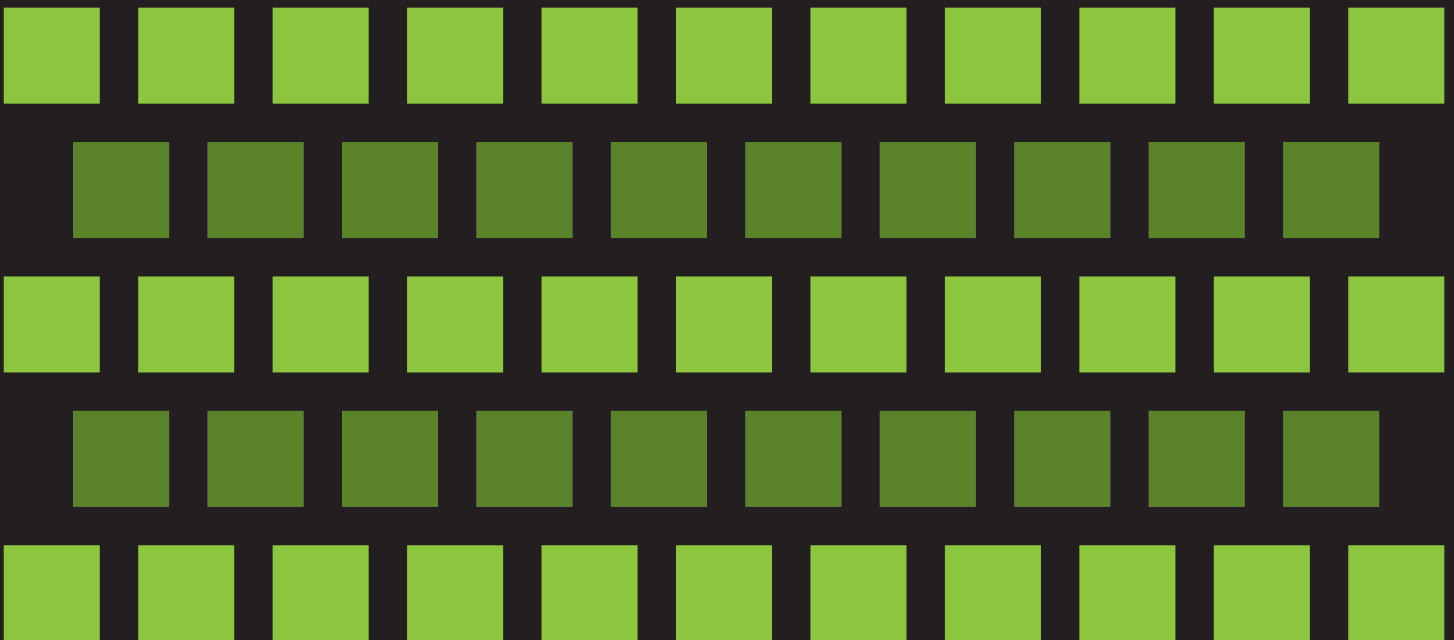


STP-PT-036

BOLTED FLANGED CONNECTIONS IN ELEVATED TEMPERATURE SERVICE



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Date of Issuance: October 17, 2010

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ASME Standards Technology, LLC
Three Park Avenue, New York, NY 10016-5990
ISBN No. 978-0-7918-3338-4

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TABLE OF CONTENTS

Foreword	vi
Abstract	vii
1 INTRODUCTION	1
2 LITERATURE RESEARCH	2
2.1 High Temperature Joint Behavior	2
2.2 Mechanical Effects of Temperature on Joint Behavior	16
2.3 Code Status	16
2.4 Gasket Creep Behavior	16
2.5 Material Relaxation Behavior	17
3 CREEP BEHAVIOR	18
3.1 Definition of Creep Law and Material Properties	18
3.2 Finite Element Modeling	27
3.3 Approximation of Creep/Relaxation Behavior Using Code Stresses	32
4 EXPERIMENTAL METHODS AND RESULTS	36
4.1 Experimental Methods	36
4.1.1 Bolt Relaxation	36
4.1.2 Joint Relaxation	37
4.2 Experimental Results	40
4.2.1 Bolt Relaxation	40
4.2.2 Joint Relaxation	41
5 CONCLUSIONS	48
6 RECOMMENDATIONS	49
References	50
Acknowledgments	54

LIST OF FIGURES

Figure 1 – From Baumann [3], page 1336	2
Figure 2 – Early Stress Relaxation Relationship from Bailey [4], page 149	3
Figure 3 – Relaxation Diagram from Gough [5], Fig. 24, page 263	4
Figure 4 – Joint Life Diagram from Tapsell [9], Fig. 11, page 448	6
Figure 5 – Bolt Creep Comparison from Tapsell [9], Fig. 13, page 450	6
Figure 6 – Bolt Load Factor Graph from Kerkhof [10], Fig. 1, page 152	7
Figure 7 – Relaxation Relationships from Johnson [11], page 431	7
Figure 8 – Flange Ring Relaxation Graphs from Johnson [11], Fig. 11, page 432	9
Figure 9 – Carbon Steel Pipe Flange Strength vs. Temperature from Johnson [11], Fig. 28, page 448	9
Figure 10 – Tensile Test Relaxation Graphs from Johnson [11], Fig. 33, page 456	10

Figure 11 – Comparison of Flange Test Results vs. Creep Tests from Bernhard [13], Fig. 12, page 122	11
Figure 12 – Illustration of Relaxation Rules from Cooper, et. al. [14], Fig. 3 & Fig. 4, page 133	12
Figure 13 – Creep Characteristics of Different Materials from Cooper, et. al. 14), Fig. 5 to Fig.7, page 133	12
Figure 14 – FEA Bolt Load Relaxation Results from Fessler, et. al. [16], Fig. 51.4, page 45	13
Figure 15 – FEA Bolt Load Relaxation Results from Maile, et. al. [18], Fig. 7, page 156	14
Figure 16 – FEA Bolt Load Relaxation Results from Maile, et. al. [18], Fig. 8, page 157	14
Figure 17 – FEA Bolt Load Relaxation Results from Maile, et. al. [18], Fig. 13, page 158	15
Figure 18 – FEA Bolt Load Relaxation Results from Maile, et. al. [18], Fig. 15, page 159	15
Figure 19 – Uniaxial Carbon Steel Omega Relaxation Results at 842°F	18
Figure 20 – Uniaxial Carbon Steel Omega Relaxation Results at 932°F	19
Figure 21 – Equation (1) Carbon Steel Relaxation Results at 572°F	20
Figure 22 – Equation (1) Carbon Steel Relaxation Results at 752°F	20
Figure 23 – Equation (1) Carbon Steel Relaxation Results at 932°F	21
Figure 24 – Equation (1) Carbon Steel Relaxation Results at 1112°F	21
Figure 25 – Equation (1) Carbon Steel Relaxation Results at 842°F	22
Figure 26 – Equation (1) Carbon Steel Relaxation Results at 851°F	22
Figure 27 – Equation (1) Carbon Steel “N” vs. Temperature	23
Figure 28 – Equation (1) CrMo Relaxation Results at 70°F	23
Figure 29 – Equation (1) CrMo Relaxation Results at 248°F	24
Figure 30 – Equation (1) CrMo Relaxation Results at 850°F	24
Figure 31 – Equation (1) CrMo Relaxation Results at 900°F	25
Figure 32 – Equation (1) CrMo Relaxation Results at 932°F	25
Figure 33 – Equation (1) CrMo Relaxation Results at 1000°F	26
Figure 34 – Equation (1) CrMo “N” vs. Temperature	26
Figure 35 – Bolt/Cylinder FEA Model	28
Figure 36 – Bolt/Cylinder Full FEA Model Bolt Stress vs. Time Results	29
Figure 37 – Bolt/Cylinder Simple FEA Model Bolt Stress vs. Time Results	29
Figure 38 – NPS 2, cl. 900 FEA Model	30
Figure 39 – NPS 3, cl. 150 FEA Model	30
Figure 40 – NPS 3, cl. 150 Creep Strain @ 217hrs	31
Figure 41 – NPS 3, cl. 300 FEA Model	31
Figure 42 – NPS 3, cl. 300 Creep Strain @ 217hrs	31
Figure 43 – NPS 6, cl. 150 FEA Model	32

Figure 44 – NPS 6, cl. 150 Creep Strain @ 217hrs.....	32
Figure 45 – NPS 3, cl. 150 Bolt Stress vs. Time	34
Figure 46 – NPS 3, cl. 300 Bolt Stress vs. Time	34
Figure 47 – NPS 6, cl. 150 Bolt Stress vs. Time	35
Figure 48 – NPS 2, cl. 900 Bolt Stress vs. Time	35
Figure 49 – Bolt Load Relaxation Arrangement	36
Figure 50 – Length Measurement Arrangement.....	36
Figure 51 – Flange Joint Drilling Arrangement	38
Figure 52 – Joint Measurement Arrangement	38
Figure 53 – Assembled Joint	39
Figure 54 – Assembled Joint	39
Figure 55 – Bolt Load Relaxation vs. Assembly Load (% of Assembly Load)	40
Figure 56 – Bolt Load Relaxation vs. Assembly Load (% of Ambient Bolt Yield Stress)	41
Figure 57 – NPS 2, cl.900 Bolt Deformation Results	42
Figure 58 – NPS 2, cl.900 Flange Deformation Results	42
Figure 59 – NPS 3, cl.150 Bolt Deformation Results	43
Figure 60 – NPS 3, cl.150 Flange Deformation Results	43
Figure 61 – NPS 3, cl.150 Remaining Bolt Stress Results.....	44
Figure 62 – 3 Belleville Washer Stack Load-Deformation Results	45
Figure 63 – 6 Belleville Washer Stack Load-Deformation Results	45
Figure 64 – NPS 3, cl.300 Bolt Deformation Results	46
Figure 65 – NPS 3, cl.300 Flange Deformation Results	46
Figure 66 – NPS 6, cl.150 Bolt Deformation Results	47
Figure 67 – NPS 6, cl.150 Flange Deformation Results	47

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.