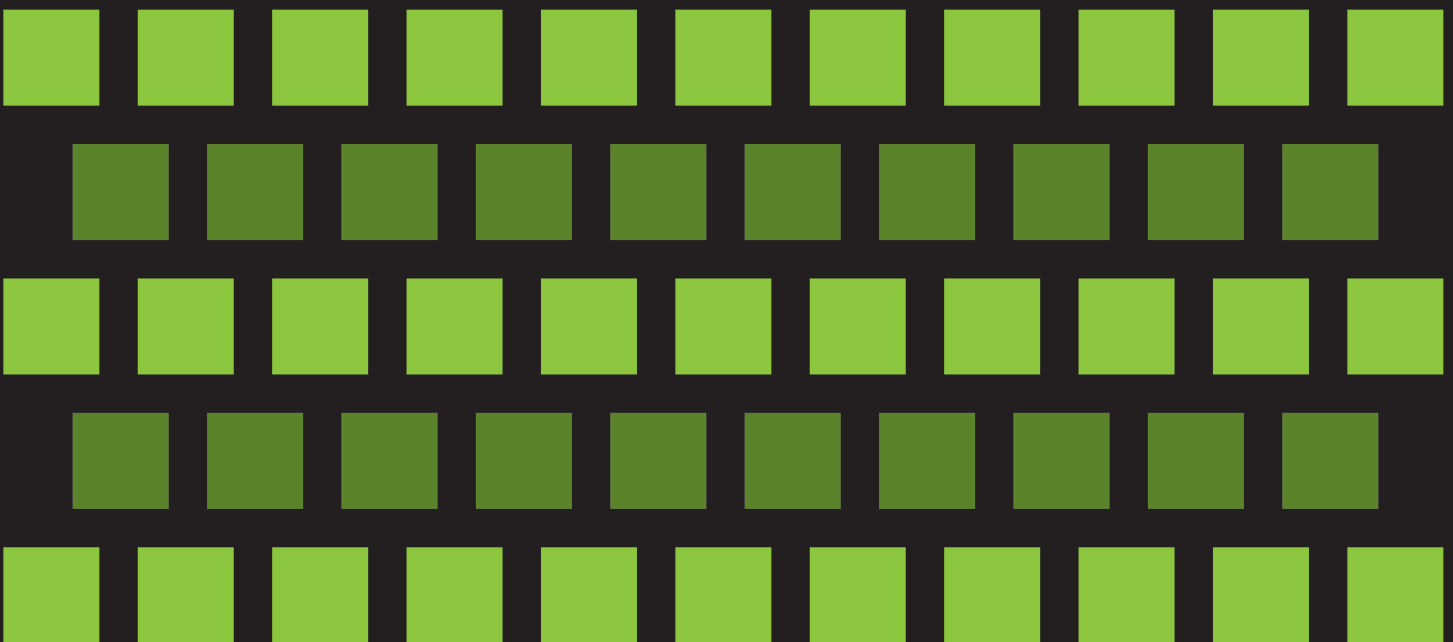


EXTENDED FATIGUE EXEMPTION RULES FOR LOW CR ALLOYS INTO THE TIME-DEPENDENT RANGE FOR SECTION VIII DIV 2



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FOREWORD

This document was developed under a research and development project which resulted from ASME Pressure Technology Codes & Standards (PTCS) committee requests to identify, prioritize and address technology gaps in current or new PTCS Codes, Standards and Guidelines. This project is one of several included for ASME fiscal year 2008 sponsorship which are intended to establish and maintain the technical relevance of ASME codes and standards products. The specific project related to this document is project 07-03 (BPVC#1), entitled “Extend Fatigue Exemption Rules for Low Cr Alloys Slightly into the Time-Dependent Range for Section VIII Div 2 Construction.”

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ABSTRACT

A number of alloys have applications slightly into the creep range that are in cyclic service, such as process reactors. The 2007 edition of Section VIII, Div 2 [1] provides allowable stresses for these materials, which may be controlled by creep properties. However, the fatigue design rules and fatigue exemption rules are not applicable, precluding construction of vessels using these materials at temperatures above 370°C (700°F). This report provides a simplified approach for exemption of low chrome alloys from fatigue analysis that are slightly into the creep range.