s and this work led to flanged joint design rules, such as the ASME Section VIII, Division 1, Appendix 2 method that was introduced in the 1940s and has remained largely unchanged since that time. The need for improvement in the design of high temperature flanged joints was identified to ASME and this project was funded by ASME to examine the requirements for high temperature in the flange material creep range flange design.

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ABSTRACT

The intent of the project is to examine the requirements for high temperature flange design and provide guidance for inclusion of design methods into the modern ASME pressure vessel design codes. While the fundamentals of high temperature flange design using code equations were included in the assessment, the initial starting point for the project was to formulate guidelines for FEA of the creep problem, based on comparison with relatively scarce flange creep test data. A literature research was conducted to review the fundamental study in high temperature flange joints, especially with respect to papers including experimental verification of results. In addition, the subject of gasket creep behavior was examined.