This is a free page sample. Access the full version online.

ASME B31.5-2006
(Revision of ASME B31.5-2001)

Refrigeration Piping and Heat Transfer Components

ASME Code for Pressure Piping, B31

AN AMERICAN NATIONAL STANDARD

The American Society of Mechanical Engineers

Copyright © 2007 by the American Society of Mechanical Engineers.
No reproduction may be made of this material without written consent of ASME.

This is a free page sample. Access the full version online.

ASME B31.5-2006
(Revision of ASME B31.5-2001)

Refrigeration Piping and Heat Transfer Components

ASME Code for Pressure Piping, B31

AN AMERICAN NATIONAL STANDARD

The American Society of Mechanical Engineers
Three Park Avenue • New York, NY 10016

Copyright © 2007 by the American Society of Mechanical Engineers.
No reproduction may be made of this material without written consent of ASME.

This is a free page sample. Access the full version online.

Date of Issuance: July 20, 2007

The next edition of this Code is scheduled for publication in 2009. This Code will become effective 6 months after the Date of Issuance. There will be no addenda issued to this edition.

ASME issues written replies to inquiries concerning interpretations of technical aspects of this Standard. The interpretations will be included with this edition. Interpretations are published on the ASME Web site under the Committee Pages at http://cstools.asme.org as they are issued.

ASME is the registered trademark of The American Society of Mechanical Engineers.

This code or standard was developed under procedures accredited as meeting the criteria for American National Standards. The Standards Committee that approved the code or standard was balanced to assure that individuals from competent and concerned interests have had an opportunity to participate. The proposed code or standard was made available for public review and comment that provides an opportunity for additional public input from industry, academia, regulatory agencies, and the public-at-large.

ASME does not "approve," "rate," or "endorse" any item, construction, proprietary device, or activity.

ASME does not take any position with respect to the validity of any patent rights asserted in connection with any items mentioned in this document, and does not undertake to insure anyone utilizing a standard against liability for infringement of any applicable letters patent, nor assumes any such liability. Users of a code or standard are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, is entirely their own responsibility.

Participation by federal agency representative(s) or person(s) affiliated with industry is not to be interpreted as government or industry endorsement of this code or standard.

ASME accepts responsibility for only those interpretations of this document issued in accordance with the established ASME procedures and policies, which precludes the issuance of interpretations by individuals.

No part of this document may be reproduced in any form,
in an electronic retrieval system or otherwise,
without the prior written permission of the publisher.

The American Society of Mechanical Engineers
Three Park Avenue, New York, NY 10016-5990

Copyright © 2007 by
THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS
All rights reserved
Printed in U.S.A.

Copyright © 2007 by the American Society of Mechanical Engineers.
No reproduction may be made of this material without written consent of ASME.

This is a free page sample. Access the full version online.

CONTENTS

Foreword		v
Committee Roster		vi
Introduction		viii
Summary of Changes		x
Chapter I	**Scope and Definitions**	1
500	General Statements	1
Chapter II	**Design**	7
Part 1	**Conditions and Criteria**	7
501	Design Conditions	7
502	Design Criteria	8
Part 2	**Design of Piping Components**	23
503	Criteria for Design of Piping Components	23
504	Pressure Design of Piping Components	23
Part 3	**Design Application of Piping Components Selection and Limitations**	32
505	Pipe	32
506	Fittings, Bends, and Intersections	33
507	Valves	34
508	Flanges, Blanks, Flange Facings, Gaskets, and Bolting	34
Part 4	**Selection and Limitations of Piping Joints**	34
510	Piping Joints	34
511	Welded Joints	35
512	Flanged Joints	35
513	Expanded Joints	35
514	Threaded Joints	35
515	Flared, Flareless, and Compression Joints	35
517	Brazed and Soldered Joints	36
518	Sleeve Coupled and Other Novel or Patented Joints	36
Part 5	**Expansion, Flexibility, Structural Attachments, Supports, and Restraints**	36
519	Expansion and Flexibility	36
520	Design of Pipe Supporting Elements	45
521	Design Loads for Pipe Supporting Elements	46
Chapter III	**Materials**	48
523	Materials — General Requirements	48
524	Materials Applied to Miscellaneous Parts	52
Chapter IV	**Dimensional Requirements**	55
526	Dimensional Requirements for Standard and Nonstandard Piping Components	55
Chapter V	**Fabrication and Assembly**	57
527	Welding	57
528	Brazing and Soldering	64
529	Bending — Hot and Cold	65
530	Forming	65
531	Heat Treatment	65
535	Assembly	68
Chapter VI	**Examination, Inspection, and Testing**	70
536	Examination	70

Copyright © 2007 by the American Society of Mechanical Engineers.
No reproduction may be made of this material without written consent of ASME.

This is a free page sample. Access the full version online.

537 Inspection 71
538 Testing 72
539 Records 73

Figures

502.3.2 Stress Range Reduction Factors 22
504.3.1-1 Reinforcement of Branch Connections 26
504.3.1-2 Extruded Outlet Header Notation 28
504.3.1-3 Mechanically Formed Tee Connections in Copper Materials 30
504.5.3 Blanks 32
519.4.5-1 Bends 43
519.4.5-2 Branch Connections 44
523.2.2 Reduction in Minimum Design Metal Temperature Without Impact Testing 53
527.1.2 Typical Joints With Backing Ring 57
527.2.1-1 Butt Welding End Preparation 58
527.2.1-2 Internal Trimming for Butt Welding of Piping Components With Internal Misalignment 58
527.3.3-1 Fillet Weld Size 59
527.3.3-2 Welding Details for Slip-On and Socket Welding Flanges, and Some Acceptable Types of Flange Attachment Welds 60
527.3.3-3 Minimum Welding Dimensions Required for Socket Welding Components Other Than Flanges 60
527.3.5-1 Typical Welded Branch Connection Without Additional Reinforcement 61
527.3.5-2 Typical Welded Branch Connection With Additional Reinforcement 61
527.3.5-3 Typical Welded Angular Branch Connection Without Additional Reinforcement 61
527.3.5-4 Some Acceptable Types of Welded Branch Attachment Details Showing Minimum Acceptable Welds 62
527.3.6-1 Acceptable Welds for Flat Plate Closures 63
527.3.6-2 Unacceptable Welds for Flat Plate Closures 63

Tables

500.2-1 Refrigerant Safety Classifications 4
500.2-2 Safety Classifications for Refrigerant Blends 6
502.3.1 Maximum Allowable Stress Values, ksi 10
519.3.1 Thermal Expansion Data (IP and SI) 38
519.3.2 Moduli of Elasticity (IP and SI) 39
519.3.6 Flexibility Factor, *k*, and Stress Intensification Factor, *i* 40
521.3.1 Minimum Sizes of Straps, Rods, and Chains for Hangers 47
523.1 Acceptable Materials — Specifications 49
523.2.2 Impact Exemption Temperatures 54
526.1 Dimensional Standards 56
531.2.1 Heat Treatment of Welds 66

Nonmandatory Appendices

A Referenced Standards 75
B Preparation of Technical Inquiries 78
C Selecting Applicable Piping Codes 79

Copyright © 2007 by the American Society of Mechanical Engineers.
No reproduction may be made of this material without written consent of ASME.

SAI GLOBAL

This is a free preview. Purchase the entire publication at the link below:

Product Page

Looking for additional Standards? Visit Intertek Inform Infostore

Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation