

**ASME B30.9-2010**  
(Revision of ASME B30.9-2006)

# Slings

---

**Safety Standard for Cableways, Cranes,  
Derricks, Hoists, Hooks, Jacks, and Slings**

**AN AMERICAN NATIONAL STANDARD**



**The American Society of  
Mechanical Engineers**

INTENTIONALLY LEFT BLANK

**ASME B30.9-2010**  
(Revision of ASME B30.9-2006)

# Slings

---

**Safety Standard for Cableways, Cranes,  
Derricks, Hoists, Hooks, Jacks, and Slings**

**AN AMERICAN NATIONAL STANDARD**



**The American Society of  
Mechanical Engineers**

Three Park Avenue • New York, NY • 10016 USA

Date of Issuance: January 18, 2011

The next edition of this Standard is scheduled for publication in 2013. This Standard will become effective 1 year 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. Interpretations are published on the ASME Web site under the Committee Pages at <http://cstools.asme.org> as they are issued. Interpretations will also be included with each edition.

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 assume 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 © 2010 by  
THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS  
All rights reserved  
Printed in U.S.A.

# CONTENTS

Foreword .....	vi
Committee Roster .....	vii
B30 Standard Introduction .....	ix
Summary of Changes .....	xii
<b>Chapter 9-0</b>	<b>Scope, Definitions, and References</b> .....
Section 9-0.1	Scope of ASME B30.9 .....
Section 9-0.2	Definitions .....
Section 9-0.3	References .....
<b>Chapter 9-1</b>	<b>Alloy Steel Chain Slings: Selection, Use, and Maintenance</b> .....
Section 9-1.0	Scope .....
Section 9-1.1	Training .....
Section 9-1.2	Materials and Components .....
Section 9-1.3	Fabrication and Configurations .....
Section 9-1.4	Design Factor .....
Section 9-1.5	Rated Loads .....
Section 9-1.6	Proof Test Requirements .....
Section 9-1.7	Sling Identification .....
Section 9-1.8	Effects of Environment .....
Section 9-1.9	Inspection, Removal, and Repair .....
Section 9-1.10	Operating Practices .....
<b>Chapter 9-2</b>	<b>Wire Rope Slings: Selection, Use, and Maintenance</b> .....
Section 9-2.0	Scope .....
Section 9-2.1	Training .....
Section 9-2.2	Materials and Components .....
Section 9-2.3	Fabrication and Configurations .....
Section 9-2.4	Design Factor .....
Section 9-2.5	Rated Load .....
Section 9-2.6	Proof Test Requirements .....
Section 9-2.7	Sling Identification .....
Section 9-2.8	Effects of Environment .....
Section 9-2.9	Inspection, Removal, and Repair .....
Section 9-2.10	Operating Practices .....
<b>Chapter 9-3</b>	<b>Metal Mesh Slings: Selection, Use, and Maintenance</b> .....
Section 9-3.0	Scope .....
Section 9-3.1	Training .....
Section 9-3.2	Materials and Components .....
Section 9-3.3	Fabrication and Configurations .....
Section 9-3.4	Design Factor .....
Section 9-3.5	Rated Load .....
Section 9-3.6	Proof Test Requirements .....
Section 9-3.7	Sling Identification .....
Section 9-3.8	Effects of Environment .....
Section 9-3.9	Inspection, Removal, and Repair .....
Section 9-3.10	Operating Practices .....
<b>Chapter 9-4</b>	<b>Synthetic Rope Slings: Selection, Use, and Maintenance</b> .....
Section 9-4.0	Scope .....
Section 9-4.1	Training .....

Section 9-4.2	Materials and Components .....	32
Section 9-4.3	Fabrication and Configurations .....	32
Section 9-4.4	Design Factor .....	33
Section 9-4.5	Rated Load .....	33
Section 9-4.6	Proof Test Requirements .....	39
Section 9-4.7	Sling Identification .....	39
Section 9-4.8	Effects of Environment .....	40
Section 9-4.9	Inspection, Removal, and Repair .....	40
Section 9-4.10	Operating Practices .....	41
<b>Chapter 9-5</b>	<b>Synthetic Webbing Slings: Selection, Use, and Maintenance .....</b>	<b>43</b>
Section 9-5.0	Scope .....	43
Section 9-5.1	Training .....	43
Section 9-5.2	Materials and Components .....	43
Section 9-5.3	Fabrication and Configurations .....	43
Section 9-5.4	Design Factor .....	43
Section 9-5.5	Rated Load .....	43
Section 9-5.6	Proof Test Requirements .....	46
Section 9-5.7	Sling Identification .....	49
Section 9-5.8	Effects of Environment .....	49
Section 9-5.9	Inspection, Removal, and Repair .....	49
Section 9-5.10	Operating Practices .....	50
<b>Chapter 9-6</b>	<b>Synthetic Roundslings: Selection, Use, and Maintenance .....</b>	<b>52</b>
Section 9-6.0	Scope .....	52
Section 9-6.1	Training .....	52
Section 9-6.2	Materials and Components .....	52
Section 9-6.3	Fabrication and Configurations .....	52
Section 9-6.4	Design Factor .....	52
Section 9-6.5	Rated Load .....	52
Section 9-6.6	Proof Test Requirements .....	55
Section 9-6.7	Sling Identification .....	55
Section 9-6.8	Effects of Environment .....	55
Section 9-6.9	Inspection, Removal, and Repair .....	57
Section 9-6.10	Operating Practices .....	58
<b>Figures</b>		
9-1.0-1	Alloy Steel Chain Slings: Configurations, Components, and Hitches ....	5
9-2.0-1	Wire Rope .....	12
9-2.3.2-1	Minimum Sling Length .....	13
9-2.3.2-2	Minimum Braided Sling Length .....	13
9-2.5.1-1	Angle of Loading .....	14
9-2.5.1-2	$D/d$ Ratio .....	14
9-2.5.4-1	Angle of Choke .....	24
9-2.9.4-1	Cable-Laid Wire Rope Sling .....	25
9-3.0-1	Metal Mesh Sling .....	28
9-4.0-1	Synthetic Fiber Rope Slings .....	33
9-4.5.1-1	Hitch Types for Synthetic Rope Slings .....	34
9-4.5.1-2	Angle of Loading .....	36
9-4.5.1-3	$D/d$ Ratio .....	36
9-4.5.4-1	Angle of Choke .....	39
9-5.0-1	Synthetic Webbing Slings .....	44
9-5.0-2	Synthetic Webbing Sling Nomenclature .....	44
9-5.5.1-1	Angle of Loading .....	45
9-5.5.4-1	Angle of Choke .....	49
9-6.0-1	Synthetic Roundslings .....	53
9-6.5.1-1	Angle of Loading .....	54
9-6.5.4-1	Angle of Choke .....	57



## Tables

9-1.5.2-1	Rated Load for Grade 80 Alloy Steel Chain Slings — Vertical, Basket, and Bridle Hitches .....	6
9-1.5.2-2	Rated Load for Grade 100 Alloy Steel Chain Slings — Vertical, Basket, and Bridle Hitches .....	6
9-1.5.4-1	Rated Load for Grade 80 Alloy Steel Chain Slings — Choker Hitches .....	8
9-1.5.4-2	Rated Load for Grade 100 Alloy Steel Chain Slings — Choker Hitches .....	8
9-1.8.1-1	Effect of Elevated Temperature on Rated Load of Alloy Steel Chain ....	9
9-1.9.4-1	Minimum Allowable Thickness at Any Point on a Link .....	10
9-2.5.2-1	Rated Load for Single- and Two-Leg Slings 6 × 19 or 6 × 36 Classification Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope .....	15
9-2.5.2-2	Rated Load for Three- and Four-Leg Slings 6 × 19 or 6 × 36 Classification Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope .....	16
9-2.5.2-3	Rated Load for Single- and Two-Leg Slings 6 × 19 or 6 × 36 Classification Extra Improved Plow Steel (EIPS) Grade Independent Wire Rope Core (IWRC) Wire Rope .....	17
9-2.5.2-4	Rated Load for Three- and Four-Leg Slings 6 × 19 or 6 × 36 Classification Extra Improved Plow Steel (EIPS) Grade Independent Wire Rope Core (IWRC) Wire Rope .....	18
9-2.5.2-5	Rated Load for Single- and Two-Leg Slings 6 × 19 or 6 × 36 Classification Extra Extra Improved Plow Steel (EEIPS) Grade Independent Wire Rope Core (IWRC) Wire Rope .....	19
9-2.5.2-6	Rated Load for Three- and Four-Leg Slings 6 × 19 or 6 × 36 Classification Extra Extra Improved Plow Steel (EEIPS) Grade Independent Wire Rope Core (IWRC) Wire Rope .....	20
9-2.5.2-7	Rated Load for Cable-Laid Wire Rope Single- and Two-Leg Slings Mechanical Splice Only .....	21
9-2.5.2-8	Rated Load for Six-Part Braided Single- and Two-Leg Slings 6 × 19 or 6 × 36 Classification Extra Improved Plow Steel (EIPS) Grade Independent Wire Rope Core (IWRC) Wire Rope .....	22
9-2.5.2-9	Rated Load for Eight-Part Braided Single- and Two-Leg Slings 6 × 19 or 6 × 36 Classification Extra Improved Plow Steel (EIPS) Grade Independent Wire Rope Core (IWRC) Wire Rope .....	23
9-3.2.1-1	Fabric Construction (Metal Mesh Slings) .....	28
9-3.5.2-1	Rated Load for Metal Mesh Slings .....	29
9-4.5.2-1	Nylon Rope Slings .....	37
9-4.5.2-2	Polyester Rope Slings .....	38
9-5.5.2-1	Rated Load for One-Ply, Class 5 Synthetic Webbing Slings .....	46
9-5.5.2-2	Rated Load for Two-Ply, Class 5 Synthetic Webbing Slings .....	47
9-5.5.2-3	Rated Load for One-Ply, Class 7 Synthetic Webbing Slings .....	47
9-5.5.2-4	Rated Load for Two-Ply, Class 7 Synthetic Webbing Slings .....	48
9-5.5.2-5	Rated Load for Four-Ply, Class 7 Synthetic Webbing Slings .....	48
9-6.5.2-1	Rated Load for Single-Leg Polyester Roundslings — Endless and Eye-and-Eye Type .....	56

## FOREWORD

This American National Standard, Safety Standard for Cableways, Cranes, Derricks, Hoists, Hooks, Jacks, and Slings, has been developed under the procedures accredited by the American National Standards Institute (formerly the United States of America Standards Institute). This Standard had its beginning in December 1916 when an eight-page Code of Safety Standards for Cranes, prepared by an ASME Committee on the Protection of Industrial Workers, was presented to the annual meeting of the ASME.

Meetings and discussions regarding safety on cranes, derricks, and hoists were held from 1920 to 1925, involving the ASME Safety Code Correlating Committee, the Association of Iron and Steel Electrical Engineers, the American Museum of Safety, the American Engineering Standards Committee (later changed to American Standards Association and subsequently to the USA Standards Institute), Department of Labor — State of New Jersey, Department of Labor and Industry — State of Pennsylvania, and the Locomotive Crane Manufacturers Association. On June 11, 1925, the American Engineering Standards Committee approved the ASME Safety Code Correlating Committee's recommendation and authorized the project with the U.S. Department of the Navy, Bureau of Yards and Docks, and ASME as sponsors.

In March 1926, invitations were issued to 50 organizations to appoint representatives to a Sectional Committee. The call for organization of this Sectional Committee was sent out October 2, 1926, and the committee organized on November 4, 1926, with 57 members representing 29 national organizations. The Safety Code for Cranes, Derricks, and Hoists, ASA B30.2-1943, was created from the eight-page document referred to in the first paragraph. This document was reaffirmed in 1952 and widely accepted as a safety standard.

Due to changes in design, advancement in techniques, and general interest of labor and industry in safety, the Sectional Committee, under the joint sponsorship of ASME and the Naval Facilities Engineering Command, U.S. Department of the Navy, was reorganized as an American National Standards Committee on January 31, 1962, with 39 members representing 27 national organizations.

The format of the previous code was changed so that separate volumes (each complete as to construction and installation; inspection, testing, and maintenance; and operation) would cover the different types of equipment included in the scope of B30.

In 1982, the Committee was reorganized as an Accredited Organization Committee, operating under procedures developed by ASME and accredited by the American National Standards Institute.

This Standard presents a coordinated set of rules that may serve as a guide to government and other regulatory bodies and municipal authorities responsible for the guarding and inspection of the equipment falling within its scope. The suggestions leading to accident prevention are given both as mandatory and advisory provisions; compliance with both types may be required by employers of their employees.

In case of practical difficulties, new developments, or unnecessary hardship, the administrative or regulatory authority may grant variances from the literal requirements or permit the use of other devices or methods, but only when it is clearly evident that an equivalent degree of protection is thereby secured. To secure uniform application and interpretation of this Standard, administrative or regulatory authorities are urged to consult the B30 Committee, in accordance with the format described in Section IX, before rendering decisions on disputed points.

Operation and maintenance instructions in this safety Standard are intended for general applications.

Safety codes and standards are intended to enhance public safety. Revisions result from committee consideration of factors such as technological advances, new data, and changing environmental and industry needs. Revisions do not imply that previous editions were inadequate. The 2010 edition of this Volume contains minor revisions throughout.

Following approval by the B30 Standards Committee and the ASME Board, ASME B30.9-2010 was approved as an American National Standard by ANSI on November 16, 2010.



# ASME B30 COMMITTEE

## Safety Standard for Cableways, Cranes, Derricks, Hoists, Hooks, Jacks, and Slings

(The following is the roster of the Committee at the time of approval of this Standard.)

### STANDARDS COMMITTEE OFFICERS

**P. S. Zorich**, *Chair*  
**R. M. Parnell**, *Vice Chair*  
**K. M. Hyam**, *Secretary*

### STANDARDS COMMITTEE PERSONNEL

<b>N. E. Andrew</b> , ThyssenKrupp Steel USA, LLC	<b>D. K. Huber</b> , <i>Alternate</i> , Columbus McKinnon Corp.
<b>W. T. Hargrove</b> , <i>Alternate</i> , QinetiQ North America	<b>L. D. Means</b> , Means Engineering and Consulting/Wire Rope Technical Board
<b>R. E. Bluff IV</b> , Gantry Constructors, Inc.	<b>D. M. Sleightholm</b> , <i>Alternate</i> , Bridon American Corp.
<b>P. A. Boeckman</b> , The Crosby Group, Inc.	<b>K. J. Miller</b> , Jacobs Engineering
<b>R. J. Bolen</b> , E. I. DuPont	<b>P. E. Whitford</b> , <i>Alternate</i> , Haag Engineering
<b>A. D. Brown</b> , Poms and Associates	<b>D. Morgan</b> , Mission Support Alliance
<b>M. E. Brunet</b> , The Manitowoc Co.	<b>C. Brewer</b> , <i>Alternate</i> , Mission Support Alliance
<b>T. A. Christensen</b> , Alliance of American Insurers/Liberty Mutual Insurance	<b>G. L. Owens</b> , Consultant
<b>M. W. Mills</b> , <i>Alternate</i> , Liberty Mutual Group	<b>J. Sturm</b> , <i>Alternate</i> , Crane's Aerial Truck Service
<b>B. D. Closson</b> , Craft Forensic Services, Inc.	<b>R. M. Parnell</b> , Wire Rope Rigging Consultants/Industrial Training International, Inc.
<b>T. L. Blanton</b> , <i>Alternate</i> , NACB Group, Inc.	<b>J. Danielson</b> , <i>Alternate</i> , Boeing
<b>J. P. Colletti</b> , John P. Colletti & Associates, Inc.	<b>J. T. Perkins</b> , Consultant
<b>R. A. Dahlin</b> , Walker Magnetics Group	<b>J. E. Richardson</b> , U.S. Department of the Navy
<b>K. M. Jankowski</b> , <i>Alternate</i> , Walker Magnetics Group	<b>M. M. Jaxheimer</b> , <i>Alternate</i> , Navy Crane Center
<b>L. D. DeMark</b> , Equipment Training Solutions, LLC	<b>D. W. Ritchie</b> , David Ritchie Consultant, LLC
<b>D. Jordan</b> , <i>Alternate</i> , BP	<b>J. D. Wiethorn</b> , <i>Alternate</i> , Haag Engineering Co.
<b>D. W. Eckstine</b> , Eckstine and Associates	<b>J. W. Rowland III</b> , Consultant
<b>H. G. Leidich</b> , <i>Alternate</i> , Leidich Consulting Services	<b>J. C. Ryan</b> , Boh Brothers Construction Co.
<b>R. J. Edwards</b> , Alliance Concrete Pumps	<b>A. R. Ruud</b> , <i>Alternate</i> , Atkinson Construction
<b>J. L. Bury</b> , <i>Alternate</i> , Putzmeister America	<b>D. Sayenga</b> , The Cardon Management Group
<b>E. D. Fidler</b> , The Manitowoc Co.	<b>J. A. Gilbert</b> , <i>Alternate</i> , Associated Wire Rope Fabricators
<b>J. L. Gordon</b> , Acco Chain and Lifting Products	<b>D. W. Smith</b> , Chicago Bridge and Iron Co. HSC
<b>N. C. Hargreaves</b> , Terex Corp.	<b>S. K. Rammelsburg</b> , <i>Alternate</i> , Chicago Bridge and Iron Co.
<b>C. E. Imerman</b> , <i>Alternate</i> , Link-Belt Construction Equipment Co.	<b>W. J. Smith, Jr.</b> , NBIS Claims and Risk Management, Inc.
<b>J. J. Headley</b> , Crane Institute of America	<b>J. Schoppert</b> , <i>Alternate</i> , NBIS Claims and Risk Management
<b>W. C. Dickinson</b> , <i>Alternate</i> , Crane Industry Services, LLC	<b>R. G. Strain</b> , Advanced Crane Technologies, LLC
<b>G. B. Hetherston</b> , E. I. DuPont	<b>P. D. Sweeney</b> , General Dynamics, Electric Boat
<b>K. M. Hyam</b> , The American Society of Mechanical Engineers	<b>B. M. Casey</b> , <i>Alternate</i> , Electric Boat
<b>C. W. Ireland</b> , National Oilwell Varco	<b>A. R. Toth</b> , Morris Material Handling
<b>A. J. Egging</b> , <i>Alternate</i> , National Oilwell Varco	<b>J. D. Edmundson</b> , <i>Alternate</i> , Morris Material Handling
<b>D. C. Jackson</b> , Tulsa Winch Group	<b>B. E. Weir, Jr.</b> , National Erectors Association/Norris Brothers Co., Inc.
<b>W. E. Osborn</b> , <i>Alternate</i> , Ingersoll Rand	<b>J. R. Schober</b> , <i>Alternate</i> , American Bridge Co.
<b>P. R. Juhren</b> , Morrow Equipment Co., LLC	<b>R. C. Wild</b> , U.S. Army Corps of Engineers
<b>R. M. Kohner</b> , Landmark Engineering Service	<b>E. B. Stewart</b> , <i>Alternate</i> , U.S. Army Corps of Engineers
<b>D. Duerr</b> , <i>Alternate</i> , 2DM Associates, Inc.	<b>D. N. Wolff</b> , National Crane/Manitowoc Crane Group
<b>C. E. Lucas</b> , The Crosby Group, Inc.	<b>A. L. Calta</b> , <i>Alternate</i> , Manitowoc Crane Group
<b>F. P. Massaro</b> , <i>Alternate</i> , Bishop Lifting Products, Inc.	<b>P. S. Zorich</b> , RZP International Ltd.
<b>A. J. Lusi</b> , International Union of Operating Engineers	<b>H. W. Fair</b> , <i>Alternate</i> , H. Fair Associates, Inc.
<b>D. W. Frantz</b> , <i>Alternate</i> , Ohio Operating Engineers Local 18	
<b>E. K. Marburg</b> , Columbus McKinnon Corp.	

## HONORARY MEMBERS

**J. W. Downs, Jr.**, Downs Crane and Hoist Co.  
**J. L. Franks**, Consultant  
**J. M. Klibert**, Lift-All Co., Inc.  
**R. W. Parry**, Consultant

## B30.9 SUBCOMMITTEE PERSONNEL

<b>L. D. Means</b> , <i>Chair</i> , Means Engineering and Consulting	<b>P. S. Hughes</b> , RUD Chain
<b>N. E. Andrew</b> , ThyssenKrupp Steel USA, LLC	<b>M. A. Kowalick</b> , Liftex Corp.
<b>T. L. Blanton</b> , NACB Group, Inc.	<b>C. E. Lucas</b> , The Crosby Group, Inc.
<b>P. A. Boeckman</b> , The Crosby Group, Inc.	<b>F. P. Massaro</b> , Bishop Lifting Products, Inc.
<b>P. Cooke</b> , Columbus McKinnon	<b>D. A. Moore</b> , Packer Engineering, Inc.
<b>D. R. Decker</b> , Information Design, Inc.	<b>M. G. Neuzil</b> , Six Flags
<b>C. Domino</b> , Naval Weapons Station Earle	<b>R. M. Parnell</b> , Wire Rope Rigging Consultants/Industrial Training International, Inc.
<b>M. J. Gelsky</b> , Lift It Manufacturing Co., Inc.	<b>D. A. Richards</b> , Southwest Ocean Service, Inc.
<b>J. A. Gilbert</b> , Associated Wire Rope Fabricators	<b>B. D. Todd</b> , Campbell Chain
<b>S. R. Gridley</b> , Navy Crane Center	<b>W. T. Hargrove</b> , <i>Alternate</i> , QinetiQ North America

# SAFETY STANDARD FOR CABLEWAYS, CRANES, DERRICKS, HOISTS, HOOKS, JACKS, AND SLINGS

## B30 STANDARD INTRODUCTION

(10)

### SECTION I: SCOPE

The ASME B30 Standard contains provisions that apply to the construction, installation, operation, inspection, testing, maintenance, and use of cranes and other lifting and material-handling related equipment. For the convenience of the reader, the Standard has been divided into separate volumes. Each volume has been written under the direction of the ASME B30 Standards Committee and has successfully completed a consensus approval process under the general auspices of the American National Standards Institute (ANSI).

As of the date of issuance of this Volume, the B30 Standard comprises the following volumes:

- |        |   |        |   |
|--------|---|--------|---|
| B30.1  | Jacks, Industrial Rollers, Air Casters, and Hydraulic Gantries  | B30.23 | Personnel Lifting Systems               |
| B30.2  | Overhead and Gantry Cranes (Top Running Bridge, Single or Multiple Girder, Top Running Trolley Hoist) | B30.24 | Container Cranes                        |
| B30.3  | Tower Cranes  | B30.25 | Scrap and Material Handlers             |
| B30.4  | Portal and Pedestal Cranes  | B30.26 | Rigging Hardware                        |
| B30.5  | Mobile and Locomotive Cranes  | B30.27 | Material Placement Systems              |
| B30.6  | Derricks  | B30.28 | Balance Lifting Units                   |
| B30.7  | Base-Mounted Drum Hoists  | B30.29 | Self-Erecting Tower Cranes <sup>1</sup> |
| B30.8  | Floating Cranes and Floating Derricks   |        |   |
| B30.9  | Slings  |        |   |
| B30.10 | Hooks   |        |   |
| B30.11 | Monorails and Underhung Cranes  |        |   |
| B30.12 | Handling Loads Suspended From Rotorcraft  |        |   |
| B30.13 | Storage/Retrieval (S/R) Machines and Associated Equipment   |        |   |
| B30.14 | Side Boom Tractors  |        |   |
| B30.15 | Mobile Hydraulic Cranes<br>(withdrawn 1982 — requirements found in latest revision of B30.5)          |        |   |
| B30.16 | Overhead Hoists (Underhung)   |        |   |
| B30.17 | Overhead and Gantry Cranes (Top Running Bridge, Single Girder, Underhung Hoist)                       |        |   |
| B30.18 | Stacker Cranes (Top or Under Running Bridge, Multiple Girder With Top or Under Running Trolley Hoist) |        |   |
| B30.19 | Cableways   |        |   |
| B30.20 | Below-the-Hook Lifting Devices  |        |   |
| B30.21 | Manually Lever-Operated Hoists  |        |   |
| B30.22 | Articulating Boom Cranes  |        |   |

### SECTION II: SCOPE EXCLUSIONS

The B30 Standard does not apply to track and automotive jacks, railway or automobile wrecking cranes, shipboard cranes, shipboard cargo-handling equipment, well-drilling derricks, skip hoists, mine hoists, truck body hoists, car or barge pullers, conveyors, excavating equipment, or equipment covered under the scope of the following standards: A10, A17, A90, A92, A120, B20, B56, and B77.

### SECTION III: PURPOSE

The B30 Standard is intended to

(a) prevent or minimize injury to workers, and otherwise provide for the protection of life, limb, and property by prescribing safety requirements

(b) provide direction to manufacturers, owners, employers, users, and others concerned with, or responsible for, its application

(c) guide governments and other regulatory bodies in the development, promulgation, and enforcement of appropriate safety directives

### SECTION IV: USE BY REGULATORY AGENCIES

These Volumes may be adopted in whole or in part for governmental or regulatory use. If adopted for governmental use, the references to other national codes and standards in the specific volumes may be changed to refer to the corresponding regulations of the governmental authorities.

<sup>1</sup> This Volume is currently in the development process.



## SECTION V: EFFECTIVE DATE

(a) *Effective Date.* The effective date of this Volume of the B30 Standard shall be 1 yr after its date of issuance. Construction, installation, inspection, testing, maintenance, and operation of equipment manufactured and facilities constructed after the effective date of this Volume shall conform to the mandatory requirements of this Volume.

(b) *Existing Installations.* Equipment manufactured and facilities constructed prior to the effective date of this Volume of the B30 Standard shall be subject to the inspection, testing, maintenance, and operation requirements of this Standard after the effective date.

It is not the intent of this Volume of the B30 Standard to require retrofitting of existing equipment. However, when an item is being modified, its performance requirements shall be reviewed relative to the requirements within the current volume. The need to meet the current requirements shall be evaluated by a qualified person selected by the owner (user). Recommended changes shall be made by the owner (user) within 1 yr.

## SECTION VI: REQUIREMENTS AND RECOMMENDATIONS

Requirements of this Standard are characterized by use of the word *shall*. Recommendations of this Standard are characterized by the word *should*.

## SECTION VII: USE OF MEASUREMENT UNITS

This Standard contains SI (metric) units as well as U.S. Customary units. The values stated in U.S. Customary units are to be regarded as the standard. The SI units are a direct (soft) conversion from the U.S. Customary units.

## SECTION VIII: REQUESTS FOR REVISION

The B30 Standards Committee will consider requests for revision of any of the volumes within the B30 Standard. Such requests should be directed to

Secretary, B30 Standards Committee  
ASME Codes and Standards  
Three Park Avenue  
New York, NY 10016-5990

Requests should be in the following format:

Volume: Cite the designation and title of the volume.  
Edition: Cite the applicable edition of the volume.  
Subject: Cite the applicable paragraph number(s) and the relevant heading(s).  
Request: Indicate the suggested revision.

Rationale: State the rationale for the suggested revision.

Upon receipt by the Secretary, the request will be forwarded to the relevant B30 Subcommittee for consideration and action. Correspondence will be provided to the requester defining the actions undertaken by the B30 Standards Committee.

## SECTION IX: REQUESTS FOR INTERPRETATION

The B30 Standards Committee will render an interpretation of the provisions of the B30 Standard. Such requests should be directed to

Secretary, B30 Standards Committee  
ASME Codes and Standards  
Three Park Avenue  
New York, NY 10016-5990

Requests should be in the following format:

Volume: Cite the designation and title of the volume.  
Edition: Cite the applicable edition of the volume.  
Subject: Cite the applicable paragraph number(s) and the relevant heading(s).  
Question: Phrase the question as a request for an interpretation of a specific provision suitable for general understanding and use, not as a request for approval of a proprietary design or situation. Plans or drawings that explain the question may be submitted to clarify the question. However, they should not contain any proprietary names or information.

Upon receipt by the Secretary, the request will be forwarded to the relevant B30 Subcommittee for a draft response, which will then be subject to approval by the B30 Standards Committee prior to its formal issuance.

Interpretations to the B30 Standard will be published in the subsequent edition of the respective volume, and will be available online at <http://cstools.asme.org>.

## SECTION X: ADDITIONAL GUIDANCE

The equipment covered by the B30 Standard is subject to hazards that cannot be abated by mechanical means, but only by the exercise of intelligence, care, and common sense. It is therefore essential to have personnel involved in the use and operation of equipment who are competent, careful, physically and mentally qualified, and trained in the proper operation of the equipment and the handling of loads. Serious hazards include, but are not limited to, improper or inadequate maintenance, overloading, dropping or slipping of the load,

obstructing the free passage of the load, and using equipment for a purpose for which it was not intended or designed.

The B30 Standards Committee fully realizes the importance of proper design factors, minimum or maximum dimensions, and other limiting criteria of wire rope or chain and their fastenings, sheaves, sprockets, drums, and similar equipment covered by the standard, all of which are closely connected with safety. Sizes, strengths, and similar criteria are dependent on many different factors, often varying with the installation and uses. These factors depend on

(a) the condition of the equipment or material

(b) the loads

(c) the acceleration or speed of the ropes, chains, sheaves, sprockets, or drums

(d) the type of attachments

(e) the number, size, and arrangement of sheaves or other parts

(f) environmental conditions causing corrosion or wear

(g) many variables that must be considered in each individual case

The requirements and recommendations provided in the volumes must be interpreted accordingly, and judgment used in determining their application.



# ASME B30.9-2010

## SUMMARY OF CHANGES

Following approval by the ASME B30 Committee and ASME, and after public review, ASME B30.9-2010 was approved by the American National Standards Institute on November 16, 2010.

ASME B30.9-2010 includes editorial changes, revisions, and corrections identified by a margin note, **(10)**.

<i>Page</i>	<i>Location</i>	<i>Change</i>
vi	Foreword	Revised
ix–xi	Introduction	Revised
1–3	Section 9-0.2	(1) Definition of <i>splice, hand tucked (wire rope and synthetic rope)</i> and <i>splice, turnback (return loop)</i> revised (2) Definition of <i>splice (web sling)</i> and <i>assembly splice (web sling)</i> deleted
	Section 9-0.3	Updated
4	9-1.5.1	Revised
	9-1.5.3	Revised
7	9-1.5.4	Revised
	9-1.7.1	Subparagraph (e) revised
9, 10	9-1.9.5	Subparagraph (d) revised
12	9-2.3.1	Revised
13, 14	9-2.5.1	Revised
	9-2.5.3	Revised
	9-2.5.4	Revised
	9-2.6.1	Subparagraph (a) revised
15	Table 9-2.5.2-1	Table and Note (d) revised
16	Table 9-2.5.2-2	Table and Note (c) revised
17	Table 9-2.5.2-3	Table and Note (d) revised
18	Table 9-2.5.2-4	Note (c) revised
19	Table 9-2.5.2-5	Note (d) revised
20	Table 9-2.5.2-6	Note (c) revised
24, 25	9-2.7.1	Subparagraph (b) revised
	9-2.9.3	(1) Subparagraph (d) revised (2) Subparagraph (e) added
	9-2.9.4	Subparagraphs (b)(3) and (b)(4) revised
	9-2.9.5	Subparagraphs (d) and (g) revised

<i>Page</i>	<i>Location</i>	<i>Change</i>
27	9-3.5.4	Revised
30	9-3.7.1	Subparagraph (b) revised
32	9-4.2.1	Subparagraph (a) revised
33	9-4.5.1	Revised
	9-4.5.3	Revised
39	9-4.5.4	Revised
	9-4.7.1	Subparagraph (c) revised
40	9-4.9.3	(1) Subparagraph (d) revised (2) Subparagraph (e) added
41	9-4.9.5	(1) Subparagraph (f) revised (2) Subparagraph (g) added
43	9-5.2.5	Revised
	9-5.5.1	Revised
44	Fig. 17	Revised
46	Table 9-5.5.2-1	General Notes revised
	9-5.5.3	Revised
	9-5.5.4	Revised
47	Table 9-5.5.2-2	General Notes revised
	Table 9-5.5.2-3	Table and General Notes revised
48	Table 9-5.5.2-4	Table and General Notes revised
	Table 9-5.5.2-5	Table and General Notes revised
49	9-5.7.1	Subparagraph (c) revised
50	9-5.9.3	(1) Subparagraph (d) revised (2) Subparagraph (e) added
	9-5.9.5	Subparasgraph (e) and (g) revised
	9-5.10.1	Subparagraph (f) revised
51	9-5.10.4	Subparagraph (m) revised
52	9-6.5.1	Revised
55	9-6.5.3	Revised
	9-6.5.4	Revised
	9-6.7.1	Subparagraph (c) revised
56	Table 9-6.5.2-1	General Notes revised

<i>Page</i>	<i>Location</i>	<i>Change</i>
57, 58	Fig. 9-6.5.4-1	Revised
	9-6.9.3	(1) Subparagraph (d) revised (2) Subparagraph (e) added
	9-6.9.5	Subparagraphs (e) and (g) revised
	9-6.10.1	Subparagraph (f) revised
	9-6.10.4	Subparagraphs (b) through (p) redesignated

**SPECIAL NOTE:**

The interpretations to ASME B30.9 are included in this edition as a separate section for the user's convenience.

# SLINGS

## Chapter 9-0 Scope, Definitions, and References

### SECTION 9-0.1: SCOPE OF ASME B30.9

Volume B30.9 includes provisions that apply to the fabrication, attachment, use, inspection, and maintenance of slings used for lifting purposes, used in conjunction with equipment described in other volumes of the B30 Standard, except as restricted in B30.12 and B30.23. Slings fabricated from alloy steel chain, wire rope, metal mesh, synthetic fiber rope, synthetic webbing, and synthetic fiber yarns in a protective cover(s) are addressed. Slings fabricated from other materials or constructions other than those detailed in this Volume shall be used only in accordance with the recommendations of the sling manufacturer or a qualified person.

### (10) SECTION 9-0.2: DEFINITIONS

*abnormal operating conditions:* environmental conditions that are unfavorable, harmful, or detrimental to or for the operation of a sling, such as excessively high or low ambient temperatures; exposure to weather; corrosive fumes; dust-laden or moisture-laden atmospheres; and hazardous locations.

*abrasion:* the mechanical wearing of a surface resulting from frictional contact with other materials or objects.

*angle of choke:* angle formed in a sling body as it passes through the choking eye or fittings.

*angle of loading:* the acute angle between horizontal and the leg of the rigging, often referred to as horizontal angle.

*assembly:* a synonym for sling. See *sling*.

*authorized:* approved by a duly constituted administrative or regulatory authority.

*body (sling):* that part of a sling between the eyes, end fittings, or loop eyes.

*braided wire rope:* a rope formed by plaiting component wire ropes.

*braided wire rope sling:* a sling made from braided rope.

*bridle sling:* a sling composed of multiple legs with the top ends gathered in a fitting that goes over the lifting hook.

*cable-laid rope:* a cable composed of six wire ropes laid as strands around a wire rope core.

*cable-laid rope sling, mechanical joint:* a wire rope sling made from a cable-laid wire rope with eyes fabricated by swaging one of more metal sleeves over the rope junction.

*component:* see *fitting*.

*cross rod:* a wire used to join spirals of metal mesh to form the complete fabric.

*D/d ratio:* the ratio between the curvature taken by the sling,  $D$ , and the diameter of the component rope,  $d$ .

*design factor:* ratio between nominal or minimum breaking strength and rated load of the sling.

*designated person:* selected or assigned by the employer or employer's representative as being competent to perform specific duties.

*end fitting:* terminal hardware on the end of a sling. See *sling*.

*endless and grommet wire rope slings*

*cable-laid endless sling, mechanical joint:* a wire rope sling made endless from one continuous length of cable laid rope with the ends joined by one or more metallic fittings.

*cable-laid grommet, hand-tucked:* an endless wire rope sling made from one continuous length of rope formed to make a body composed of six ropes around a rope core. The rope ends are tucked into the body, thus forming the core. No sleeves are used.

*strand-laid endless sling, mechanical joint:* a wire rope sling from one continuous length of wire rope with the ends joined by one or more metallic fittings.

*strand-laid grommet, hand-tucked:* an endless wire rope sling made from one continuous length of strand formed to make a six-strand rope with a strand core. The strand ends are hand tucked into the body. No sleeves are used.

*eye opening:* the opening in the end of a sling for the attachment of the hook, shackle, or other lifting device or the load itself.



*fabric (metal mesh)*: the flexible portion of the sling exclusive of end fittings consisting of a series of transverse spirals and cross rods.

*fabric length (metal mesh)*: the distance of metal mesh between the end fittings.

*fabric thickness (metal mesh)*: the nominal overall thickness of the spirals.

*fabrication efficiency*: the sling assembly strength, as a percentage of the material strength prior to fabrication.

*fitting*: hardware on the end of a sling.

*grommet sling*: a variety of an endless sling.

*hitch, basket*: a method of rigging a sling in which the sling is passed around the load and both loop eyes or end fittings are attached to the lifting device.

*hitch, choker*: a method of rigging a sling in which the sling is passed around the load, then through one loop eye, end fitting, or other device, with the other loop eye or end fitting attached to the lifting device. This hitch can be done with a sliding choker hook or similar device.

*hitch (hitched)*: a method of rigging (attaching) a sling temporarily to a load or object for the purpose of lifting.

*hitch, vertical*: a method of rigging a sling in which the load is attached to the loop eye or end fitting at one end of the sling and the loop eye or end fitting at the other end is attached to the lifting device. Any hitch less than 5 deg from the vertical may be considered a vertical hitch.

*horizontal angle*: the acute angle between the horizontal plane and the leg of the rigging, also known as the angle of loading.

*length, sling*: the distance between the extreme bearing points of the sling.

*multiple-leg wire rope slings*: same as sling length above, except the gathering ring, master link, or similar fitting is not included in the length dimension.

*single-leg slings with end fittings*: measured from pull to pull of end fittings or eyes.

*single-leg slings without end fittings*: measured from pull to pull or from bearing to bearing of eyes.

*link, master*: forged or welded steel link used to support all members (legs) of an alloy steel chain or wire rope sling.

*link, master coupling*: alloy steel welded coupling link used as an intermediate link to join alloy steel chain to master links.

*link, mechanical coupling (alloy steel chain)*: a nonwelded, mechanically closed link used primarily to attach fittings to alloy steel chain.

*loop eye (web sling)*: a length of webbing that has been folded back upon itself, forming an opening, and joined to the sling body to form a bearing surface.

*ply*: a layer of load bearing webbing used in a web sling assembly.

*proof load*: the specific load applied in performance of the proof tests.

*proof test*: a nondestructive load test made to a specific multiple of the rated load of the sling.

*qualified person*: a person who, by possession of a recognized degree or certificate of professional standing in an applicable field, or who, by extensive knowledge, training, and experience, has successfully demonstrated the ability to solve or resolve problems relating to the subject matter and work.

*rated load*: the maximum allowable working load established by the sling manufacturer. The terms "rated capacity" and "working load limit" are commonly used to describe rated load.

*reach (alloy steel chain)*: see *length, sling*.

*selvage edge*: the woven or knitted edge of synthetic webbing so formed as to prevent raveling.

*shock load*: any condition of rapid lift, sudden shifting of load, or arrest of a falling load.

*sling*: an assembly to be used for lifting when connected to a lifting mechanism. The upper portion of the sling is connected to the lifting mechanism and the lower supports the load, as described in this Volume.

*sling body*: see *body (sling)*.

*sling manufacturer (fabricator)*: a person or company assembling or fabricating sling components into their final form. The sling manufacturer and the manufacturer of the sling material may or may not be identical.

*sling service*

*normal*: service that involves use of loads within the rated load.

*severe*: service that involves normal service coupled with abnormal operating conditions.

*special or infrequent*: service that involves operation, other than normal or severe, which is approved by a qualified person.

*socket, poured*: fitting into which a wire rope can be inserted and then permanently attached by filling the cavity into which the wire rope was inserted with special molten metal or resin materials. This method requires special fittings, materials, techniques, and equipment to produce an end termination to meet the requirements of this Volume.

*socket, swaged*: fitting into which a wire rope can be inserted and then permanently attached by mechanical compression applied to the shank that enclosed the rope. This method requires special fittings and equipment to produce an end termination to meet the requirements of this Volume.



*spiral*: a single transverse coil that is the basic element from which metal mesh is fabricated.

*splice, flemish eye (wire rope)*: mechanical splice formed by opening the rope up in a specific manner and reforming it to create a loop or eye. A metal sleeve is slipped over the ends of the splice and mechanically compressed to secure the ends. This method requires special fittings, techniques, and equipment to produce an end termination to meet the requirements of this Volume.

*splice, hand tucked (wire rope and synthetic rope)*: a loop or eye formed in the end of a rope by tucking the ends of the strands back into the main body of the rope in a prescribed manner.

*splice load bearing (web sling)*: that part of a sling that is lapped and secured to become an integral load bearing part of the sling.

*splice, mechanical (wire rope)*: swaging one or more metal sleeves over the wire rope to form a loop or eye.

*splice, turnback (return loop)*: mechanical splice in which the rope is looped back on itself and secured with one or more metal sleeves. This method requires special fittings, techniques, and equipment to produce an end termination to meet the requirements of this Volume.

*strand laid rope*: a wire rope made with strands (usually six to eight) formed around a fiber core, wire strand core, or independent wire rope core (IWRC).

*strength (wire rope and structural strand), minimum breaking*: load at which a new and unused wire rope or structural strand could be expected to break when loaded to destruction in direct tension.

*triangle choker fitting*: an end fitting for metal mesh or synthetic web slings; similar to the *triangle fitting*, except that it also has a transverse slot through which a triangle fitting can be passed to facilitate a choker hitch on the load.

*triangle fitting*: an end fitting for metal mesh or synthetic web slings, containing a single eye opening for connecting the sling to the lifting device.

*yarn*: a generic term for a continuous strand of fibers.

## (10) SECTION 9-0.3: REFERENCES

Within the text, references are made to the following publications, copies of which may be obtained from the publishers indicated.

ASME B30.10-1999, Hooks

ASME B30.12-1992, Handling Loads Suspended From Rotorcraft

ASME B30.20-2010, Below-the-Hook Lifting Devices

ASME B30.23-2005, Personnel Lifting Systems

ASME B30.26-2004, Rigging Hardware

Publisher: The American Society of Mechanical Engineers (ASME), Three Park Avenue, New York, NY 10016-5990; Order Department: 22 Law Drive, P.O. Box 2900, Fairfield, NJ 07007-2900  
(www.asme.org)

ASTM A 391/A 391M-01, Standard Specification for Grade 80 Alloy Steel Chain

ASTM A 586-98, Standard Specification for Zinc-Coated Parallel and Helical Steel Wire Structural Strand and Zinc-Coated Wire for Spun-in-Place Structural Strand

ASTM A 906/A 906M-02, Standard Specification for Grade 80 and Grade 100 Alloy Steel Chain Slings for Overhead Lifting

ASTM A 952/A 952M-02, Standard Specification for Forged Grade 80 and Grade 100 Steel Lifting Components and Welded Attached Links

ASTM A 973/A 973M-01, Standard Specification for Grade 100 Alloy Steel Chain

ASTM A 1023/A 1023M-02, Standard Specification for Stranded Carbon Steel Wire Ropes for General Purposes

Publisher: American Society for Testing and Materials (ASTM International), 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959  
(www.astm.org)

CI 1303-96, Nylon (Polyamide) Fiber Rope, 3-Strand and 8-Strand Construction

CI 1304-96, Polyester (PET) Fiber Rope, 3-Strand and 8-Strand Construction

CI 1305-96, Single Braided Polyester Fiber Rope, 12-Strand Braid Construction

CI 1306-96, Nylon (Polyamide) Fiber Rope, Double Braid Construction

CI 1307-96, Polyester (PET) Fiber Rope, Double Braid Construction

Publisher: The Cordage Institute (CI), 994 Old Eagle School Road, Wayne, PA 19087 (www.ropecord.com)

WRTB Wire Rope Sling Users Manual, 3rd Edition

Publisher: Wire Rope Technical Board (WRTB), 44 South Carriage Drive, St. Joseph, MO 64506-1233  
(www.domesticwirerope.org/wrtb/index.html)

WSTDA-RS-1, Recommended Standard Specification for Synthetic Polyester Roundslings

WSTDA-TH-1, Recommended Standard Specification for Synthetic Thread

WSTDA-UV-Sling-2003, Summary Report UV Degradation

WSTDA-WB-1, Recommended Standard Specification for Synthetic Webbing for Slings

WSTDA-WS-1, Recommended Standard Specification for Synthetic Web Slings

Publisher: Web Sling & Tie Down Association (WSTDA), 2105 Laurel Bush Road, Bel Air, MD 21015  
(www.wstda.com/index.shtml)

# Chapter 9-1

## Alloy Steel Chain Slings: Selection, Use, and Maintenance

### SECTION 9-1.0: SCOPE

Chapter 9-1 includes provisions that apply to alloy steel chain slings (see Fig. 9-1.0-1).

### SECTION 9-1.1: TRAINING

Alloy steel chain sling users shall be trained in the selection, inspection, cautions to personnel, effects of environment, and rigging practices as covered by this Chapter.

### SECTION 9-1.2: MATERIALS AND COMPONENTS

#### 9-1.2.1 Alloy Chain

The alloy steel chain shall be manufactured and tested in accordance with ASTM A 391/A 391M for Grade 80 chain and ASTM A 973/A 973M for Grade 100 chain.

#### 9-1.2.2 Components

(a) Components for alloy steel chain slings shall be manufactured and tested in accordance with ASTM A 952/A 952M.

(b) Makeshift fasteners, hooks, or links formed from bolts, rods, or other such components shall not be used.

(c) Where used, handles shall be welded to the master link or hook prior to heat treating according to the recommendations of the sling manufacturer or a qualified person.

(d) Hooks, when employed, shall meet the requirements of ASME B30.10.

(e) Rigging hardware, when employed, shall meet the requirements of ASME B30.26.

#### 9-1.2.3 Other Materials and Components

Chain or components other than those listed in paras. 9-1.2.1 and 9-1.2.2 may be employed. When such materials are employed, the sling manufacturer or a qualified person shall provide specific data. These slings shall comply with all other requirements of this Chapter.

### SECTION 9-1.3: FABRICATION AND CONFIGURATIONS

#### 9-1.3.1 Fabrication

(a) Grade 80 and Grade 100 alloy steel chain slings shall be fabricated in accordance with ASTM A 906/A 906M.

(b) Mechanical coupling links shall not be used within the body of an alloy chain sling to connect two pieces of chain.

#### 9-1.3.2 Configurations

(a) Single-leg slings and two-leg, three-leg, and four-leg bridle slings used in vertical, choker, and basket hitches are covered in this Chapter.

(b) Single- and double-basket slings used in basket hitches are covered in this Chapter.

(c) Other configurations may be used. When used, the sling manufacturer or a qualified person shall provide specific data. These slings shall comply with all other requirements of this Chapter.

### SECTION 9-1.4: DESIGN FACTOR

The design factor for alloy steel chain slings shall be a minimum of 4.

### SECTION 9-1.5: RATED LOADS

The term *working load limit* is commonly used to describe rated load.

#### 9-1.5.1

(10)

These rated loads are based on the following factors:

- (a) material strength(s)
- (b) design factor
- (c) type of hitch (see Fig. 9-1.0-1)
- (d) angle of loading (see Fig. 9-1.0-1)

NOTE: Rated loads for basket hitches and bridle slings are based on symmetrical loading. See para. 9-1.10.1(d) for nonsymmetrical loading.

#### 9-1.5.2

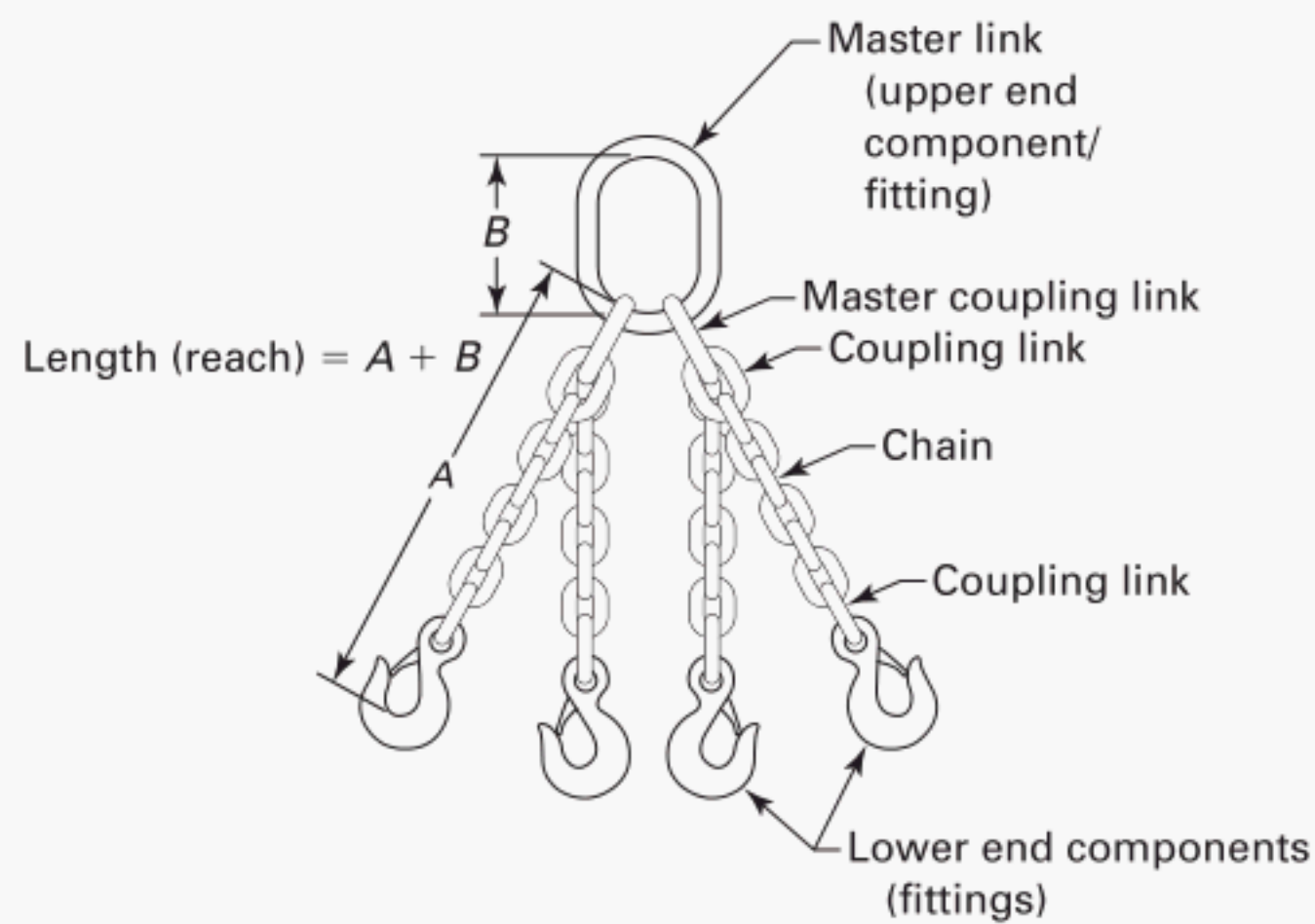
Tables 9-1.5.2-1 and 9-1.5.2-2 show rated loads for single-leg vertical, basket hitches, and bridle slings for specific grades of chain. For angles other than those shown in these tables, use the rated load for the next lower angle, or a qualified person shall calculate the rated load.

#### 9-1.5.3

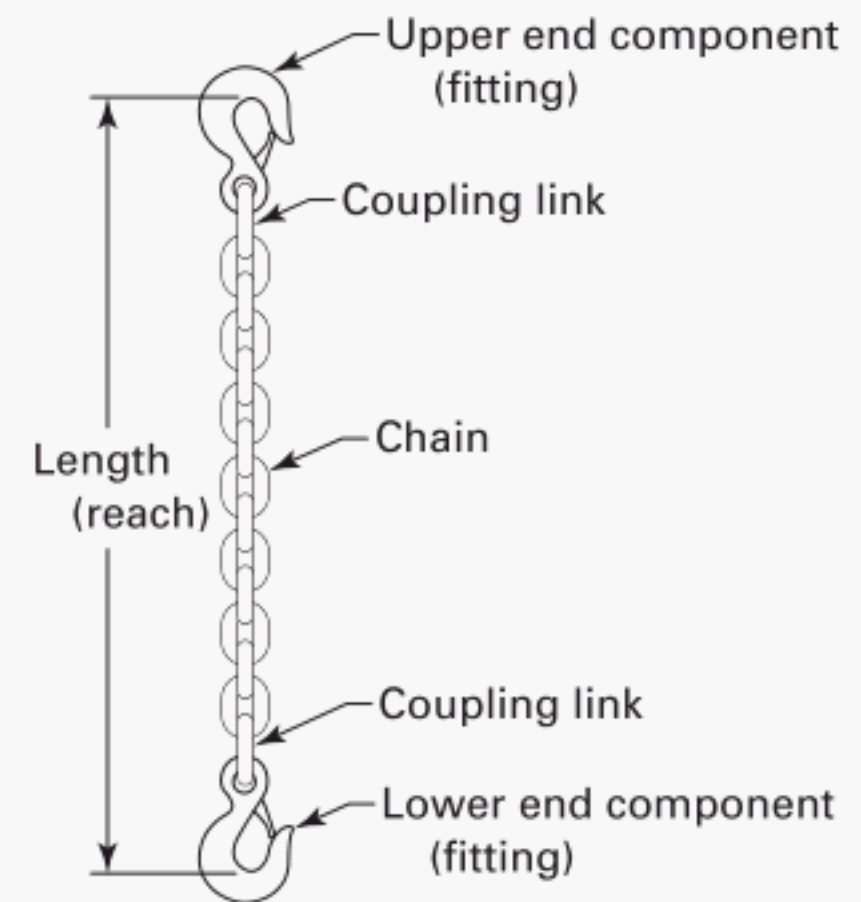
(10)

Horizontal sling angles less than 30 deg shall not be used except as recommended by the sling manufacturer or a qualified person (see Fig. 9-1.0-1).

**Fig. 9-1.0-1 Alloy Steel Chain Slings: Configurations, Components, and Hitches**



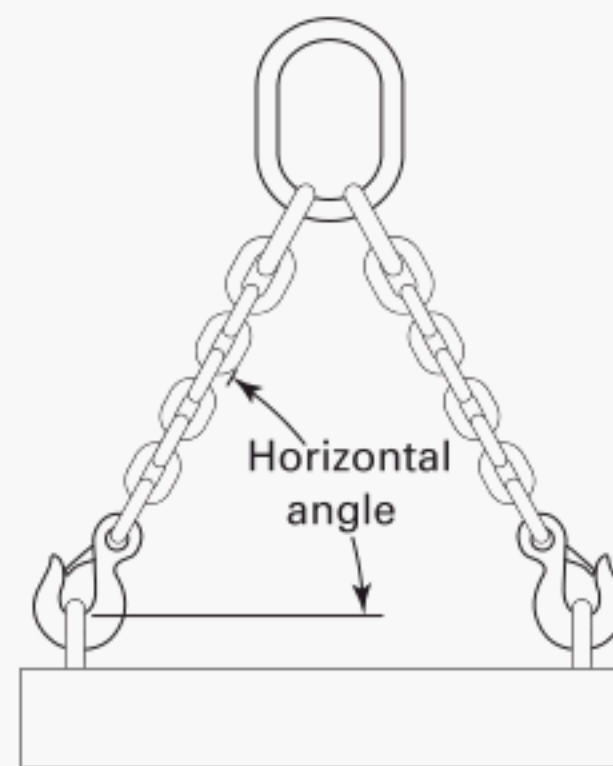
**(a) Quadruple-Leg Bridle Sling Components**



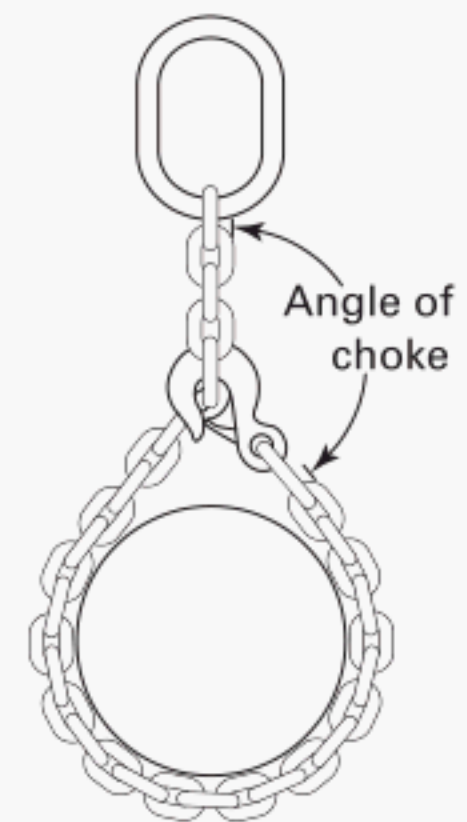
**(b) Single-Leg Sling Components**



**(c) Single-Basket Sling and Hitch**





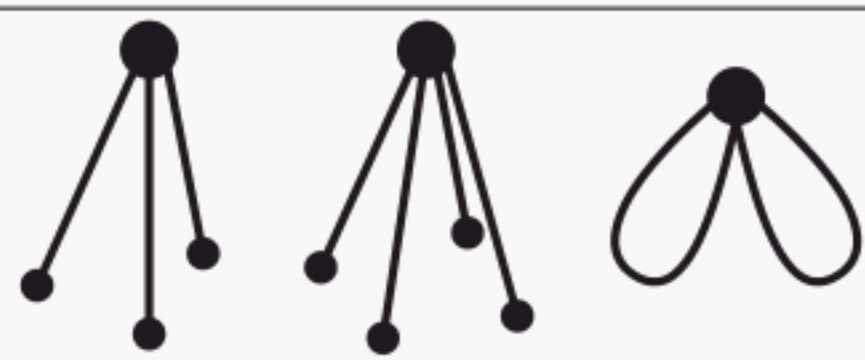
**(d) Multiple-Leg Bridle Sling Hitch**



**(e) Single-Leg Choker Hitch**




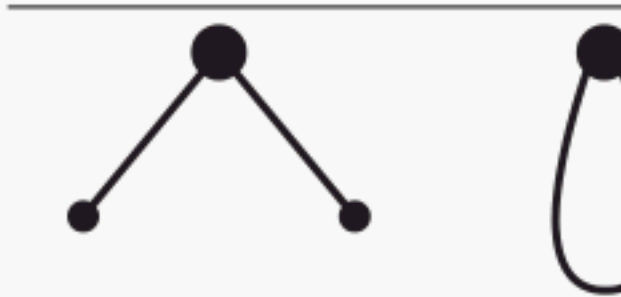
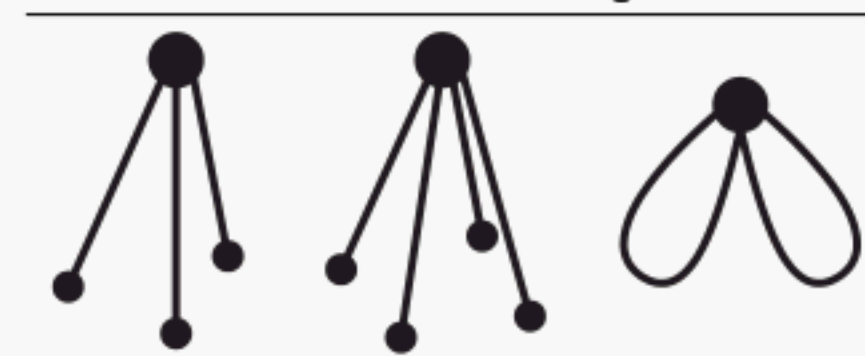
**Table 9-1.5.2-1 Rated Load for Grade 80 Alloy Steel Chain Slings — Vertical, Basket, and Bridle Hitches**

		Single-Leg Vertical Slings	Double-Leg Bridle Slings, Single-Basket Slings				Triple- and Quadruple-Leg Bridle Slings, Double-Basket Slings		
									
Nominal Chain Size		Horizontal Angle, deg [Note (1)]							
		90	60	45	30	60	45	30	
in.	mm	lb	lb	lb	lb	lb	lb	lb	
<sup>7</sup> / <sub>32</sub>	5.5	2,100	3,600	3,000	2,100	5,500	4,400	3,200	
<sup>9</sup> / <sub>32</sub>	7	3,500	6,100	4,900	3,500	9,100	7,400	5,200	
<sup>5</sup> / <sub>16</sub>	8	4,500	7,800	6,400	4,500	11,700	9,500	6,800	
<sup>3</sup> / <sub>8</sub>	10	7,100	12,300	10,000	7,100	18,400	15,100	10,600	
<sup>1</sup> / <sub>2</sub>	13	12,000	20,800	17,000	12,000	31,200	25,500	18,000	
<sup>5</sup> / <sub>8</sub>	16	18,100	31,300	25,600	18,100	47,000	38,400	27,100	
<sup>3</sup> / <sub>4</sub>	20	28,300	49,000	40,000	28,300	73,500	60,000	42,400	
<sup>7</sup> / <sub>8</sub>	22	34,200	59,200	48,400	34,200	88,900	72,500	51,300	
1	26	47,700	82,600	67,400	47,700	123,900	101,200	71,500	
1 <sup>1</sup> / <sub>4</sub>	32	72,300	125,200	102,200	72,300	187,800	153,400	108,400	

NOTE:

- (1) The horizontal angle is the angle formed between the inclined leg and the horizontal plane of the load [see Fig. 9-1.0-1, illustration (d)].

**Table 9-1.5.2-2 Rated Load for Grade 100 Alloy Steel Chain Slings — Vertical, Basket, and Bridle Hitches**

		Single-Leg Vertical Slings	Double-Leg Bridle Slings, Single-Basket-Slings				Triple- and Quadruple-Leg Bridle Slings, Double-Basket Slings			
										
Nominal Chain Size		Horizontal Angle, deg [Note (1)]								
		90	60	45	30	60	45	30		
in.	mm	lb	lb	lb	lb	lb	lb	lb		
$\frac{7}{32}$	5.5	2,700	4,700	3,800	2,700	7,000	5,700	4,000		
$\frac{9}{32}$	7	4,300	7,400	6,100	4,300	11,200	9,100	6,400		
$\frac{5}{16}$	8	5,700	9,900	8,100	5,700	14,800	12,100	8,500		
$\frac{3}{8}$	10	8,800	15,200	12,400	8,800	22,900	18,700	13,200		
$\frac{1}{2}$	13	15,000	26,000	21,200	15,000	39,000	31,800	22,500		
$\frac{5}{8}$	16	22,600	39,100	32,000	22,600	58,700	47,900	33,900		
$\frac{3}{4}$	20	35,300	61,100	49,900	35,300	91,700	74,900	53,000		
$\frac{7}{8}$	22	42,700	74,000	60,400	42,700	110,900	90,600	64,000		

NOTE:

- (1) The horizontal angle is the angle formed between the inclined leg and the horizontal plane of the load [see Fig. 9-1.0-1, illustration (d)].

**(10) 9-1.5.4**

Tables 9-1.5.4-1 and 9-1.5.4-2 show rated loads for choker hitches for specific grades of chain, provided that the angle of choke is 120 deg or greater [see Fig. 9-1.0-1, illustration (e)]. For angles other than those shown in these tables, use the rated load for the next lower angle, or a qualified person shall calculate the rated load.

**9-1.5.5**

Rated loads for angles of choke less than 120 deg shall be determined by the sling manufacturer, or a qualified person.

**9-1.5.6**

Other materials and configurations not covered by this Chapter shall be rated in accordance with the recommendation of the sling manufacturer or a qualified person, and shall conform to all other provisions of this Chapter.

**9-1.5.7**

When components of the sling have a lower rated load than the alloy chain with which it is being used, the sling shall be identified with a rated load consistent with the lowest load rating of any of the components.

**SECTION 9-1.6: PROOF TEST REQUIREMENTS****9-1.6.1 General**

Prior to initial use, all new and repaired chain and components of an alloy steel chain sling, either individually or as an assembly, shall be proof tested by the sling manufacturer or a qualified person.

**9-1.6.2 Proof Load Requirements**

(a) For single- or multiple-leg slings, each leg shall be proof loaded to a minimum of 2 times the single leg vertical hitch rated load.

(b) The proof load for components attached to single legs shall be a minimum of 2 times the single-leg vertical hitch rated load.

(c) Master links for double-leg bridle slings, single-basket slings, and master coupling links connected to two legs shall be proof loaded to a minimum of 4 times the single-leg vertical hitch rated load.

(d) Master links for triple- and quadruple-leg bridle slings and double basket bridle slings shall be proof loaded to a minimum of 6 times the single leg vertical hitch rated load.

**SECTION 9-1.7: SLING IDENTIFICATION****(10) 9-1.7.1 Identification Requirements**

Each sling shall be marked to show

(a) name or trademark of manufacturer

(b) grade

(c) nominal chain size

(d) number of legs

(e) rated loads for at least one hitch type and the angle upon which it is based

(f) length (reach)

(g) individual sling identification (e.g., serial numbers)

**9-1.7.2 Initial Sling Identification**

Sling identification shall be done by the sling manufacturer.

**9-1.7.3 Maintenance of Sling Identification**

Sling identification should be maintained by the user so as to be legible during the life of the sling.

**9-1.7.4 Replacement of Sling Identification**

Replacement of the sling identification shall be considered a repair as specified in paras. 9-1.9.5(a) and (b). Additional proof testing is not required.

**SECTION 9-1.8: EFFECTS OF ENVIRONMENT****9-1.8.1 Temperature**

Extreme temperatures will reduce the performance of alloy steel chain slings. The sling manufacturer should be consulted when the slings are to be used in temperatures of  $-40^{\circ}\text{F}$  ( $-40^{\circ}\text{C}$ ) or below. Guidance for rated load reductions for Grade 80 and Grade 100 alloy chain slings used at or after exposure to temperatures above  $400^{\circ}\text{F}$  ( $205^{\circ}\text{C}$ ) is given in Table 9-1.8.1-1.

**9-1.8.2 Chemically Active Environments**

The strength of alloy steel chain slings can be degraded by chemically active environments. This includes exposure to chemicals in the form of solids, liquids, gases, vapors, or fumes. The sling manufacturer or qualified person should be consulted before slings are used in chemically active environments.

**SECTION 9-1.9: INSPECTION, REMOVAL, AND REPAIR****9-1.9.1 Initial Inspection**


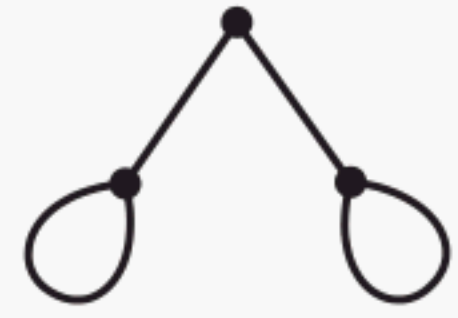


Prior to use, all new, altered, modified, or repaired slings shall be inspected by a designated person to verify compliance with the applicable provisions of this Chapter.

**9-1.9.2 Frequent Inspection**

(a) A visual inspection for damage shall be performed by the user or other designated person each day or shift the sling is used.



**Table 9-1.5.4-1 Rated Load for Grade 80 Alloy Steel Chain Slings — Choker Hitches**


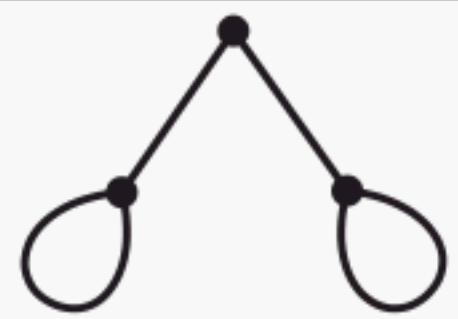
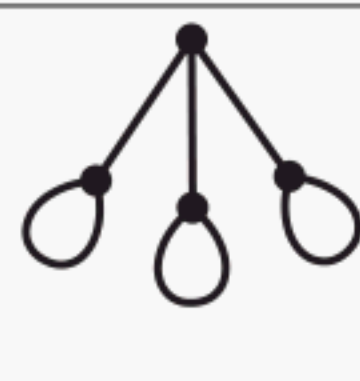

		<div>Single-Leg Vertical Slings</div> 	<div>Double-Leg Bridle Slings</div> 				<div>Triple- and Quadruple-Leg Bridle Slings</div>  		
Nominal Chain Size		Horizontal Angle, deg [Note (1)]							
		90	60	45	30	60	45	30	
in.	mm	lb	lb	lb	lb	lb	lb	lb	
$\frac{7}{32}$	5.5	1,700	2,900	2,400	1,700	4,400	3,500	2,600	
$\frac{9}{32}$	7	2,800	5,000	3,900	2,800	7,300	5,900	4,200	
$\frac{5}{16}$	8	3,600	6,200	5,100	3,600	9,300	7,600	5,400	
$\frac{3}{8}$	10	5,700	9,800	8,000	5,700	14,700	12,100	8,500	
$\frac{1}{2}$	13	9,600	16,600	13,600	9,600	25,000	20,400	14,400	
$\frac{5}{8}$	16	14,500	25,000	20,500	14,500	37,600	30,700	21,700	
$\frac{3}{4}$	20	22,600	39,200	32,000	22,600	58,800	48,000	33,900	
$\frac{7}{8}$	22	27,400	47,400	38,700	27,400	71,100	58,000	41,000	
1	26	38,200	66,100	53,900	38,200	99,100	81,000	57,200	
$1\frac{1}{4}$	32	57,800	100,200	81,800	57,800	150,200	122,700	86,700	

GENERAL NOTE: Rated loads are for angles of choke greater than 120 deg [see Fig. 9-1.0-1, illustration (e) and para. 9-1.5.5].

NOTE:

- (1) The horizontal angle is the angle formed between the inclined leg and the horizontal plane of the load [see Fig. 9-1.0-1, illustration (d)].

**Table 9-1.5.4-2 Rated Load for Grade 100 Alloy Steel Chain Slings — Choker Hitches**

		Single-Leg Vertical Slings	Double-Leg Bridle Slings				Triple- and Quadruple-Leg Bridle Slings		
							 		
Nominal Chain Size		Horizontal Angle, deg [Note (1)]							
		90	60	45	30	60	45	30	
in.	mm	lb	lb	lb	lb	lb	lb	lb	
$\frac{7}{32}$	5.5	2,100	3,600	3,000	2,100	5,500	4,400	3,200	
$\frac{9}{32}$	7	3,500	6,100	4,900	3,500	9,100	7,400	5,200	
$\frac{5}{16}$	8	4,500	7,800	6,400	4,500	11,700	9,500	6,800	
$\frac{3}{8}$	10	7,100	12,300	10,000	7,100	18,400	15,100	10,600	
$\frac{1}{2}$	13	12,000	20,800	17,000	12,000	31,200	25,500	18,000	
$\frac{5}{8}$	16	18,100	31,300	25,600	18,100	47,000	38,400	27,100	
$\frac{3}{4}$	20	28,300	49,000	40,000	28,300	73,500	60,000	42,400	
$\frac{7}{8}$	22	34,200	59,200	48,400	34,200	88,900	72,500	51,300	

GENERAL NOTE: Rated loads are for angles of choke greater than 120 deg [see Fig. 9-1.0-1, illustration (e) and para. 9-1.5.5].

NOTE:

- (1) The horizontal angle is the angle formed between the inclined leg and the horizontal plane of the load [see Fig. 9-1.0-1, illustration (d)].

**Table 9-1.8.1-1 Effect of Elevated Temperature on Rated Load of Alloy Steel Chain**

Temperature		Grade of Chain			
		Grade 80		Grade 100	
		Temporary Reduction of Rated Load While at Temperature	Permanent Reduction of Rated Load After Exposure to Temperature	Temporary Reduction of Rated Load While at Temperature	Permanent Reduction of Rated Load After Exposure to Temperature
°F	°C				
Below 400	Below 204	None	None	None	None
400	204	10%	None	15%	None
500	260	15%	None	25%	5%
600	316	20%	5%	30%	15%
700	371	30%	10%	40%	20%
800	427	40%	15%	50%	25%
900	482	50%	20%	60%	30%
1000	538	60%	25%	70%	35%
Over 1000	Over 538	Note (1)	Note (1)	Note (1)	Note (1)

NOTE:

(1) Remove from service.

(b) Conditions such as those listed in para. 9-1.9.4 or any other condition that may result in a hazard shall cause the sling to be removed from service. Slings shall not be returned to service until approved by a qualified person.

(c) Written records are not required for frequent inspections.

### 9-1.9.3 Periodic Inspection

(a) A complete inspection for damage of the sling shall be periodically performed by a designated person. Each link and component shall be examined individually, taking care to expose and examine all surfaces including the inner link surfaces. The sling shall be examined for conditions such as those listed in para. 9-1.9.4 and a determination made as to whether they constitute a hazard.

(b) *Periodic Inspection Frequency.* Periodic inspection intervals shall not exceed 1 yr. The frequency of periodic inspections should be based on

- (1) frequency of sling use
- (2) severity of service conditions
- (3) nature of lifts being made
- (4) experience gained on the service life of slings used in similar circumstances

(c) Guidelines for the time intervals are

- (1) normal service — yearly
- (2) severe service — monthly to quarterly
- (3) special service — as recommended by a qualified person

(d) A written record of the most recent periodic inspection shall be maintained and shall include the condition of the sling.

### 9-1.9.4 Removal Criteria

An alloy steel chain sling shall be removed from service if conditions such as the following are present:

(a) missing or illegible sling identification (see Section 9-1.7).

(b) cracks or breaks.

(c) excessive wear, nicks, or gouges. Minimum thickness on chain links shall not be below the values listed in Table 9-1.9.4-1.

(d) stretched chain links or components.

(e) bent, twisted, or deformed chain links or components.

(f) evidence of heat damage.

(g) excessive pitting or corrosion.

(h) lack of ability of chain or components to hinge (articulate) freely.

(i) weld splatter.

(j) for hooks, removal criteria as stated in ASME B30.10.

(k) for rigging hardware, removal criteria as stated in ASME B30.26.

(l) other conditions, including visible damage, that cause doubt as to the continued use of the sling.

### 9-1.9.5 Repair

(10)

(a) Slings shall be repaired only by the sling manufacturer or a qualified person.

(b) A repaired sling shall be marked to identify the repairing agency per Section 9-1.7.

(c) Chain and components used for sling repair shall comply with the provisions of this Chapter.

**Table 9-1.9.4-1 Minimum Allowable Thickness at Any Point on a Link**

Nominal Chain or Coupling Link Size		Minimum Allowable Thickness at Any Point on the Link	
in.	mm	in.	mm
$\frac{7}{32}$	5.5	0.189	4.80
$\frac{9}{32}$	7	0.239	6.07
$\frac{5}{16}$	8	0.273	6.93
$\frac{3}{8}$	10	0.342	8.69
$\frac{1}{2}$	13	0.443	11.26
$\frac{5}{8}$	16	0.546	13.87
$\frac{3}{4}$	20	0.687	17.45
$\frac{7}{8}$	22	0.750	19.05
1	26	0.887	22.53
$1\frac{1}{4}$	32	1.091	27.71

(d) Repair of hooks (ASME B30.10), rigging hardware (ASME B30.26), below-the-hook lifting devices (ASME B30.20), or other special devices shall comply with the repair instructions in the applicable volumes.

(e) Cracked, broken, or bent chain links or components other than hooks shall not be repaired; they shall be replaced.

(f) Mechanical coupling links shall not be used within the body of an alloy chain sling to connect two pieces of chain.

(g) Modifications or alterations to the sling or components shall be considered as repairs and shall conform to all other provisions of this Chapter.

(h) All repairs shall comply with the proof test requirements of Section 9-1.6.

## SECTION 9-1.10: OPERATING PRACTICES

### 9-1.10.1 Sling Selection

(a) Slings that appear to be damaged shall not be used unless inspected and accepted as usable under Section 9-1.9.

(b) Slings having suitable characteristics for the type of load, hitch, and environment shall be selected in accordance with the requirements of Sections 9-1.5 and 9-1.8.

(c) The rated load of the sling shall not be exceeded.

(d) For multiple-leg slings used with nonsymmetrical loads, an analysis by a qualified person should be performed to prevent overloading of any leg.

(e) Multiple-leg slings shall be selected according to Table 9-1.5.2-1 or 9-1.5.2-2 when used at the specific angles given in the tables. Operation at other angles shall be limited to rated load of the next lower angle given in the tables or calculated by a qualified person.

(f) The component shall be of the proper shape and size to ensure that it is properly seated in the hook or lifting device.

### 9-1.10.2 Cautions to Personnel

(a) All portions of the human body shall be kept from between the sling and the load, and from between the sling and the crane hook or hoist hook.

(b) Personnel should never stand in line with or next to the leg(s) of a sling that is under tension.

(c) Personnel shall not stand or pass under a suspended load.

(d) Personnel shall not ride the sling.

### 9-1.10.3 Effects of Environment

(a) Slings should be stored in an area where they will not be subjected to mechanical damage, corrosive action, moisture, extreme temperatures, or kinking (see Section 9-1.8).

(b) When used at or in contact with extreme temperatures, the guidance provided in Section 9-1.8 shall be followed.

### 9-1.10.4 Rigging Practices

(a) Slings shall be shortened or adjusted only by methods approved by the sling manufacturer or a qualified person.

(b) Slings shall not be shortened or lengthened by knotting or twisting.

(c) The sling shall be hitched in a manner providing control of the load.

(d) Slings in contact with edges, corners, or protrusions should be protected with a material of sufficient strength, thickness, and construction to prevent damage to the sling.

(e) Shock loading should be avoided.

(f) Loads should not be rested on the sling.

(g) Slings should not be pulled from under a load when the load is resting on the sling.

(h) Twisting and kinking shall be avoided.



(i) During lifting, with or without load, personnel shall be alert for possible snagging.

(j) When using multiple basket or choker hitches, the load should be rigged to prevent the sling from slipping or sliding along the load.

(k) When using a basket hitch, the legs of the sling should contain or support the load from the sides, above the center of gravity, so that the load remains under control.

(l) Slings should not be dragged on the floor or over an abrasive surface.

(m) In a choker hitch, the choke point should only be on the sling body, never on a fitting.

(n) In a choker hitch, an angle of choke less than 120 deg should not be used without reducing the rated load (see para. 9-1.5.5).

(o) Slings should not be constricted, bunched, or pinched by the load, hook, or any fitting.

(p) The load applied to the hook should be centered in the base (bowl) of the hook to prevent point loading on the hook, unless the hook is designed for point loading.



## Chapter 9-2

# Wire Rope Slings: Selection, Use, and Maintenance

### SECTION 9-2.0: SCOPE

Chapter 9-2 includes provisions that apply to wire rope slings. (See Fig. 9-2.0-1.)

### SECTION 9-2.1: TRAINING

Wire rope sling users shall be trained in the selection, inspection, cautions to personnel, effects of environment, and rigging practices as covered in this Chapter.

### SECTION 9-2.2: MATERIALS AND COMPONENTS

#### 9-2.2.1 Wire Rope Material

The wire rope shall be manufactured and tested in accordance with ASTM A 1023/A 1023M and ASTM A 586.

(a) Only new or unused wire rope shall be used for fabricating slings covered in this Chapter.

(b) Only regular-lay wire rope shall be used for fabricating slings covered in this Chapter.

(c) Rotation-resistant wire rope shall not be used for fabricating slings covered in this Chapter.

#### 9-2.2.2 Components

(a) Components such as sleeves and sockets shall be used in accordance with the component manufacturer's recommendations.

(b) Hooks, when employed, shall meet the requirements of ASME B30.10.

(c) Welding of handles or any other accessories to end attachments, except covers to thimbles, shall be performed prior to the assembly of the sling.

(d) Rigging hardware, when employed, shall meet the requirements of ASME B30.26.

#### 9-2.2.3 Other Materials and Components

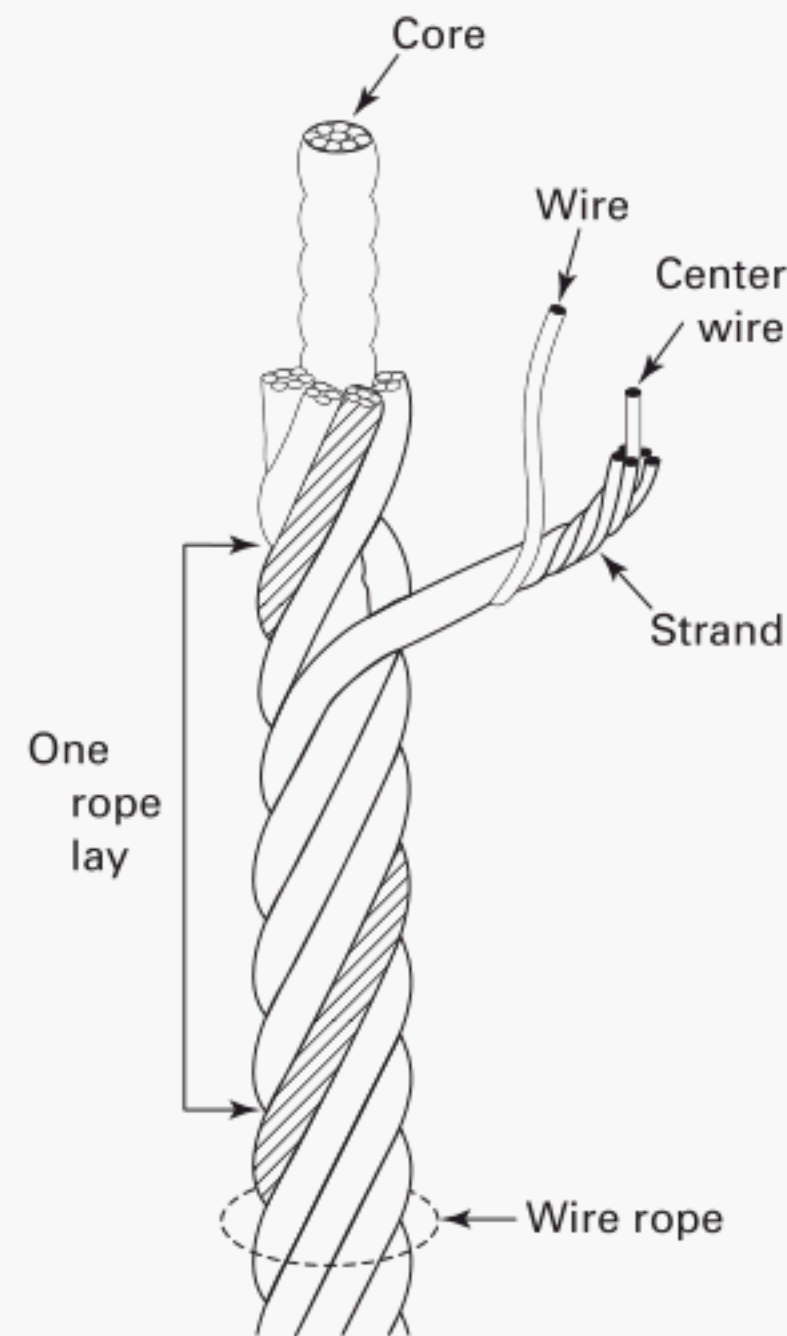
Wire ropes and components, other than those listed in paras. 9-2.2.1 and 9-2.2.2, may be employed. When such materials are employed, the sling manufacturer or a qualified person shall provide specific data. These slings shall comply with all other requirements of this Chapter.

### SECTION 9-2.3: FABRICATION AND CONFIGURATIONS

#### (10) 9-2.3.1 Fabrication

Methods of fabrication include hand-tucked splicing, turnback eye (return loop), or flemish eye mechanical splicing, and poured or swaged socketing.

Fig. 9-2.0-1 Wire Rope



(a) Wire rope clips shall not be used to fabricate wire rope slings except where the application of slings prevents the use of prefabricated slings and where the specific application is designed by a qualified person.

(1) Wire rope clips, if employed, shall be installed and maintained in accordance with the recommendations of the clip manufacturer or a qualified person, or in accordance with the provisions of ASME B30.26.

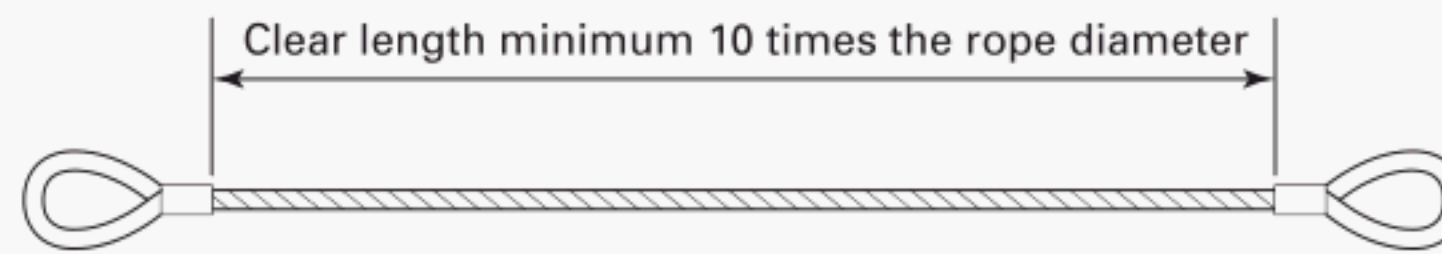
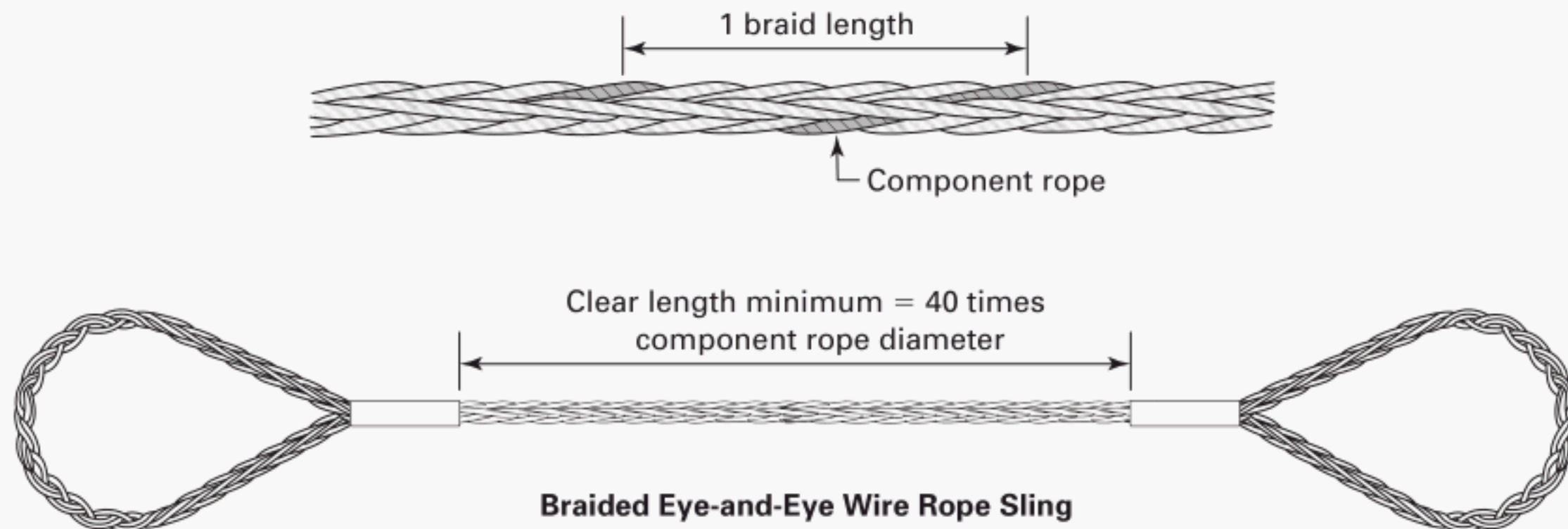
(2) Malleable cast iron clips shall not be used to fabricate slings.

(b) Knots shall not be used to fabricate slings.

(c) The diameter and width of the bearing surface of the fitting can affect the strength of the sling. The sling manufacturer's recommendation should be followed when fittings are used with the sling.

(d) Other fabrication methods not covered by this Chapter shall be rated in accordance with the recommendation of the sling manufacturer or a qualified person, and shall conform to all other provisions of this Chapter.



**Fig. 9-2.3.2-1 Minimum Sling Length****Fig. 9-2.3.2-2 Minimum Braided Sling Length****9-2.3.2 Configurations**

(a) Single-leg slings and two-leg, three-leg, and four-leg bridle slings used in vertical, choker, and basket hitches are covered by this Chapter.

(b) Slings made of rope with  $6 \times 19$  and  $6 \times 36$  classification and cable laid slings shall have a minimum clear length of rope 10 times the rope diameter between splices, sleeves, or end fittings (see Fig. 9-2.3.2-1), unless approved by a qualified person.

(c) Braided slings shall have a minimum clear length of rope 40 times the component rope diameter between the loops or end fittings (see Fig. 9-2.3.2-2), unless approved by a qualified person.

(d) Grommets and endless slings shall have a minimum circumferential length of 96 times the body diameter of the grommet or endless sling unless approved by a qualified person.

(e) Other configurations may be used. When used, the sling manufacturer or a qualified person shall provide specific data. These slings shall comply with all other requirements of this Chapter.

**SECTION 9-2.4: DESIGN FACTOR**

The design factor for wire rope slings shall be a minimum of 5.

**SECTION 9-2.5: RATED LOAD**

The term *rated capacity* is commonly used to describe rated load.

**9-2.5.1****(10)**

These rated loads are based on the following factors:

- (a) material strength(s)
- (b) design factor
- (c) type of hitch
- (d) angle of loading (see Fig. 9-2.5.1-1)
- (e) diameter of curvature over which the sling is used ( $D/d$ ) (see Fig. 9-2.5.1-2)
- (f) fabrication efficiency

NOTE: Rated loads for basket hitches and bridle slings are based on symmetrical loading. See para. 9-2.10.1(d) for nonsymmetrical loading.

**9-2.5.2**

Tables 9-2.5.2-1 through 9-2.5.2-9 show rated loads for single leg vertical, choker, and basket hitches, and two-leg, three-leg, and four-leg bridle slings for specific grades of wire rope. For angles other than those shown in these tables, use the rated load for the next lower angle, or a qualified person shall calculate the rated load.

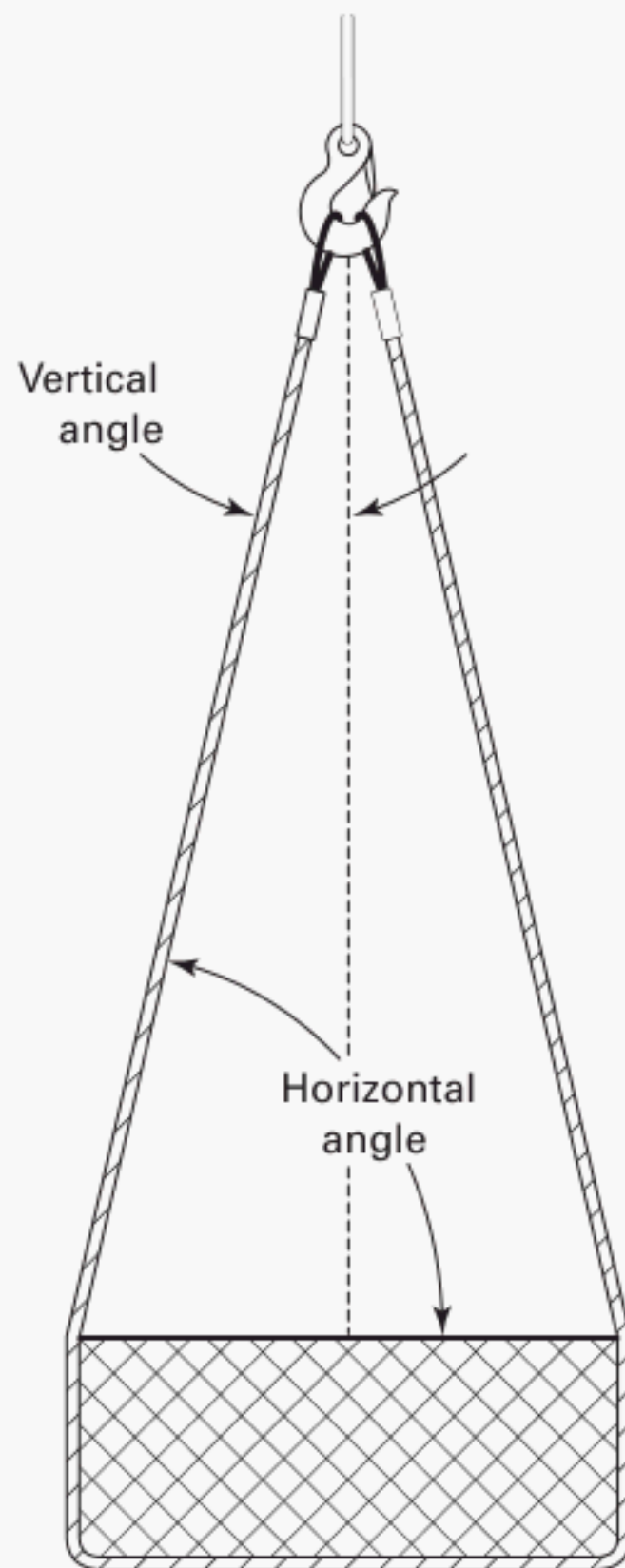
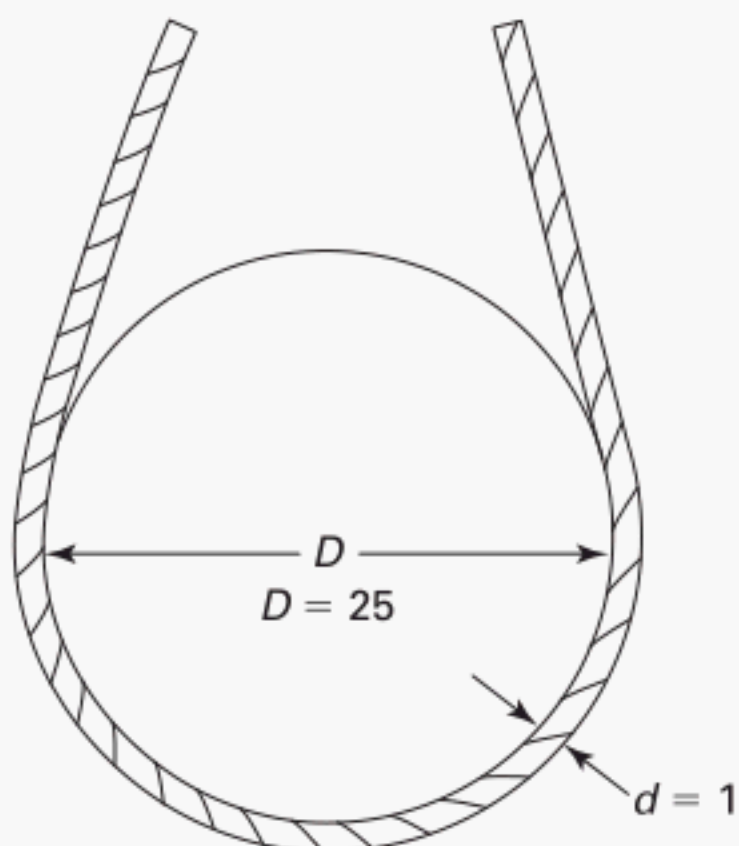
**9-2.5.3****(10)**

Horizontal sling angles less than 30 deg shall not be used except as recommended by the sling manufacturer or a qualified person (see Fig. 9-2.5.1-1).

**9-2.5.4****(10)**

Tables 9-2.5.2-1, 9-2.5.2-3, 9-2.5.2-5, 9-2.5.2-7, 9-2.5.2-8, and 9-2.5.2-9 show rated loads for choker hitches for specific grades of wire rope, provided that the angle of choke is 120 deg or greater (see Fig. 9-2.5.4-1). For angles



**Fig. 9-2.5.1-1 Angle of Loading****Fig. 9-2.5.1-2  $D/d$  Ratio**

GENERAL NOTE: When  $D$  is 25 times the component rope diameter ( $d$ ) the  $D/d$  ratio is expressed as 25/1.

other than those shown in these tables, use the rated load for the next lower angle, or a qualified person shall calculate the rated load.

### 9-2.5.5

Rated loads for angles of choke less than 120 deg shall be determined by using the values in Fig. 9-2.5.4-1, the sling manufacturer, or a qualified person.

### 9-2.5.6

Other materials and configurations not covered by this Chapter shall be rated in accordance with the recommendation of the sling manufacturer or a qualified person and shall conform to all other provisions of this Chapter.

### 9-2.5.7

When components of the sling have a lower rated load than the wire rope with which it is being used, the sling shall be identified with a rated load consistent with the lowest load rating of any of the components.

## SECTION 9-2.6: PROOF TEST REQUIREMENTS

### 9-2.6.1 General

(10)

(a) Prior to initial use, all new swaged sockets, poured sockets, turnback eyes, and mechanical joint endless wire rope slings shall be proof tested by the sling manufacturer or a qualified person.

(b) Prior to initial use, all wire rope slings incorporating previously used or welded fittings and all repaired slings shall be proof tested by the sling manufacturer or a qualified person.

(c) All other new wire rope slings are not required to be proof tested unless specified by the purchaser.

### 9-2.6.2 Proof Load Requirements

(a) For single- or multiple-leg slings and endless slings, each leg shall be proof loaded to the following load requirements based on fabrication method. In no case shall the proof load exceed 50% of the component ropes' or structural strands' minimum breaking strength.





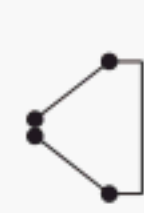
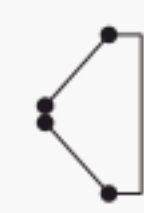

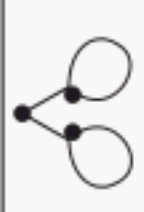

(1) *Mechanical Splice Slings.* The proof load shall be a minimum of 2 times the single-leg vertical hitch rated load.

(2) *Swaged Socket and Poured Socket Slings.* The proof load shall be a minimum of 2 times and a maximum of 2.5 times the single-leg vertical hitch rated load.

NOTE: The proof load should be that specified by the wire rope or fitting manufacturer's recommendation provided that it is within the above-specified proof load range.

(3) *Hand-Tucked Slings.* If proof tested, the proof load shall be a minimum of 1 time and a maximum of 1.25 times the single-leg vertical hitch rated load.

**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

Hitch Type	Single-Leg					Two-Leg Bridle or Basket					Choker		
						Horizontal Angle					Horizontal Angle		
	Vertical	Choker	Vertical Basket	Vertical	60 deg	45 deg	30 deg	60 deg	30 deg				
													
Rope Diameter, in.	HT	MS	S	HT&MS	HT	MS	S	HT	MS	HT	MS	HT&MS	HT&MS
1/4	0.54	0.56	0.60	0.42	1.1	1.1	1.1	0.94	0.77	0.54	0.56	0.73	0.42
5/16	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.4	1.2	0.83	0.87	1.1	0.66
3/8	1.2	1.2	1.3	0.94	2.4	2.5	2.5	2.0	1.7	1.2	1.2	1.6	0.94
7/16	1.6	1.7	1.8	1.3	3.2	3.4	3.4	2.7	2.2	1.6	1.7	2.2	1.3
1/2	2.0	2.2	2.4	1.6	4.0	4.4	4.4	3.5	2.9	2.0	2.2	2.9	1.6
9/16	2.5	2.7	3.0	2.1	5.0	5.5	5.5	4.4	3.6	2.5	2.7	3.6	2.1
5/8	3.1	3.4	3.7	2.6	6.2	6.8	6.8	5.3	4.4	3.1	3.4	4.5	2.6
3/4	4.3	4.8	5.2	3.7	8.6	9.7	9.7	7.4	6.1	4.3	4.8	6.3	3.7
7/8	5.7	6.6	7.1	5.0	11	13	13	9.8	8.0	5.7	6.6	8.6	5.0
1	7.4	8.3	9.2	6.4	15	17	17	13	10	7.4	8.3	11	6.4
1 1/8	9.3	10	12	8.1	19	21	21	16	13	9.3	10	14	8.1
1 1/4	11	13	14	9.9	23	26	26	20	16	11	13	17	9.9

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).



**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

Hitch Type	Single-Leg					Two-Leg Bridle or Basket					Choker				
	Vertical					Horizontal Angle					Horizontal Angle				
	Choker					Vertical					60 deg		30 deg		
	HT	MS	S	HT&MS		HT	MS	S	HT	MS	HT	MS	HT&MS	HT&MS	
Rope Diameter, in.															
1/4	0.54	0.56	0.60	0.42	1.1	1.1	1.1	1.1	0.94	0.77	0.79	0.54	0.56	0.73	0.42
5/16	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.7	1.4	1.2	1.2	0.83	0.87	1.1	0.66
3/8	1.2	1.2	1.3	0.94	2.4	2.4	2.5	2.5	2.0	1.7	1.8	1.2	1.2	1.6	0.94
7/16	1.6	1.7	1.8	1.3	3.2	3.2	3.4	3.4	2.7	2.2	2.4	1.6	1.7	2.2	1.3
1/2	2.0	2.2	2.4	1.6	4.0	4.0	4.4	4.4	3.5	2.9	3.1	2.0	2.2	2.9	1.6
9/16	2.5	2.7	3.0	2.1	5.0	5.0	5.5	5.5	4.4	3.6	3.9	2.5	2.7	3.6	2.1
5/8	3.1	3.4	3.7	2.6	6.2	6.2	6.8	6.8	5.3	4.4	4.8	3.1	3.4	4.5	2.6
3/4	4.3	4.8	5.2	3.7	8.6	9.7	9.7	9.7	7.4	6.1	6.8	4.3	4.8	6.3	3.7
7/8	5.7	6.6	7.1	5.0	11	13	13	13	9.8	8.0	9.3	5.7	6.6	8.6	5.0
1	7.4	8.3	9.2	6.4	15	17	17	17	13	10	12	7.4	8.3	11	6.4
1 1/8	9.3	10	12	8.1	19	21	21	21	16	13	15	9.3	10	14	8.1
1 1/4	11	13	14	9.9	23	26	26	26	20	16	18	11	13	17	9.9

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).

**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

Hitch Type	Single-Leg					Two-Leg Bridle or Basket					Choker				
	Vertical					Horizontal Angle					Horizontal Angle				
	Choker					Vertical					60 deg		30 deg		
	HT	MS	S	HT&MS		HT	MS	S	HT	MS	HT	MS	HT&MS	HT&MS	
Rope Diameter, in.															
1/4	0.54	0.56	0.60	0.42	1.1	1.1	1.1	1.1	0.94	0.77	0.79	0.54	0.56	0.73	0.42
5/16	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.7	1.4	1.2	1.2	0.83	0.87	1.1	0.66
3/8	1.2	1.2	1.3	0.94	2.4	2.4	2.5	2.5	2.0	1.7	1.8	1.2	1.2	1.6	0.94
7/16	1.6	1.7	1.8	1.3	3.2	3.2	3.4	3.4	2.7	2.2	2.4	1.6	1.7	2.2	1.3
1/2	2.0	2.2	2.4	1.6	4.0	4.0	4.4	4.4	3.5	2.9	3.1	2.0	2.2	2.9	1.6
9/16	2.5	2.7	3.0	2.1	5.0	5.0	5.5	5.5	4.4	3.6	3.9	2.5	2.7	3.6	2.1
5/8	3.1	3.4	3.7	2.6	6.2	6.2	6.8	6.8	5.3	4.4	4.8	3.1	3.4	4.5	2.6
3/4	4.3	4.8	5.2	3.7	8.6	9.7	9.7	9.7	7.4	6.1	6.8	4.3	4.8	6.3	3.7
7/8	5.7	6.6	7.1	5.0	11	13	13	13	9.8	8.0	9.3	5.7	6.6	8.6	5.0
1	7.4	8.3	9.2	6.4	15	17	17	17	13	10	12	7.4	8.3	11	6.4
1 1/8	9.3	10	12	8.1	19	21	21	21	16	13	15	9.3	10	14	8.1
1 1/4	11	13	14	9.9	23	26	26	26	20	16	18	11	13	17	9.9

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).

**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

Hitch Type	Single-Leg					Two-Leg Bridle or Basket					Choker						
	Vertical					Horizontal Angle					Horizontal Angle						
	Choker					Vertical Basket					Vertical						
	HT	MS	S	HT&MS	Choker	HT	MS	S	HT&MS	HT	MS	HT	MS	60 deg	30 deg	60 deg	30 deg
Rope Diameter, in.																	
1/4	0.54	0.56	0.60	0.42	1.1	1.1	1.1	1.1	0.94	0.77	0.79	0.54	0.56	0.73	0.42		
5/16	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.7	1.4	1.2	1.2	0.83	0.87	1.1	0.66		
3/8	1.2	1.2	1.3	0.94	2.4	2.4	2.5	2.5	2.0	1.7	1.8	1.2	1.2	1.6	0.94		
7/16	1.6	1.7	1.8	1.3	3.2	3.2	3.4	3.4	2.7	2.2	2.4	1.6	1.7	2.2	1.3		
1/2	2.0	2.2	2.4	1.6	4.0	4.0	4.4	4.4	3.5	2.9	3.1	2.0	2.2	2.9	1.6		
9/16	2.5	2.7	3.0	2.1	5.0	5.0	5.5	5.5	4.4	3.6	3.9	2.5	2.7	3.6	2.1		
5/8	3.1	3.4	3.7	2.6	6.2	6.2	6.8	6.8	5.3	4.4	4.8	3.1	3.4	4.5	2.6		
3/4	4.3	4.8	5.2	3.7	8.6	8.6	9.7	9.7	7.4	6.1	6.8	4.3	4.8	6.3	3.7		
7/8	5.7	6.6	7.1	5.0	11	11	13	13	9.8	8.0	9.3	5.7	6.6	8.6	5.0		
1	7.4	8.3	9.2	6.4	15	15	17	17	13	10	12	7.4	8.3	11	6.4		
1 1/8	9.3	10	12	8.1	19	19	21	21	16	13	15	9.3	10	14	8.1		
1 1/4	11	13	14	9.9	23	23	26	26	20	16	18	11	13	17	9.9		

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).



**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

Hitch Type	Single-Leg					Two-Leg Bridle or Basket					Choker			
	Vertical					Horizontal Angle					Horizontal Angle			
	Choker					Vertical Basket					Vertical			
	HT	MS	S	HT&MS		HT	MS	S	HT	MS	HT	MS	60 deg	30 deg
Rope Diameter, in.														
1/4	0.54	0.56	0.60	0.42	1.1	1.1	1.1	1.1	0.94	0.97	0.77	0.79	0.54	0.56
5/16	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.7	1.4	1.5	1.2	1.2	0.83	0.87
3/8	1.2	1.2	1.3	0.94	2.4	2.5	2.5	2.5	2.0	2.2	1.7	1.8	1.2	1.2
7/16	1.6	1.7	1.8	1.3	3.2	3.4	3.4	3.4	2.7	2.9	2.2	2.4	1.6	1.7
1/2	2.0	2.2	2.4	1.6	4.0	4.4	4.4	4.4	3.5	3.8	2.9	3.1	2.0	2.2
9/16	2.5	2.7	3.0	2.1	5.0	5.5	5.5	5.5	4.4	4.8	3.6	3.9	2.5	2.7
5/8	3.1	3.4	3.7	2.6	6.2	6.8	6.8	6.8	5.3	5.9	4.4	4.8	3.1	3.4
3/4	4.3	4.8	5.2	3.7	8.6	9.7	9.7	9.7	7.4	8.4	6.1	6.8	4.3	4.8
7/8	5.7	6.6	7.1	5.0	11	13	13	13	9.8	11	8.0	9.3	5.7	6.6
1	7.4	8.3	9.2	6.4	15	17	17	17	13	14	10	12	7.4	8.3
1 1/8	9.3	10	12	8.1	19	21	21	21	16	18	13	15	9.3	10
1 1/4	11	13	14	9.9	23	26	26	26	20	22	16	18	11	13

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).







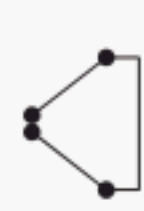
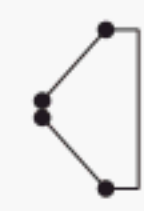



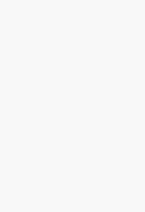
**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

Hitch Type	Single-Leg					Two-Leg Bridle or Basket					Choker			
	Vertical					Horizontal Angle					Horizontal Angle			
	Choker					Vertical					60 deg		30 deg	
	HT	MS	S	HT&MS		HT	MS	S	HT	MS	HT	MS	HT&MS	HT&MS
Rope Diameter, in.														
1/4	0.54	0.56	0.60	0.42	1.1	1.1	1.1	1.1	0.94	0.77	0.79	0.54	0.56	0.42
5/16	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.7	1.4	1.2	1.2	0.83	0.87	0.66
3/8	1.2	1.2	1.3	0.94	2.4	2.4	2.5	2.5	2.0	1.7	1.8	1.2	1.2	0.94
7/16	1.6	1.7	1.8	1.3	3.2	3.2	3.4	3.4	2.7	2.2	2.4	1.6	1.7	1.3
1/2	2.0	2.2	2.4	1.6	4.0	4.0	4.4	4.4	3.5	2.9	3.1	2.0	2.2	1.6
9/16	2.5	2.7	3.0	2.1	5.0	5.0	5.5	5.5	4.4	3.6	3.9	2.5	2.7	2.1
5/8	3.1	3.4	3.7	2.6	6.2	6.2	6.8	6.8	5.3	4.4	4.8	3.1	3.4	2.6
3/4	4.3	4.8	5.2	3.7	8.6	9.7	9.7	9.7	7.4	6.1	6.8	4.3	4.8	3.7
7/8	5.7	6.6	7.1	5.0	11	13	13	13	9.8	8.0	9.3	5.7	6.6	5.0
1	7.4	8.3	9.2	6.4	15	17	17	17	13	10	12	7.4	8.3	6.4
1 1/8	9.3	10	12	8.1	19	21	21	21	16	13	15	9.3	10	8.1
1 1/4	11	13	14	9.9	23	26	26	26	20	16	18	11	13	9.9

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).

**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

Hitch Type	Single-Leg										Two-Leg Bridle or Basket				Choker	
	Vertical					Horizontal Angle					Horizontal Angle					
	HT	MS	S	HT&MS	Choker	Vertical Basket	Vertical	60 deg	45 deg	30 deg	60 deg	45 deg	30 deg	HT&MS	HT&MS	
																
Rope Diameter, in.	HT	MS	S	HT&MS	Choker	Vertical Basket	Vertical	60 deg	45 deg	30 deg	60 deg	45 deg	30 deg	HT&MS	HT&MS	
$\frac{1}{4}$	0.54	0.56	0.60	0.42	1.1	1.1	1.1	0.94	0.77	0.54	0.73	0.54	0.36	0.73	0.42	
$\frac{5}{16}$	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.4	1.2	0.83	1.1	0.83	0.56	1.1	0.66	
$\frac{3}{8}$	1.2	1.2	1.3	0.94	2.4	2.4	2.4	2.0	1.7	1.2	1.6	1.2	0.87	1.6	0.94	
$\frac{7}{16}$	1.6	1.7	1.8	1.3	3.2	3.2	3.2	2.7	2.2	1.6	2.2	1.6	1.7	2.2	1.3	
$\frac{1}{2}$	2.0	2.2	2.4	1.6	4.0	4.0	4.0	3.5	2.9	2.0	2.9	2.0	2.2	2.9	1.6	
$\frac{9}{16}$	2.5	2.7	3.0	2.1	5.0	5.0	5.0	4.4	3.6	2.5	3.6	2.5	2.7	3.6	2.1	
$\frac{5}{8}$	3.1	3.4	3.7	2.6	6.2	6.2	6.2	5.3	4.4	3.1	4.5	3.1	3.4	4.5	2.6	
$\frac{3}{4}$	4.3	4.8	5.2	3.7	8.6	8.6	8.6	7.4	6.1	4.3	6.3	4.3	4.8	6.3	3.7	
$\frac{7}{8}$	5.7	6.6	7.1	5.0	11	11	11	9.8	8.0	5.7	8.6	5.7	6.6	8.6	5.0	
1	7.4	8.3	9.2	6.4	15	15	15	13	10	7.4	11	7.4	8.3	11	6.4	
$1\frac{1}{8}$	9.3	10	12	8.1	19	19	19	16	13	9.3	14	9.3	10	14	8.1	
$1\frac{1}{4}$	11	13	14	9.9	23	23	23	20	16	11	17	11	13	17	9.9	

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).

**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

Hitch Type	Single-Leg					Two-Leg Bridle or Basket					Choker					
	Vertical					Horizontal Angle					Horizontal Angle					
	Choker					Vertical					60 deg		30 deg			
	HT	MS	S	HT&MS		HT	MS	S	HT	MS	HT	MS	HT&MS	HT&MS		
1/4	0.54	0.56	0.60	0.42	1.1	1.1	1.1	1.1	0.94	0.97	0.77	0.79	0.54	0.56	0.73	0.42
5/16	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.7	1.4	1.5	1.2	1.2	0.83	0.87	1.1	0.66
3/8	1.2	1.2	1.3	0.94	2.4	2.5	2.5	2.5	2.0	2.2	1.7	1.8	1.2	1.2	1.6	0.94
7/16	1.6	1.7	1.8	1.3	3.2	3.4	3.4	3.4	2.7	2.9	2.2	2.4	1.6	1.7	2.2	1.3
1/2	2.0	2.2	2.4	1.6	4.0	4.4	4.4	4.4	3.5	3.8	2.9	3.1	2.0	2.2	2.9	1.6
9/16	2.5	2.7	3.0	2.1	5.0	5.5	5.5	5.5	4.4	4.8	3.6	3.9	2.5	2.7	3.6	2.1
5/8	3.1	3.4	3.7	2.6	6.2	6.8	6.8	6.8	5.3	5.9	4.4	4.8	3.1	3.4	4.5	2.6
3/4	4.3	4.8	5.2	3.7	8.6	9.7	9.7	9.7	7.4	8.4	6.1	6.8	4.3	4.8	6.3	3.7
7/8	5.7	6.6	7.1	5.0	11	13	13	13	9.8	11	8.0	9.3	5.7	6.6	8.6	5.0
1	7.4	8.3	9.2	6.4	15	17	17	17	13	14	10	12	7.4	8.3	11	6.4
1 1/8	9.3	10	12	8.1	19	21	21	21	16	18	13	15	9.3	10	14	8.1
1 1/4	11	13	14	9.9	23	26	26	26	20	22	16	18	11	13	17	9.9

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).



**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

Hitch Type	Single-Leg					Two-Leg Bridle or Basket					Choker			
	Vertical					Horizontal Angle					Horizontal Angle			
	Choker					Vertical					60 deg		30 deg	
	HT	MS	S	HT&MS		HT	MS	S	HT	MS	HT	MS	HT&MS	HT&MS
Rope Diameter, in.														
1/4	0.54	0.56	0.60	0.42	1.1	1.1	1.1	1.1	0.94	0.77	0.79	0.54	0.56	0.42
5/16	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.7	1.4	1.2	1.2	0.83	0.87	0.66
3/8	1.2	1.2	1.3	0.94	2.4	2.4	2.5	2.5	2.0	1.7	1.8	1.2	1.2	0.94
7/16	1.6	1.7	1.8	1.3	3.2	3.2	3.4	3.4	2.7	2.2	2.4	1.6	1.7	1.3
1/2	2.0	2.2	2.4	1.6	4.0	4.0	4.4	4.4	3.5	2.9	3.1	2.0	2.2	1.6
9/16	2.5	2.7	3.0	2.1	5.0	5.0	5.5	5.5	4.4	3.6	3.9	2.5	2.7	2.1
5/8	3.1	3.4	3.7	2.6	6.2	6.2	6.8	6.8	5.3	4.4	4.8	3.1	3.4	2.6
3/4	4.3	4.8	5.2	3.7	8.6	9.7	9.7	9.7	7.4	6.1	6.8	4.3	4.8	3.7
7/8	5.7	6.6	7.1	5.0	11	13	13	13	9.8	8.0	9.3	5.7	6.6	5.0
1	7.4	8.3	9.2	6.4	15	17	17	17	13	10	12	7.4	8.3	6.4
1 1/8	9.3	10	12	8.1	19	21	21	21	16	13	15	9.3	10	8.1
1 1/4	11	13	14	9.9	23	26	26	26	20	16	18	11	13	9.9

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).







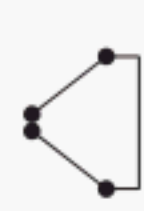
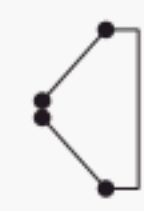



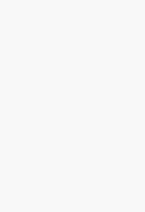
**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

Hitch Type	Single-Leg					Two-Leg Bridle or Basket					Choker					
	Vertical					Horizontal Angle					Horizontal Angle					
	Choker					Vertical Basket					Vertical		60 deg		30 deg	
	HT	MS	S	HT&MS		HT	MS	S		HT	MS	HT	MS	HT&MS	HT&MS	
Rope Diameter, in.																
1/4	0.54	0.56	0.60	0.42	1.1	1.1	1.1	1.1	0.94	0.77	0.79	0.54	0.56	0.73	0.42	
5/16	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.7	1.4	1.2	1.2	0.83	0.87	1.1	0.66	
3/8	1.2	1.2	1.3	0.94	2.4	2.5	2.5	2.5	2.0	1.7	1.8	1.2	1.2	1.6	0.94	
7/16	1.6	1.7	1.8	1.3	3.2	3.4	3.4	3.4	2.7	2.2	2.4	1.6	1.7	2.2	1.3	
1/2	2.0	2.2	2.4	1.6	4.0	4.4	4.4	4.4	3.5	2.9	3.1	2.0	2.2	2.9	1.6	
9/16	2.5	2.7	3.0	2.1	5.0	5.5	5.5	5.5	4.4	3.6	3.9	2.5	2.7	3.6	2.1	
5/8	3.1	3.4	3.7	2.6	6.2	6.8	6.8	6.8	5.3	4.4	4.8	3.1	3.4	4.5	2.6	
3/4	4.3	4.8	5.2	3.7	8.6	9.7	9.7	9.7	7.4	6.1	6.8	4.3	4.8	6.3	3.7	
7/8	5.7	6.6	7.1	5.0	11	13	13	13	9.8	8.0	9.3	5.7	6.6	8.6	5.0	
1	7.4	8.3	9.2	6.4	15	17	17	17	13	10	12	7.4	8.3	11	6.4	
1 1/8	9.3	10	12	8.1	19	21	21	21	16	13	15	9.3	10	14	8.1	
1 1/4	11	13	14	9.9	23	26	26	26	20	16	18	11	13	17	9.9	

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).





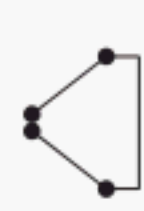
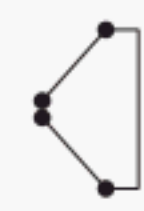



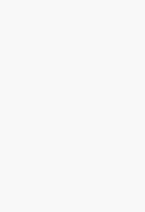
**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

Hitch Type	Single-Leg										Two-Leg Bridle or Basket				Choker	
	Vertical					Horizontal Angle					Horizontal Angle					
	HT	MS	S	HT&MS	Choker	Vertical Basket	Vertical	60 deg	45 deg	30 deg	60 deg	45 deg	30 deg	HT&MS	HT&MS	
																
Rope Diameter, in.	HT	MS	S	HT&MS	Choker	Vertical Basket	Vertical	60 deg	45 deg	30 deg	60 deg	45 deg	30 deg	HT&MS	HT&MS	
$\frac{1}{4}$	0.54	0.56	0.60	0.42	1.1	1.1	1.1	0.94	0.77	0.54	0.73	0.54	0.36	0.73	0.42	
$\frac{5}{16}$	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.4	1.2	0.83	1.1	0.83	0.56	1.1	0.66	
$\frac{3}{8}$	1.2	1.2	1.3	0.94	2.4	2.4	2.4	2.0	1.7	1.2	1.6	1.2	0.87	1.6	0.94	
$\frac{7}{16}$	1.6	1.7	1.8	1.3	3.2	3.2	3.2	2.7	2.2	1.6	2.2	1.6	1.7	2.2	1.3	
$\frac{1}{2}$	2.0	2.2	2.4	1.6	4.0	4.0	4.0	3.5	2.9	2.0	2.9	2.0	2.2	2.9	1.6	
$\frac{9}{16}$	2.5	2.7	3.0	2.1	5.0	5.0	5.0	4.4	3.6	2.5	3.6	2.5	2.7	3.6	2.1	
$\frac{5}{8}$	3.1	3.4	3.7	2.6	6.2	6.2	6.2	5.3	4.4	3.1	4.5	3.1	3.4	4.5	2.6	
$\frac{3}{4}$	4.3	4.8	5.2	3.7	8.6	8.6	8.6	7.4	6.1	4.3	6.3	4.3	4.8	6.3	3.7	
$\frac{7}{8}$	5.7	6.6	7.1	5.0	11	11	11	9.8	8.0	5.7	8.6	5.7	6.6	8.6	5.0	
1	7.4	8.3	9.2	6.4	15	15	15	13	10	7.4	11	7.4	8.3	11	6.4	
$1\frac{1}{8}$	9.3	10	12	8.1	19	19	19	16	13	9.3	14	9.3	10	14	8.1	
$1\frac{1}{4}$	11	13	14	9.9	23	23	23	20	16	11	17	11	13	17	9.9	

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).

**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

Hitch Type	Single-Leg										Two-Leg Bridle or Basket				Choker	
	Vertical					Horizontal Angle					Horizontal Angle					
	HT	MS	S	HT&MS	Choker	Vertical Basket	Vertical	60 deg	45 deg	30 deg	60 deg	45 deg	30 deg	HT&MS	HT&MS	
																
Rope Diameter, in.	HT	MS	S	HT&MS	Choker	Vertical Basket	Vertical	60 deg	45 deg	30 deg	60 deg	45 deg	30 deg	HT&MS	HT&MS	
$\frac{1}{4}$	0.54	0.56	0.60	0.42	1.1	1.1	1.1	0.94	0.77	0.54	0.73	0.54	0.36	0.73	0.42	
$\frac{5}{16}$	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.4	1.2	0.83	1.1	0.83	0.56	1.1	0.66	
$\frac{3}{8}$	1.2	1.2	1.3	0.94	2.4	2.4	2.4	2.0	1.7	1.2	1.6	1.2	0.87	1.6	0.94	
$\frac{7}{16}$	1.6	1.7	1.8	1.3	3.2	3.2	3.2	2.7	2.2	1.6	2.2	1.6	1.7	2.2	1.3	
$\frac{1}{2}$	2.0	2.2	2.4	1.6	4.0	4.0	4.0	3.5	2.9	2.0	2.9	2.0	2.2	2.9	1.6	
$\frac{9}{16}$	2.5	2.7	3.0	2.1	5.0	5.0	5.0	4.4	3.6	2.5	3.6	2.5	2.7	3.6	2.1	
$\frac{5}{8}$	3.1	3.4	3.7	2.6	6.2	6.2	6.2	5.3	4.4	3.1	4.5	3.1	3.4	4.5	2.6	
$\frac{3}{4}$	4.3	4.8	5.2	3.7	8.6	8.6	8.6	7.4	6.1	4.3	6.3	4.3	4.8	6.3	3.7	
$\frac{7}{8}$	5.7	6.6	7.1	5.0	11	11	11	9.8	8.0	5.7	8.6	5.7	6.6	8.6	5.0	
1	7.4	8.3	9.2	6.4	15	15	15	13	10	7.4	11	7.4	8.3	11	6.4	
$1\frac{1}{8}$	9.3	10	12	8.1	19	19	19	16	13	9.3	14	9.3	10	14	8.1	
$1\frac{1}{4}$	11	13	14	9.9	23	23	23	20	16	11	17	11	13	17	9.9	

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).



**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)





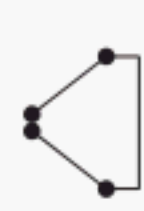
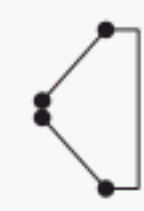



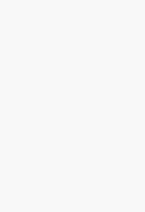
Hitch Type	Single-Leg					Two-Leg Bridle or Basket					Choker						
	Vertical					Horizontal Angle					Horizontal Angle						
	Choker					Vertical Basket					Vertical						
	HT	MS	S	HT&MS	Choker	HT	MS	S	HT	MS	HT	MS	60 deg	45 deg	30 deg	60 deg	30 deg
Rope Diameter, in.																	
1/4	0.54	0.56	0.60	0.42	1.1	1.1	1.1	1.1	0.94	0.97	0.77	0.79	0.54	0.56	0.73	0.42	
5/16	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.7	1.4	1.5	1.2	1.2	0.83	0.87	1.1	0.66	
3/8	1.2	1.2	1.3	0.94	2.4	2.5	2.5	2.5	2.0	2.2	1.7	1.8	1.2	1.2	1.6	0.94	
7/16	1.6	1.7	1.8	1.3	3.2	3.4	3.4	3.4	2.7	2.9	2.2	2.4	1.6	1.7	2.2	1.3	
1/2	2.0	2.2	2.4	1.6	4.0	4.4	4.4	4.4	3.5	3.8	2.9	3.1	2.0	2.2	2.9	1.6	
9/16	2.5	2.7	3.0	2.1	5.0	5.5	5.5	5.5	4.4	4.8	3.6	3.9	2.5	2.7	3.6	2.1	
5/8	3.1	3.4	3.7	2.6	6.2	6.8	6.8	6.8	5.3	5.9	4.4	4.8	3.1	3.4	4.5	2.6	
3/4	4.3	4.8	5.2	3.7	8.6	9.7	9.7	9.7	7.4	8.4	6.1	6.8	4.3	4.8	6.3	3.7	
7/8	5.7	6.6	7.1	5.0	11	13	13	13	9.8	11	8.0	9.3	5.7	6.6	8.6	5.0	
1	7.4	8.3	9.2	6.4	15	17	17	17	13	14	10	12	7.4	8.3	11	6.4	
1 1/8	9.3	10	12	8.1	19	21	21	21	16	18	13	15	9.3	10	14	8.1	
1 1/4	11	13	14	9.9	23	26	26	26	20	22	16	18	11	13	17	9.9	

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).



**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

Hitch Type	Single-Leg										Two-Leg Bridle or Basket				Choker	
	Vertical					Horizontal Angle					Horizontal Angle					
	HT	MS	S	HT&MS	Choker	Vertical Basket	Vertical	60 deg	45 deg	30 deg	60 deg	45 deg	30 deg	HT&MS	HT&MS	
																
Rope Diameter, in.	HT	MS	S	HT&MS	Choker	Vertical Basket	Vertical	60 deg	45 deg	30 deg	60 deg	45 deg	30 deg	HT&MS	HT&MS	
$\frac{1}{4}$	0.54	0.56	0.60	0.42	1.1	1.1	1.1	0.94	0.77	0.54	0.73	0.54	0.36	0.73	0.42	
$\frac{5}{16}$	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.4	1.2	0.83	1.1	0.83	0.56	1.1	0.66	
$\frac{3}{8}$	1.2	1.2	1.3	0.94	2.4	2.4	2.4	2.0	1.7	1.2	1.6	1.2	0.87	1.6	0.94	
$\frac{7}{16}$	1.6	1.7	1.8	1.3	3.2	3.2	3.2	2.7	2.2	1.6	2.2	1.6	1.2	2.2	1.3	
$\frac{1}{2}$	2.0	2.2	2.4	1.6	4.0	4.0	4.0	3.5	2.9	2.0	2.9	2.0	1.7	2.9	1.6	
$\frac{9}{16}$	2.5	2.7	3.0	2.1	5.0	5.0	5.0	4.4	3.6	2.5	3.6	2.5	2.7	3.6	2.1	
$\frac{5}{8}$	3.1	3.4	3.7	2.6	6.2	6.2	6.2	5.3	4.4	3.1	4.5	3.1	3.4	4.5	2.6	
$\frac{3}{4}$	4.3	4.8	5.2	3.7	8.6	8.6	8.6	7.4	6.1	4.3	6.3	4.3	4.8	6.3	3.7	
$\frac{7}{8}$	5.7	6.6	7.1	5.0	11	11	11	9.8	8.0	5.7	8.6	5.7	6.6	8.6	5.0	
1	7.4	8.3	9.2	6.4	15	17	17	13	10	7.4	11	7.4	8.3	11	6.4	
$1\frac{1}{8}$	9.3	10	12	8.1	19	21	21	16	13	9.3	14	9.3	10	14	8.1	
$1\frac{1}{4}$	11	13	14	9.9	23	26	26	20	16	11	17	11	13	17	9.9	

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).

**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

Hitch Type	Single-Leg										Two-Leg Bridle or Basket				Choker	
	Vertical					Horizontal Angle					Horizontal Angle					
	HT	MS	S	HT&MS	Choker	Vertical Basket	Vertical	60 deg	45 deg	30 deg	60 deg	45 deg	30 deg	HT&MS	HT&MS	
<b>Rope Diameter, in.</b>																
$\frac{1}{4}$	0.54	0.56	0.60	0.42	1.1	1.1	1.1	1.1	0.94	0.97	0.77	0.79	0.54	0.56	0.73	0.42
$\frac{5}{16}$	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.7	1.4	1.5	1.2	1.2	0.83	0.87	1.1	0.66
$\frac{3}{8}$	1.2	1.2	1.3	0.94	2.4	2.5	2.5	2.4	2.0	2.2	1.7	1.8	1.2	1.2	1.6	0.94
$\frac{7}{16}$	1.6	1.7	1.8	1.3	3.2	3.4	3.4	3.2	2.7	2.9	2.2	2.4	1.6	1.7	2.2	1.3
$\frac{1}{2}$	2.0	2.2	2.4	1.6	4.0	4.4	4.4	4.0	3.5	3.8	2.9	3.1	2.0	2.2	2.9	1.6
$\frac{9}{16}$	2.5	2.7	3.0	2.1	5.0	5.5	5.5	5.0	4.4	4.8	3.6	3.9	2.5	2.7	3.6	2.1
$\frac{5}{8}$	3.1	3.4	3.7	2.6	6.2	6.8	6.8	6.2	5.3	5.9	4.4	4.8	3.1	3.4	4.5	2.6
$\frac{3}{4}$	4.3	4.8	5.2	3.7	8.6	9.7	9.7	8.6	7.4	8.4	6.1	6.8	4.3	4.8	6.3	3.7
$\frac{7}{8}$	5.7	6.6	7.1	5.0	11	13	13	11	9.8	11	8.0	9.3	5.7	6.6	8.6	5.0
1	7.4	8.3	9.2	6.4	15	17	17	15	13	14	10	12	7.4	8.3	11	6.4
$1\frac{1}{8}$	9.3	10	12	8.1	19	21	21	19	16	18	13	15	9.3	10	14	8.1
$1\frac{1}{4}$	11	13	14	9.9	23	26	26	23	20	22	16	18	11	13	17	9.9

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).

**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)






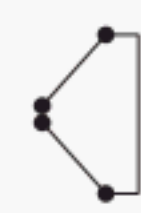
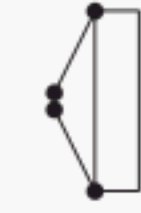





Hitch Type	Single-Leg					Two-Leg Bridle or Basket					Choker						
	Vertical					Horizontal Angle					Horizontal Angle						
	Choker					Vertical Basket					Vertical						
	HT	MS	S	HT&MS	Choker	HT	MS	S	HT&MS	HT	MS	HT	MS	60 deg	45 deg	30 deg	60 deg
1/4	0.54	0.56	0.60	0.42	1.1	1.1	1.1	1.1	1.1	0.94	0.97	0.77	0.79	0.54	0.56	0.73	0.42
5/16	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.7	1.7	1.4	1.5	1.2	1.2	0.83	0.87	1.1	0.66
3/8	1.2	1.2	1.3	0.94	2.4	2.5	2.5	2.5	2.5	2.0	2.2	1.7	1.8	1.2	1.2	1.6	0.94
7/16	1.6	1.7	1.8	1.3	3.2	3.4	3.4	3.4	3.4	2.7	2.9	2.2	2.4	1.6	1.7	2.2	1.3
1/2	2.0	2.2	2.4	1.6	4.0	4.4	4.4	4.4	4.4	3.5	3.8	2.9	3.1	2.0	2.2	2.9	1.6
9/16	2.5	2.7	3.0	2.1	5.0	5.5	5.5	5.5	5.5	4.4	4.8	3.6	3.9	2.5	2.7	3.6	2.1
5/8	3.1	3.4	3.7	2.6	6.2	6.8	6.8	6.8	6.8	5.3	5.9	4.4	4.8	3.1	3.4	4.5	2.6
3/4	4.3	4.8	5.2	3.7	8.6	9.7	9.7	9.7	9.7	7.4	8.4	6.1	6.8	4.3	4.8	6.3	3.7
7/8	5.7	6.6	7.1	5.0	11	13	13	13	13	9.8	11	8.0	9.3	5.7	6.6	8.6	5.0
1	7.4	8.3	9.2	6.4	15	17	17	17	17	13	14	10	12	7.4	8.3	11	6.4
1 1/8	9.3	10	12	8.1	19	21	21	21	21	16	18	13	15	9.3	10	14	8.1
1 1/4	11	13	14	9.9	23	26	26	26	26	20	22	16	18	11	13	17	9.9

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).







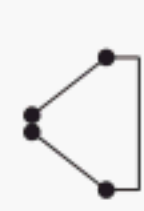
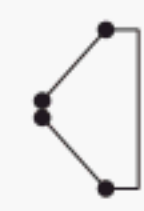



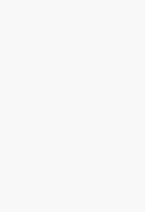
**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

Hitch Type	Single-Leg					Two-Leg Bridle or Basket					Choker							
	Vertical					Horizontal Angle					Horizontal Angle							
	Choker					Vertical Basket					Vertical							
	HT	MS	S	HT&MS	Choker	HT	MS	S	HT&MS	HT	MS	HT	MS	60 deg	30 deg	60 deg	30 deg	
1/4	0.54	0.56	0.60	0.42		1.1	1.1	1.1	1.1	1.1	0.94	0.97	0.77	0.79	0.54	0.56	0.73	0.42
5/16	0.83	0.87	0.94	0.66		1.7	1.7	1.7	1.7	1.7	1.4	1.5	1.2	1.2	0.83	0.87	1.1	0.66
3/8	1.2	1.2	1.3	0.94		2.4	2.5	2.5	2.5	2.5	2.0	2.2	1.7	1.8	1.2	1.2	1.6	0.94
7/16	1.6	1.7	1.8	1.3		3.2	3.4	3.4	3.4	3.4	2.7	2.9	2.2	2.4	1.6	1.7	2.2	1.3
1/2	2.0	2.2	2.4	1.6		4.0	4.4	4.4	4.4	4.4	3.5	3.8	2.9	3.1	2.0	2.2	2.9	1.6
9/16	2.5	2.7	3.0	2.1		5.0	5.5	5.5	5.5	5.5	4.4	4.8	3.6	3.9	2.5	2.7	3.6	2.1
5/8	3.1	3.4	3.7	2.6		6.2	6.8	6.8	6.8	6.8	5.3	5.9	4.4	4.8	3.1	3.4	4.5	2.6
3/4	4.3	4.8	5.2	3.7		8.6	9.7	9.7	9.7	9.7	7.4	8.4	6.1	6.8	4.3	4.8	6.3	3.7
7/8	5.7	6.6	7.1	5.0		11	13	13	13	13	9.8	11	8.0	9.3	5.7	6.6	8.6	5.0
1	7.4	8.3	9.2	6.4		15	17	17	17	17	13	14	10	12	7.4	8.3	11	6.4
1 1/8	9.3	10	12	8.1		19	21	21	21	21	16	18	13	15	9.3	10	14	8.1
1 1/4	11	13	14	9.9		23	26	26	26	26	20	22	16	18	11	13	17	9.9

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).

**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

Hitch Type	Single-Leg										Two-Leg Bridle or Basket				Choker	
	Vertical					Horizontal Angle					Horizontal Angle					
	HT	MS	S	HT&MS	Choker	Vertical Basket	Vertical	60 deg	45 deg	30 deg	60 deg	45 deg	30 deg	HT&MS	HT&MS	
																
Rope Diameter, in.	HT	MS	S	HT&MS	Choker	Vertical Basket	Vertical	60 deg	45 deg	30 deg	60 deg	45 deg	30 deg	HT&MS	HT&MS	
$\frac{1}{4}$	0.54	0.56	0.60	0.42	1.1	1.1	1.1	0.94	0.77	0.54	0.73	0.54	0.36	0.73	0.42	
$\frac{5}{16}$	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.4	1.2	0.83	1.1	0.83	0.56	1.1	0.66	
$\frac{3}{8}$	1.2	1.2	1.3	0.94	2.4	2.4	2.4	2.0	1.7	1.2	1.6	1.2	0.87	1.6	0.94	
$\frac{7}{16}$	1.6	1.7	1.8	1.3	3.2	3.2	3.2	2.7	2.2	1.6	2.2	1.6	1.7	2.2	1.3	
$\frac{1}{2}$	2.0	2.2	2.4	1.6	4.0	4.0	4.0	3.5	2.9	2.0	2.9	2.0	2.2	2.9	1.6	
$\frac{9}{16}$	2.5	2.7	3.0	2.1	5.0	5.0	5.0	4.4	3.6	2.5	3.6	2.5	2.7	3.6	2.1	
$\frac{5}{8}$	3.1	3.4	3.7	2.6	6.2	6.2	6.2	5.3	4.4	3.1	4.5	3.1	3.4	4.5	2.6	
$\frac{3}{4}$	4.3	4.8	5.2	3.7	8.6	8.6	8.6	7.4	6.1	4.3	6.3	4.3	4.8	6.3	3.7	
$\frac{7}{8}$	5.7	6.6	7.1	5.0	11	11	11	9.8	8.0	5.7	8.6	5.7	6.6	8.6	5.0	
1	7.4	8.3	9.2	6.4	15	15	15	13	10	7.4	11	7.4	8.3	11	6.4	
$1\frac{1}{8}$	9.3	10	12	8.1	19	19	19	16	13	9.3	14	9.3	10	14	8.1	
$1\frac{1}{4}$	11	13	14	9.9	23	23	23	20	16	11	17	11	13	17	9.9	

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).

**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)





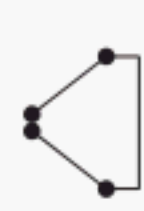
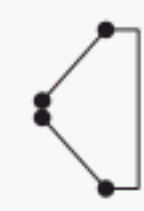



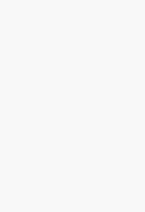
Hitch Type	Single-Leg					Two-Leg Bridle or Basket					Choker			
	Vertical					Horizontal Angle					Horizontal Angle			
	Choker					Vertical Basket					Horizontal Angle			
	HT	MS	S	HT&MS	Choker	HT	MS	S	HT	MS	HT	MS	60 deg	30 deg
Rope Diameter, in.														
1/4	0.54	0.56	0.60	0.42	1.1	1.1	1.1	1.1	0.94	0.97	0.77	0.79	0.54	0.56
5/16	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.7	1.4	1.5	1.2	1.2	0.83	0.87
3/8	1.2	1.2	1.3	0.94	2.4	2.5	2.5	2.5	2.0	2.2	1.7	1.8	1.2	1.2
7/16	1.6	1.7	1.8	1.3	3.2	3.4	3.4	3.4	2.7	2.9	2.2	2.4	1.6	1.7
1/2	2.0	2.2	2.4	1.6	4.0	4.4	4.4	4.4	3.5	3.8	2.9	3.1	2.0	2.2
9/16	2.5	2.7	3.0	2.1	5.0	5.5	5.5	5.5	4.4	4.8	3.6	3.9	2.5	2.7
5/8	3.1	3.4	3.7	2.6	6.2	6.8	6.8	6.8	5.3	5.9	4.4	4.8	3.1	3.4
3/4	4.3	4.8	5.2	3.7	8.6	9.7	9.7	9.7	7.4	8.4	6.1	6.8	4.3	4.8
7/8	5.7	6.6	7.1	5.0	11	13	13	13	9.8	11	8.0	9.3	5.7	6.6
1	7.4	8.3	9.2	6.4	15	17	17	17	13	14	10	12	7.4	8.3
1 1/8	9.3	10	12	8.1	19	21	21	21	16	18	13	15	9.3	10
1 1/4	11	13	14	9.9	23	26	26	26	20	22	16	18	11	13

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).



**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

Hitch Type	Single-Leg										Two-Leg Bridle or Basket				Choker	
	Vertical					Horizontal Angle					Horizontal Angle					
	HT	MS	S	HT&MS	Choker	Vertical Basket	Vertical	60 deg	45 deg	30 deg	60 deg	45 deg	30 deg	HT&MS	HT&MS	
																
Rope Diameter, in.	HT	MS	S	HT&MS	Choker	Vertical Basket	Vertical	60 deg	45 deg	30 deg	60 deg	45 deg	30 deg	HT&MS	HT&MS	
$\frac{1}{4}$	0.54	0.56	0.60	0.42	1.1	1.1	1.1	0.94	0.77	0.54	0.73	0.54	0.36	0.73	0.42	
$\frac{5}{16}$	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.4	1.2	0.83	1.1	0.83	0.56	1.1	0.66	
$\frac{3}{8}$	1.2	1.2	1.3	0.94	2.4	2.4	2.4	2.0	1.7	1.2	1.6	1.2	0.87	1.6	0.94	
$\frac{7}{16}$	1.6	1.7	1.8	1.3	3.2	3.2	3.2	2.7	2.2	1.6	2.2	1.6	1.7	2.2	1.3	
$\frac{1}{2}$	2.0	2.2	2.4	1.6	4.0	4.0	4.0	3.5	2.9	2.0	2.9	2.0	2.2	2.9	1.6	
$\frac{9}{16}$	2.5	2.7	3.0	2.1	5.0	5.0	5.0	4.4	3.6	2.5	3.6	2.5	2.7	3.6	2.1	
$\frac{5}{8}$	3.1	3.4	3.7	2.6	6.2	6.2	6.2	5.3	4.4	3.1	4.5	3.1	3.4	4.5	2.6	
$\frac{3}{4}$	4.3	4.8	5.2	3.7	8.6	8.6	8.6	7.4	6.1	4.3	6.3	4.3	4.8	6.3	3.7	
$\frac{7}{8}$	5.7	6.6	7.1	5.0	11	11	11	9.8	8.0	5.7	8.6	5.7	6.6	8.6	5.0	
1	7.4	8.3	9.2	6.4	15	15	15	13	10	7.4	11	10	8.3	11	6.4	
$1\frac{1}{8}$	9.3	10	12	8.1	19	19	19	16	13	9.3	14	13	10	14	8.1	
$1\frac{1}{4}$	11	13	14	9.9	23	23	23	20	16	11	17	16	13	17	9.9	

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).






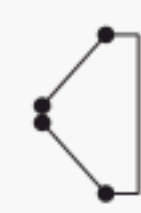
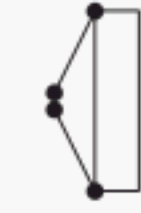


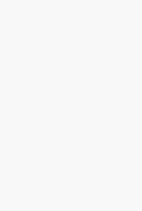
**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

Hitch Type	Single-Leg					Two-Leg Bridle or Basket					Choker				
	Vertical					Horizontal Angle					Horizontal Angle				
	Choker					Vertical					60 deg		30 deg		
	HT	MS	S	HT&MS	HT	MS	S	HT	MS	HT	MS	HT&MS	HT&MS		
Rope Diameter, in.															
1/4	0.54	0.56	0.60	0.42	1.1	1.1	1.1	1.1	0.94	0.77	0.79	0.54	0.56	0.73	0.42
5/16	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.7	1.4	1.2	1.2	0.83	0.87	1.1	0.66
3/8	1.2	1.2	1.3	0.94	2.4	2.5	2.5	2.4	2.0	1.7	1.8	1.2	1.2	1.6	0.94
7/16	1.6	1.7	1.8	1.3	3.2	3.4	3.4	3.2	2.7	2.2	2.4	1.6	1.7	2.2	1.3
1/2	2.0	2.2	2.4	1.6	4.0	4.4	4.4	4.0	3.5	2.9	3.1	2.0	2.2	2.9	1.6
9/16	2.5	2.7	3.0	2.1	5.0	5.5	5.5	5.0	4.4	3.6	3.9	2.5	2.7	3.6	2.1
5/8	3.1	3.4	3.7	2.6	6.2	6.8	6.8	6.2	5.3	4.4	4.8	3.1	3.4	4.5	2.6
3/4	4.3	4.8	5.2	3.7	8.6	9.7	9.7	8.6	7.4	6.1	6.8	4.3	4.8	6.3	3.7
7/8	5.7	6.6	7.1	5.0	11	13	13	11	9.8	8.0	9.3	5.7	6.6	8.6	5.0
1	7.4	8.3	9.2	6.4	15	17	17	15	13	10	12	7.4	8.3	11	6.4
1 1/8	9.3	10	12	8.1	19	21	21	19	16	13	15	9.3	10	14	8.1
1 1/4	11	13	14	9.9	23	26	26	23	20	16	18	11	13	17	9.9

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).

**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)





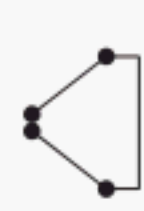
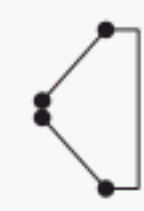



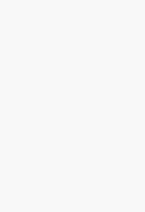
Hitch Type	Single-Leg										Two-Leg Bridle or Basket				Choker	
	Vertical					Horizontal Angle					Horizontal Angle					
	HT	MS	S	HT&MS	Choker	Vertical Basket	Vertical	60 deg	45 deg	30 deg	60 deg	45 deg	30 deg	HT&MS	HT&MS	
																
Rope Diameter, in.	HT	MS	S	HT&MS	Choker	Vertical Basket	Vertical	60 deg	45 deg	30 deg	60 deg	45 deg	30 deg	HT&MS	HT&MS	
$\frac{1}{4}$	0.54	0.56	0.60	0.42	1.1	1.1	1.1	0.94	0.77	0.54	0.73	0.54	0.36	0.42	0.42	
$\frac{5}{16}$	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.4	1.2	0.83	1.1	0.83	0.56	0.66	0.66	
$\frac{3}{8}$	1.2	1.2	1.3	0.94	2.4	2.4	2.4	2.0	1.7	1.2	1.6	1.2	0.87	0.94	0.94	
$\frac{7}{16}$	1.6	1.7	1.8	1.3	3.2	3.2	3.2	2.7	2.2	1.6	2.2	1.6	1.2	1.3	1.3	
$\frac{1}{2}$	2.0	2.2	2.4	1.6	4.0	4.0	4.0	3.5	2.9	2.0	2.9	2.0	1.7	1.6	1.6	
$\frac{9}{16}$	2.5	2.7	3.0	2.1	5.0	5.0	5.0	4.4	3.6	2.5	3.6	2.5	2.2	2.1	2.1	
$\frac{5}{8}$	3.1	3.4	3.7	2.6	6.2	6.2	6.2	5.3	4.4	3.1	4.5	3.1	2.7	2.6	2.6	
$\frac{3}{4}$	4.3	4.8	5.2	3.7	8.6	8.6	8.6	7.4	6.1	4.3	6.3	4.3	3.4	3.7	3.7	
$\frac{7}{8}$	5.7	6.6	7.1	5.0	11	11	11	9.8	8.0	5.7	8.6	5.7	4.8	5.0	5.0	
1	7.4	8.3	9.2	6.4	15	15	15	13	10	7.4	11	10	6.6	6.4	6.4	
$1\frac{1}{8}$	9.3	10	12	8.1	19	19	19	16	13	9.3	14	13	8.3	8.1	8.1	
$1\frac{1}{4}$	11	13	14	9.9	23	23	23	20	16	11	17	16	13	9.9	9.9	

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).



**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

Hitch Type	Single-Leg										Two-Leg Bridle or Basket				Choker	
	Vertical					Horizontal Angle					Horizontal Angle					
	HT	MS	S	HT&MS	Choker	Vertical Basket	Vertical	60 deg	45 deg	30 deg	60 deg	45 deg	30 deg	HT&MS	HT&MS	
																
Rope Diameter, in.	HT	MS	S	HT&MS	Choker	Vertical Basket	Vertical	60 deg	45 deg	30 deg	60 deg	45 deg	30 deg	HT&MS	HT&MS	
$\frac{1}{4}$	0.54	0.56	0.60	0.42	1.1	1.1	1.1	0.94	0.77	0.54	0.73	0.54	0.36	0.73	0.42	
$\frac{5}{16}$	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.4	1.2	0.83	1.1	0.83	0.56	1.1	0.66	
$\frac{3}{8}$	1.2	1.2	1.3	0.94	2.4	2.4	2.4	2.0	1.7	1.2	1.6	1.2	0.87	1.6	0.94	
$\frac{7}{16}$	1.6	1.7	1.8	1.3	3.2	3.2	3.2	2.7	2.2	1.6	2.2	1.6	1.7	2.2	1.3	
$\frac{1}{2}$	2.0	2.2	2.4	1.6	4.0	4.0	4.0	3.5	2.9	2.0	2.9	2.0	2.2	2.9	1.6	
$\frac{9}{16}$	2.5	2.7	3.0	2.1	5.0	5.0	5.0	4.4	3.6	2.5	3.6	2.5	2.7	3.6	2.1	
$\frac{5}{8}$	3.1	3.4	3.7	2.6	6.2	6.2	6.2	5.3	4.4	3.1	4.5	3.1	3.4	4.5	2.6	
$\frac{3}{4}$	4.3	4.8	5.2	3.7	8.6	8.6	8.6	7.4	6.1	4.3	6.3	4.3	4.8	6.3	3.7	
$\frac{7}{8}$	5.7	6.6	7.1	5.0	11	11	11	9.8	8.0	5.7	8.6	5.7	6.6	8.6	5.0	
1	7.4	8.3	9.2	6.4	15	17	17	13	10	7.4	11	7.4	8.3	11	6.4	
$1\frac{1}{8}$	9.3	10	12	8.1	19	21	21	16	13	9.3	14	9.3	10	14	8.1	
$1\frac{1}{4}$	11	13	14	9.9	23	26	26	20	16	11	17	11	13	17	9.9	

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).

**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

Hitch Type	Single-Leg					Two-Leg Bridle or Basket					Choker			
	Vertical					Horizontal Angle					Horizontal Angle			
	Choker					Vertical					60 deg		30 deg	
	HT	MS	S	HT&MS		HT	MS	S	HT	MS	HT	MS	HT&MS	HT&MS
Rope Diameter, in.														
1/4	0.54	0.56	0.60	0.42	1.1	1.1	1.1	1.1	0.94	0.97	0.77	0.79	0.54	0.56
5/16	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.7	1.4	1.5	1.2	1.2	0.83	0.87
3/8	1.2	1.2	1.3	0.94	2.4	2.5	2.5	2.5	2.0	2.2	1.7	1.8	1.2	1.2
7/16	1.6	1.7	1.8	1.3	3.2	3.4	3.4	3.4	2.7	2.9	2.2	2.4	1.6	1.7
1/2	2.0	2.2	2.4	1.6	4.0	4.4	4.4	4.4	3.5	3.8	2.9	3.1	2.0	2.2
9/16	2.5	2.7	3.0	2.1	5.0	5.5	5.5	5.5	4.4	4.8	3.6	3.9	2.5	2.7
5/8	3.1	3.4	3.7	2.6	6.2	6.8	6.8	6.8	5.3	5.9	4.4	4.8	3.1	3.4
3/4	4.3	4.8	5.2	3.7	8.6	9.7	9.7	9.7	7.4	8.4	6.1	6.8	4.3	4.8
7/8	5.7	6.6	7.1	5.0	11	13	13	13	9.8	11	8.0	9.3	5.7	6.6
1	7.4	8.3	9.2	6.4	15	17	17	17	13	14	10	12	7.4	8.3
1 1/8	9.3	10	12	8.1	19	21	21	21	16	18	13	15	9.3	10
1 1/4	11	13	14	9.9	23	26	26	26	20	22	16	18	11	13

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).

**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

Hitch Type	Single-Leg					Two-Leg Bridle or Basket					Choker							
	Vertical					Horizontal Angle					Horizontal Angle							
	Choker					Vertical Basket					Vertical							
	HT	MS	S	HT&MS	Choker	HT	MS	S	HT&MS	HT	MS	HT	MS	60 deg	45 deg	30 deg	60 deg	30 deg
Rope Diameter, in.																		
1/4	0.54	0.56	0.60	0.42	1.1	1.1	1.1	1.1	1.1	0.94	0.97	0.77	0.79	0.54	0.56	0.73	0.42	
5/16	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.7	1.7	1.4	1.5	1.2	1.2	0.83	0.87	1.1	0.66	
3/8	1.2	1.2	1.3	0.94	2.4	2.4	2.5	2.5	2.5	2.0	2.2	1.7	1.8	1.2	1.2	1.6	0.94	
7/16	1.6	1.7	1.8	1.3	3.2	3.2	3.4	3.4	3.4	2.7	2.9	2.2	2.4	1.6	1.7	2.2	1.3	
1/2	2.0	2.2	2.4	1.6	4.0	4.0	4.4	4.4	4.4	3.5	3.8	2.9	3.1	2.0	2.2	2.9	1.6	
9/16	2.5	2.7	3.0	2.1	5.0	5.0	5.5	5.5	5.5	4.4	4.8	3.6	3.9	2.5	2.7	3.6	2.1	
5/8	3.1	3.4	3.7	2.6	6.2	6.2	6.8	6.8	6.8	5.3	5.9	4.4	4.8	3.1	3.4	4.5	2.6	
3/4	4.3	4.8	5.2	3.7	8.6	8.6	9.7	9.7	9.7	7.4	8.4	6.1	6.8	4.3	4.8	6.3	3.7	
7/8	5.7	6.6	7.1	5.0	11	11	13	13	13	9.8	11	8.0	9.3	5.7	6.6	8.6	5.0	
1	7.4	8.3	9.2	6.4	15	15	17	17	17	13	14	10	12	7.4	8.3	11	6.4	
1 1/8	9.3	10	12	8.1	19	19	21	21	21	16	18	13	15	9.3	10	14	8.1	
1 1/4	11	13	14	9.9	23	23	26	26	26	20	22	16	18	11	13	17	9.9	

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).



**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

Hitch Type	Single-Leg					Two-Leg Bridle or Basket					Choker			
	Vertical					Horizontal Angle					Horizontal Angle			
	Choker					Vertical					60 deg		30 deg	
	HT	MS	S	HT&MS		HT	MS	S	HT	MS	HT	MS	HT&MS	HT&MS
Rope Diameter, in.														
1/4	0.54	0.56	0.60	0.42	1.1	1.1	1.1	1.1	0.94	0.97	0.77	0.79	0.54	0.56
5/16	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.7	1.4	1.5	1.2	1.2	0.83	0.87
3/8	1.2	1.2	1.3	0.94	2.4	2.5	2.5	2.5	2.0	2.2	1.7	1.8	1.2	1.2
7/16	1.6	1.7	1.8	1.3	3.2	3.4	3.4	3.4	2.7	2.9	2.2	2.4	1.6	1.7
1/2	2.0	2.2	2.4	1.6	4.0	4.4	4.4	4.4	3.5	3.8	2.9	3.1	2.0	2.2
9/16	2.5	2.7	3.0	2.1	5.0	5.5	5.5	5.5	4.4	4.8	3.6	3.9	2.5	2.7
5/8	3.1	3.4	3.7	2.6	6.2	6.8	6.8	6.8	5.3	5.9	4.4	4.8	3.1	3.4
3/4	4.3	4.8	5.2	3.7	8.6	9.7	9.7	9.7	7.4	8.4	6.1	6.8	4.3	4.8
7/8	5.7	6.6	7.1	5.0	11	13	13	13	9.8	11	8.0	9.3	5.7	6.6
1	7.4	8.3	9.2	6.4	15	17	17	17	13	14	10	12	7.4	8.3
1 1/8	9.3	10	12	8.1	19	21	21	21	16	18	13	15	9.3	10
1 1/4	11	13	14	9.9	23	26	26	26	20	22	16	18	11	13

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).

**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

Hitch Type	Single-Leg					Two-Leg Bridle or Basket					Choker			
	Vertical					Horizontal Angle					Horizontal Angle			
	Choker					Vertical					60 deg		30 deg	
	HT	MS	S	HT&MS		HT	MS	S	HT	MS	HT	MS	HT&MS	HT&MS
Rope Diameter, in.														
1/4	0.54	0.56	0.60	0.42	1.1	1.1	1.1	1.1	0.94	0.97	0.77	0.79	0.54	0.56
5/16	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.7	1.4	1.5	1.2	1.2	0.83	0.87
3/8	1.2	1.2	1.3	0.94	2.4	2.5	2.5	2.5	2.0	2.2	1.7	1.8	1.2	1.2
7/16	1.6	1.7	1.8	1.3	3.2	3.4	3.4	3.4	2.7	2.9	2.2	2.4	1.6	1.7
1/2	2.0	2.2	2.4	1.6	4.0	4.4	4.4	4.4	3.5	3.8	2.9	3.1	2.0	2.2
9/16	2.5	2.7	3.0	2.1	5.0	5.5	5.5	5.5	4.4	4.8	3.6	3.9	2.5	2.7
5/8	3.1	3.4	3.7	2.6	6.2	6.8	6.8	6.8	5.3	5.9	4.4	4.8	3.1	3.4
3/4	4.3	4.8	5.2	3.7	8.6	9.7	9.7	9.7	7.4	8.4	6.1	6.8	4.3	4.8
7/8	5.7	6.6	7.1	5.0	11	13	13	13	9.8	11	8.0	9.3	5.7	6.6
1	7.4	8.3	9.2	6.4	15	17	17	17	13	14	10	12	7.4	8.3
1 1/8	9.3	10	12	8.1	19	21	21	21	16	18	13	15	9.3	10
1 1/4	11	13	14	9.9	23	26	26	26	20	22	16	18	11	13
				</										

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).

**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

Hitch Type	Single-Leg					Two-Leg Bridle or Basket					Choker					
	Vertical					Horizontal Angle					Horizontal Angle					
	Choker					Vertical Basket					Vertical					
	HT	MS	S	HT&MS	Choker	HT	MS	S	HT	MS	HT	MS	60 deg	30 deg	60 deg	30 deg
Rope Diameter, in.																
1/4	0.54	0.56	0.60	0.42	1.1	1.1	1.1	1.1	0.94	0.77	0.79	0.54	0.56	0.73	0.42	
5/16	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.7	1.4	1.2	1.2	0.83	0.87	1.1	0.66	
3/8	1.2	1.2	1.3	0.94	2.4	2.4	2.5	2.5	2.0	1.7	1.8	1.2	1.2	1.6	0.94	
7/16	1.6	1.7	1.8	1.3	3.2	3.2	3.4	3.4	2.7	2.2	2.4	1.6	1.7	2.2	1.3	
1/2	2.0	2.2	2.4	1.6	4.0	4.0	4.4	4.4	3.5	2.9	3.1	2.0	2.2	2.9	1.6	
9/16	2.5	2.7	3.0	2.1	5.0	5.0	5.5	5.5	4.4	3.6	3.9	2.5	2.7	3.6	2.1	
5/8	3.1	3.4	3.7	2.6	6.2	6.2	6.8	6.8	5.3	4.4	4.8	3.1	3.4	4.5	2.6	
3/4	4.3	4.8	5.2	3.7	8.6	8.6	9.7	9.7	7.4	6.1	6.8	4.3	4.8	6.3	3.7	
7/8	5.7	6.6	7.1	5.0	11	11	13	13	9.8	8.0	9.3	5.7	6.6	8.6	5.0	
1	7.4	8.3	9.2	6.4	15	15	17	17	13	10	12	7.4	8.3	11	6.4	
1 1/8	9.3	10	12	8.1	19	19	21	21	16	13	15	9.3	10	14	8.1	
1 1/4	11	13	14	9.9	23	23	26	26	20	16	18	11	13	17	9.9	

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).



**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

Hitch Type	Single-Leg					Two-Leg Bridle or Basket					Choker					
	Vertical					Horizontal Angle					Horizontal Angle					
	Choker					Vertical					60 deg		30 deg			
	HT	MS	S	HT&MS		HT	MS	S	HT	MS	HT	MS	HT&MS			
Rope Diameter, in.																
1/4	0.54	0.56	0.60	0.42	1.1	1.1	1.1	1.1	0.94	0.97	0.77	0.79	0.54	0.56	0.73	0.42
5/16	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.7	1.4	1.5	1.2	1.2	0.83	0.87	1.1	0.66
3/8	1.2	1.2	1.3	0.94	2.4	2.5	2.5	2.5	2.0	2.2	1.7	1.8	1.2	1.2	1.6	0.94
7/16	1.6	1.7	1.8	1.3	3.2	3.4	3.4	3.4	2.7	2.9	2.2	2.4	1.6	1.7	2.2	1.3
1/2	2.0	2.2	2.4	1.6	4.0	4.4	4.4	4.4	3.5	3.8	2.9	3.1	2.0	2.2	2.9	1.6
9/16	2.5	2.7	3.0	2.1	5.0	5.5	5.5	5.5	4.4	4.8	3.6	3.9	2.5	2.7	3.6	2.1
5/8	3.1	3.4	3.7	2.6	6.2	6.8	6.8	6.8	5.3	5.9	4.4	4.8	3.1	3.4	4.5	2.6
3/4	4.3	4.8	5.2	3.7	8.6	9.7	9.7	9.7	7.4	8.4	6.1	6.8	4.3	4.8	6.3	3.7
7/8	5.7	6.6	7.1	5.0	11	13	13	13	9.8	11	8.0	9.3	5.7	6.6	8.6	5.0
1	7.4	8.3	9.2	6.4	15	17	17	17	13	14	10	12	7.4	8.3	11	6.4
1 1/8	9.3	10	12	8.1	19	21	21	21	16	18	13	15	9.3	10	14	8.1
1 1/4	11	13	14	9.9	23	26	26	26	20	22	16	18	11	13	17	9.9

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).

**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

Hitch Type	Single-Leg					Two-Leg Bridle or Basket					Choker			
						Horizontal Angle					Horizontal Angle			
	Vertical	Choker	Vertical Basket	Vertical	60 deg	45 deg	30 deg	60 deg	45 deg	30 deg	60 deg	30 deg		
	HT	MS	S	HT&MS	HT	MS	S	HT	MS	HT	MS	HT&MS		
Rope Diameter, in.														
1/4	0.54	0.56	0.60	0.42	1.1	1.1	1.1	1.1	0.94	0.77	0.79	0.54	0.73	0.42
5/16	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.7	1.4	1.2	1.2	0.83	1.1	0.66
3/8	1.2	1.2	1.3	0.94	2.4	2.5	2.5	2.4	2.0	1.7	1.8	1.2	1.6	0.94
7/16	1.6	1.7	1.8	1.3	3.2	3.4	3.4	3.2	2.7	2.2	2.4	1.6	2.2	1.3
1/2	2.0	2.2	2.4	1.6	4.0	4.4	4.4	4.0	3.5	2.9	3.1	2.0	2.9	1.6
9/16	2.5	2.7	3.0	2.1	5.0	5.5	5.5	5.0	4.4	3.6	3.9	2.5	3.6	2.1
5/8	3.1	3.4	3.7	2.6	6.2	6.8	6.8	6.2	5.3	4.4	4.8	3.1	4.5	2.6
3/4	4.3	4.8	5.2	3.7	8.6	9.7	9.7	8.6	7.4	6.1	6.8	4.3	6.3	3.7
7/8	5.7	6.6	7.1	5.0	11	13	13	11	9.8	8.0	9.3	5.7	8.6	5.0
1	7.4	8.3	9.2	6.4	15	17	17	15	13	10	12	7.4	11	6.4
1 1/8	9.3	10	12	8.1	19	21	21	19	16	13	15	9.3	14	8.1
1 1/4	11	13	14	9.9	23	26	26	23	20	16	18	11	17	9.9

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).

**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)






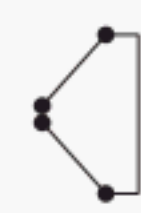
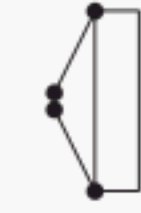

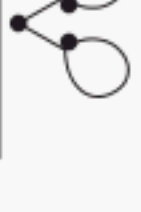
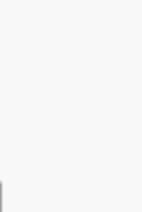
Hitch Type	Single-Leg					Two-Leg Bridle or Basket					Choker			
	Vertical					Horizontal Angle					Horizontal Angle			
	Choker					Vertical Basket					Horizontal Angle			
	HT	MS	S	HT&MS	Choker	HT	MS	S	HT	MS	HT	MS	60 deg	30 deg
Rope Diameter, in.														
1/4	0.54	0.56	0.60	0.42	1.1	1.1	1.1	1.1	0.94	0.97	0.77	0.79	0.54	0.56
5/16	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.7	1.4	1.5	1.2	1.2	0.83	0.87
3/8	1.2	1.2	1.3	0.94	2.4	2.5	2.5	2.5	2.0	2.2	1.7	1.8	1.2	1.2
7/16	1.6	1.7	1.8	1.3	3.2	3.4	3.4	3.4	2.7	2.9	2.2	2.4	1.6	1.7
1/2	2.0	2.2	2.4	1.6	4.0	4.4	4.4	4.4	3.5	3.8	2.9	3.1	2.0	2.2
9/16	2.5	2.7	3.0	2.1	5.0	5.5	5.5	5.5	4.4	4.8	3.6	3.9	2.5	2.7
5/8	3.1	3.4	3.7	2.6	6.2	6.8	6.8	6.8	5.3	5.9	4.4	4.8	3.1	3.4
3/4	4.3	4.8	5.2	3.7	8.6	9.7	9.7	9.7	7.4	8.4	6.1	6.8	4.3	4.8
7/8	5.7	6.6	7.1	5.0	11	13	13	13	9.8	11	8.0	9.3	5.7	6.6
1	7.4	8.3	9.2	6.4	15	17	17	17	13	14	10	12	7.4	8.3
1 1/8	9.3	10	12	8.1	19	21	21	21	16	18	13	15	9.3	10
1 1/4	11	13	14	9.9	23	26	26	26	20	22	16	18	11	13

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).








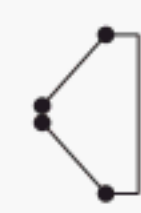
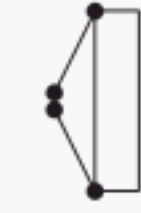


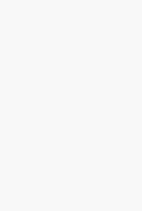
**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

Hitch Type	Single-Leg										Two-Leg Bridle or Basket				Choker	
	Vertical					Horizontal Angle					Horizontal Angle					
	HT	MS	S	HT&MS	Choker	Vertical Basket	Vertical	60 deg	45 deg	30 deg	60 deg	45 deg	30 deg	HT&MS	HT&MS	
																
Rope Diameter, in.	HT	MS	S	HT&MS	Choker	Vertical Basket	Vertical	60 deg	45 deg	30 deg	60 deg	45 deg	30 deg	HT&MS	HT&MS	
$\frac{1}{4}$	0.54	0.56	0.60	0.42	1.1	1.1	1.1	0.94	0.77	0.54	0.73	0.54	0.36	0.73	0.42	
$\frac{5}{16}$	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.4	1.2	0.83	1.1	0.83	0.56	1.1	0.66	
$\frac{3}{8}$	1.2	1.2	1.3	0.94	2.4	2.4	2.4	2.0	1.7	1.2	1.6	1.2	0.87	1.6	0.94	
$\frac{7}{16}$	1.6	1.7	1.8	1.3	3.2	3.2	3.2	2.7	2.2	1.6	2.2	1.6	1.2	2.2	1.3	
$\frac{1}{2}$	2.0	2.2	2.4	1.6	4.0	4.0	4.0	3.5	2.9	2.0	2.9	2.0	1.7	2.9	1.6	
$\frac{9}{16}$	2.5	2.7	3.0	2.1	5.0	5.0	5.0	4.4	3.6	2.5	3.6	2.5	2.7	3.6	2.1	
$\frac{5}{8}$	3.1	3.4	3.7	2.6	6.2	6.2	6.2	5.3	4.4	3.1	4.5	3.1	3.4	4.5	2.6	
$\frac{3}{4}$	4.3	4.8	5.2	3.7	8.6	8.6	8.6	7.4	6.1	4.3	6.3	4.3	4.8	6.3	3.7	
$\frac{7}{8}$	5.7	6.6	7.1	5.0	11	11	11	9.8	8.0	5.7	8.6	5.7	6.6	8.6	5.0	
1	7.4	8.3	9.2	6.4	15	15	15	13	10	7.4	11	7.4	8.3	11	6.4	
$1\frac{1}{8}$	9.3	10	12	8.1	19	19	19	16	13	9.3	14	9.3	10	14	8.1	
$1\frac{1}{4}$	11	13	14	9.9	23	23	23	20	16	11	17	11	13	17	9.9	

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).

**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

Hitch Type	Single-Leg										Two-Leg Bridle or Basket				Choker	
	Vertical					Horizontal Angle					Horizontal Angle					
	HT	MS	S	HT&MS	Choker	Vertical Basket	Vertical	60 deg	45 deg	30 deg	60 deg	45 deg	30 deg	HT&MS	HT&MS	
																
Rope Diameter, in.	HT	MS	S	HT&MS	Choker	Vertical Basket	Vertical	60 deg	45 deg	30 deg	60 deg	45 deg	30 deg	HT&MS	HT&MS	
$\frac{1}{4}$	0.54	0.56	0.60	0.42	1.1	1.1	1.1	1.1	0.94	0.77	0.79	0.54	0.56	0.73	0.42	
$\frac{5}{16}$	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.7	1.4	1.2	1.2	0.83	0.87	1.1	0.66	
$\frac{3}{8}$	1.2	1.2	1.3	0.94	2.4	2.5	2.5	2.4	2.0	1.7	1.8	1.2	1.2	1.6	0.94	
$\frac{7}{16}$	1.6	1.7	1.8	1.3	3.2	3.4	3.4	3.2	2.7	2.2	2.4	1.6	1.7	2.2	1.3	
$\frac{1}{2}$	2.0	2.2	2.4	1.6	4.0	4.4	4.5	4.0	3.5	2.9	3.1	2.0	2.2	2.9	1.6	
$\frac{9}{16}$	2.5	2.7	3.0	2.1	5.0	5.5	5.5	5.0	4.4	4.8	3.9	2.5	2.7	3.6	2.1	
$\frac{5}{8}$	3.1	3.4	3.7	2.6	6.2	6.8	6.8	6.2	5.3	5.9	4.8	3.1	3.4	4.5	2.6	
$\frac{3}{4}$	4.3	4.8	5.2	3.7	8.6	9.7	9.7	8.6	7.4	8.4	6.8	4.3	4.8	6.3	3.7	
$\frac{7}{8}$	5.7	6.6	7.1	5.0	11	13	13	11	9.8	11	9.3	5.7	6.6	8.6	5.0	
1	7.4	8.3	9.2	6.4	15	17	17	15	13	14	12	7.4	8.3	11	6.4	
$1\frac{1}{8}$	9.3	10	12	8.1	19	21	21	19	16	18	15	9.3	10	14	8.1	
$1\frac{1}{4}$	11	13	14	9.9	23	26	26	23	20	22	18	11	13	17	9.9	

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).

**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

Hitch Type	Single-Leg					Two-Leg Bridle or Basket					Choker			
	Vertical					Horizontal Angle					Horizontal Angle			
	Choker					Vertical Basket					Horizontal Angle			
	HT	MS	S	HT&MS	Choker	HT	MS	S	HT	MS	HT	MS	60 deg	30 deg
Rope Diameter, in.														
1/4	0.54	0.56	0.60	0.42	1.1	1.1	1.1	1.1	0.94	0.97	0.77	0.79	0.54	0.56
5/16	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.7	1.4	1.5	1.2	1.2	0.83	0.87
3/8	1.2	1.2	1.3	0.94	2.4	2.5	2.5	2.5	2.0	2.2	1.7	1.8	1.2	1.2
7/16	1.6	1.7	1.8	1.3	3.2	3.4	3.4	3.4	2.7	2.9	2.2	2.4	1.6	1.7
1/2	2.0	2.2	2.4	1.6	4.0	4.4	4.4	4.4	3.5	3.8	2.9	3.1	2.0	2.2
9/16	2.5	2.7	3.0	2.1	5.0	5.5	5.5	5.5	4.4	4.8	3.6	3.9	2.5	2.7
5/8	3.1	3.4	3.7	2.6	6.2	6.8	6.8	6.8	5.3	5.9	4.4	4.8	3.1	3.4
3/4	4.3	4.8	5.2	3.7	8.6	9.7	9.7	9.7	7.4	8.4	6.1	6.8	4.3	4.8
7/8	5.7	6.6	7.1	5.0	11	13	13	13	9.8	11	8.0	9.3	5.7	6.6
1	7.4	8.3	9.2	6.4	15	17	17	17	13	14	10	12	7.4	8.3
1 1/8	9.3	10	12	8.1	19	21	21	21	16	18	13	15	9.3	10
1 1/4	11	13	14	9.9	23	26	26	26	20	22	16	18	11	13

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).



**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

Hitch Type	Single-Leg					Two-Leg Bridle or Basket					Choker				
	Vertical					Horizontal Angle					Horizontal Angle				
	Choker					Vertical					60 deg		30 deg		
	HT	MS	S	HT&MS		HT	MS	S	HT	MS	HT	MS	HT&MS	HT&MS	
Rope Diameter, in.															
1/4	0.54	0.56	0.60	0.42	1.1	1.1	1.1	1.1	0.94	0.97	0.77	0.79	0.54	0.56	0.42
5/16	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.7	1.4	1.5	1.2	1.2	0.83	0.87	0.66
3/8	1.2	1.2	1.3	0.94	2.4	2.5	2.5	2.5	2.0	2.2	1.7	1.8	1.2	1.2	0.94
7/16	1.6	1.7	1.8	1.3	3.2	3.4	3.4	3.4	2.7	2.9	2.2	2.4	1.6	1.7	1.3
1/2	2.0	2.2	2.4	1.6	4.0	4.4	4.4	4.4	3.5	3.8	2.9	3.1	2.0	2.2	1.6
9/16	2.5	2.7	3.0	2.1	5.0	5.5	5.5	5.5	4.4	4.8	3.6	3.9	2.5	2.7	2.1
5/8	3.1	3.4	3.7	2.6	6.2	6.8	6.8	6.8	5.3	5.9	4.4	4.8	3.1	3.4	2.6
3/4	4.3	4.8	5.2	3.7	8.6	9.7	9.7	9.7	7.4	8.4	6.1	6.8	4.3	4.8	3.7
7/8	5.7	6.6	7.1	5.0	11	13	13	13	9.8	11	8.0	9.3	5.7	6.6	5.0
1	7.4	8.3	9.2	6.4	15	17	17	17	13	14	10	12	7.4	8.3	6.4
1 1/8	9.3	10	12	8.1	19	21	21	21	16	18	13	15	9.3	10	8.1
1 1/4	11	13	14	9.9	23	26	26	26	20	22	16	18	11	13	9.9

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).

**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

Hitch Type	Single-Leg					Two-Leg Bridle or Basket					Choker				
	Vertical					Horizontal Angle					Horizontal Angle				
	Choker					Vertical					60 deg		30 deg		
	HT	MS	S	HT&MS	Choker	Vertical					60 deg		30 deg		
Rope Diameter, in.															
1/4	0.54	0.56	0.60	0.42	1.1	1.1	1.1	0.94	0.77	0.54	0.73	0.56		0.42	
5/16	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.4	1.2	0.83	1.1	0.87		0.66	
3/8	1.2	1.2	1.3	0.94	2.4	2.5	2.5	2.0	1.7	1.2	1.6	1.2		0.94	
7/16	1.6	1.7	1.8	1.3	3.2	3.4	3.4	2.7	2.2	1.6	2.2	1.7		1.3	
1/2	2.0	2.2	2.4	1.6	4.0	4.4	4.4	3.5	2.9	2.0	2.9	2.2		1.6	
9/16	2.5	2.7	3.0	2.1	5.0	5.5	5.5	4.4	3.6	2.5	3.6	2.7		2.1	
5/8	3.1	3.4	3.7	2.6	6.2	6.8	6.8	5.3	4.4	3.1	4.5	3.4		2.6	
3/4	4.3	4.8	5.2	3.7	8.6	9.7	9.7	7.4	6.1	4.3	6.3	4.8		3.7	
7/8	5.7	6.6	7.1	5.0	11	13	13	9.8	8.0	5.7	8.6	6.6		5.0	
1	7.4	8.3	9.2	6.4	15	17	17	13	10	7.4	11	8.3		6.4	
1 1/8	9.3	10	12	8.1	19	21	21	16	13	9.3	14	10		8.1	
1 1/4	11	13	14	9.9	23	26	26	20	16	11	17	13		9.9	

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).

**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

Hitch Type	Single-Leg					Two-Leg Bridle or Basket					Choker		
	Vertical					Horizontal Angle					Horizontal Angle		
	Choker					Vertical					30 deg		
	HT	MS	S	HT&MS	HT	MS	S	HT	MS	HT	MS	60 deg	30 deg
Rope Diameter, in.													
1/4	0.54	0.56	0.60	0.42	1.1	1.1	1.1	0.94	0.77	0.54	0.56	0.73	0.42
5/16	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.4	1.2	0.83	0.87	1.1	0.66
3/8	1.2	1.2	1.3	0.94	2.4	2.5	2.5	2.0	1.7	1.2	1.2	1.6	0.94
7/16	1.6	1.7	1.8	1.3	3.2	3.4	3.4	2.7	2.2	1.6	1.7	2.2	1.3
1/2	2.0	2.2	2.4	1.6	4.0	4.4	4.4	3.5	2.9	2.0	2.2	2.9	1.6
9/16	2.5	2.7	3.0	2.1	5.0	5.5	5.5	4.4	3.6	2.5	2.7	3.6	2.1
5/8	3.1	3.4	3.7	2.6	6.2	6.8	6.8	5.3	4.4	3.1	3.4	4.5	2.6
3/4	4.3	4.8	5.2	3.7	8.6	9.7	9.7	7.4	6.1	4.3	4.8	6.3	3.7
7/8	5.7	6.6	7.1	5.0	11	13	13	9.8	8.0	5.7	6.6	8.6	5.0
1	7.4	8.3	9.2	6.4	15	17	17	13	10	7.4	8.3	11	6.4
1 1/8	9.3	10	12	8.1	19	21	21	16	13	9.3	10	14	8.1
1 1/4	11	13	14	9.9	23	26	26	20	16	11	13	17	9.9

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).



**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

Hitch Type	Single-Leg					Two-Leg Bridle or Basket					Choker		
						Horizontal Angle					Horizontal Angle		
						Vertical	60 deg		45 deg	30 deg	60 deg	30 deg	
	HT	MS	S	HT&MS	Choker	Vertical Basket							
1/4	0.54	0.56	0.60	0.42									
5/16	0.83	0.87	0.94	0.66									
3/8	1.2	1.2	1.3	0.94									
7/16	1.6	1.7	1.8	1.3									
1/2	2.0	2.2	2.4	1.6									
9/16	2.5	2.7	3.0	2.1									
5/8	3.1	3.4	3.7	2.6									
3/4	4.3	4.8	5.2	3.7									
7/8	5.7	6.6	7.1	5.0									
1	7.4	8.3	9.2	6.4									
1 1/8	9.3	10	12	8.1									
1 1/4	11	13	14	9.9									

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).










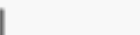
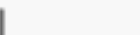
**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

Hitch Type	Single-Leg					Two-Leg Bridle or Basket					Choker		
	Vertical					Horizontal Angle					Horizontal Angle		
	Choker					Vertical					30 deg		
	HT	MS	S	HT&MS	HT	MS	S	HT	MS	HT	MS	60 deg	30 deg
Rope Diameter, in.													
1/4	0.54	0.56	0.60	0.42	1.1	1.1	1.1	0.94	0.97	0.77	0.79	0.54	0.56
5/16	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.4	1.5	1.2	1.2	0.83	0.87
3/8	1.2	1.2	1.3	0.94	2.4	2.5	2.5	2.0	2.2	1.7	1.8	1.2	1.2
7/16	1.6	1.7	1.8	1.3	3.2	3.4	3.4	2.7	2.9	2.2	2.4	1.6	1.7
1/2	2.0	2.2	2.4	1.6	4.0	4.4	4.4	3.5	3.8	2.9	3.1	2.0	2.2
9/16	2.5	2.7	3.0	2.1	5.0	5.5	5.5	4.4	4.8	3.6	3.9	2.5	2.7
5/8	3.1	3.4	3.7	2.6	6.2	6.8	6.8	5.3	5.9	4.4	4.8	3.1	3.4
3/4	4.3	4.8	5.2	3.7	8.6	9.7	9.7	7.4	8.4	6.1	6.8	4.3	4.8
7/8	5.7	6.6	7.1	5.0	11	13	13	9.8	11	8.0	9.3	5.7	6.6
1	7.4	8.3	9.2	6.4	15	17	17	13	14	10	12	7.4	8.3
1 1/8	9.3	10	12	8.1	19	21	21	16	18	13	15	9.3	10
1 1/4	11	13	14	9.9	23	26	26	20	22	16	18	11	13
									</				

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).

**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

Hitch Type	Single-Leg					Two-Leg Bridle or Basket					Choker				
						Horizontal Angle					Horizontal Angle				
	Vertical	Choker	Vertical Basket	Vertical	60 deg	45 deg	30 deg	60 deg	45 deg	30 deg	60 deg	30 deg			
															
Rope Diameter, in.	HT	MS	S	HT&MS	HT	MS	S	HT	MS	HT	MS	HT	MS	HT&MS	HT&MS
1/4	0.54	0.56	0.60	0.42	1.1	1.1	1.1	1.1	0.94	0.77	0.79	0.54	0.56	0.73	0.42
5/16	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.7	1.4	1.2	1.2	0.83	0.87	1.1	0.66
3/8	1.2	1.2	1.3	0.94	2.4	2.5	2.5	2.4	2.0	1.7	1.8	1.2	1.2	1.6	0.94
7/16	1.6	1.7	1.8	1.3	3.2	3.4	3.4	3.2	2.7	2.2	2.4	1.6	1.7	2.2	1.3
1/2	2.0	2.2	2.4	1.6	4.0	4.4	4.4	4.0	3.5	2.9	3.1	2.0	2.2	2.9	1.6
9/16	2.5	2.7	3.0	2.1	5.0	5.5	5.5	5.0	4.4	3.6	3.9	2.5	2.7	3.6	2.1
5/8	3.1	3.4	3.7	2.6	6.2	6.8	6.8	6.2	5.3	4.4	4.8	3.1	3.4	4.5	2.6
3/4	4.3	4.8	5.2	3.7	8.6	9.7	9.7	8.6	7.4	6.1	6.8	4.3	4.8	6.3	3.7
7/8	5.7	6.6	7.1	5.0	11	13	13	11	9.8	8.0	9.3	5.7	6.6	8.6	5.0
1	7.4	8.3	9.2	6.4	15	17	17	15	13	10	12	7.4	8.3	11	6.4
1 1/8	9.3	10	12	8.1	19	21	21	19	16	13	15	9.3	10	14	8.1
1 1/4	11	13	14	9.9	23	26	26	23	20	16	18	11	13	17	9.9

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).



**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

Hitch Type	Single-Leg										Two-Leg Bridle or Basket				Choker	
	Vertical					Horizontal Angle					Horizontal Angle					
	HT	MS	S	HT&MS	Choker	Vertical Basket	Vertical	60 deg	45 deg	30 deg	60 deg	45 deg	30 deg	HT&MS	HT&MS	
<b>Rope Diameter, in.</b>																
$\frac{1}{4}$	0.54	0.56	0.60	0.42	1.1	1.1	1.1	1.1	0.94	0.97	0.77	0.79	0.54	0.56	0.73	0.42
$\frac{5}{16}$	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.7	1.4	1.5	1.2	1.2	0.83	0.87	1.1	0.66
$\frac{3}{8}$	1.2	1.2	1.3	0.94	2.4	2.5	2.5	2.4	2.0	2.2	1.7	1.8	1.2	1.2	1.6	0.94
$\frac{7}{16}$	1.6	1.7	1.8	1.3	3.2	3.4	3.4	3.2	2.7	2.9	2.2	2.4	1.6	1.7	2.2	1.3
$\frac{1}{2}$	2.0	2.2	2.4	1.6	4.0	4.4	4.4	4.0	3.5	3.8	2.9	3.1	2.0	2.2	2.9	1.6
$\frac{9}{16}$	2.5	2.7	3.0	2.1	5.0	5.5	5.5	5.0	4.4	4.8	3.6	3.9	2.5	2.7	3.6	2.1
$\frac{5}{8}$	3.1	3.4	3.7	2.6	6.2	6.8	6.8	6.2	5.3	5.9	4.4	4.8	3.1	3.4	4.5	2.6
$\frac{3}{4}$	4.3	4.8	5.2	3.7	8.6	9.7	9.7	8.6	7.4	8.4	6.1	6.8	4.3	4.8	6.3	3.7
$\frac{7}{8}$	5.7	6.6	7.1	5.0	11	13	13	11	9.8	11	8.0	9.3	5.7	6.6	8.6	5.0
1	7.4	8.3	9.2	6.4	15	17	17	15	13	14	10	12	7.4	8.3	11	6.4
$1\frac{1}{8}$	9.3	10	12	8.1	19	21	21	19	16	18	13	15	9.3	10	14	8.1
$1\frac{1}{4}$	11	13	14	9.9	23	26	26	23	20	22	16	18	11	13	17	9.9

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).

**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

Hitch Type	Single-Leg					Two-Leg Bridle or Basket					Choker					
	Vertical					Horizontal Angle					Horizontal Angle					
	Choker					Vertical					60 deg		30 deg			
	HT	MS	S	HT&MS		HT	MS	S	HT	MS	HT	MS	HT&MS			
Rope Diameter, in.																
1/4	0.54	0.56	0.60	0.42	1.1	1.1	1.1	1.1	0.94	0.97	0.77	0.79	0.54	0.56	0.73	0.42
5/16	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.7	1.4	1.5	1.2	1.2	0.83	0.87	1.1	0.66
3/8	1.2	1.2	1.3	0.94	2.4	2.5	2.5	2.5	2.0	2.2	1.7	1.8	1.2	1.2	1.6	0.94
7/16	1.6	1.7	1.8	1.3	3.2	3.4	3.4	3.4	2.7	2.9	2.2	2.4	1.6	1.7	2.2	1.3
1/2	2.0	2.2	2.4	1.6	4.0	4.4	4.4	4.4	3.5	3.8	2.9	3.1	2.0	2.2	2.9	1.6
9/16	2.5	2.7	3.0	2.1	5.0	5.5	5.5	5.5	4.4	4.8	3.6	3.9	2.5	2.7	3.6	2.1
5/8	3.1	3.4	3.7	2.6	6.2	6.8	6.8	6.8	5.3	5.9	4.4	4.8	3.1	3.4	4.5	2.6
3/4	4.3	4.8	5.2	3.7	8.6	9.7	9.7	9.7	7.4	8.4	6.1	6.8	4.3	4.8	6.3	3.7
7/8	5.7	6.6	7.1	5.0	11	13	13	13	9.8	11	8.0	9.3	5.7	6.6	8.6	5.0
1	7.4	8.3	9.2	6.4	15	17	17	17	13	14	10	12	7.4	8.3	11	6.4
1 1/8	9.3	10	12	8.1	19	21	21	21	16	18	13	15	9.3	10	14	8.1
1 1/4	11	13	14	9.9	23	26	26	26	20	22	16	18	11	13	17	9.9

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).

**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)





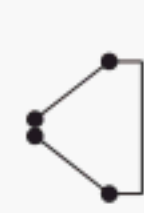
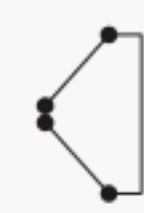

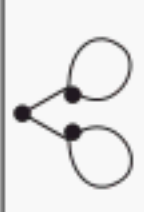

Hitch Type	Single-Leg					Two-Leg Bridle or Basket					Choker		
	Vertical					Horizontal Angle					Horizontal Angle		
	Choker					Vertical					30 deg		
	HT	MS	S	HT&MS	HT	MS	S	HT	MS	HT	MS	60 deg	30 deg
Rope Diameter, in.													
1/4	0.54	0.56	0.60	0.42	1.1	1.1	1.1	0.94	0.77	0.54	0.56	0.73	0.42
5/16	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.4	1.2	0.83	0.87	1.1	0.66
3/8	1.2	1.2	1.3	0.94	2.4	2.5	2.5	2.0	1.7	1.2	1.2	1.6	0.94
7/16	1.6	1.7	1.8	1.3	3.2	3.4	3.4	2.7	2.2	1.6	1.7	2.2	1.3
1/2	2.0	2.2	2.4	1.6	4.0	4.4	4.4	3.5	2.9	2.0	2.2	2.9	1.6
9/16	2.5	2.7	3.0	2.1	5.0	5.5	5.5	4.4	3.6	2.5	2.7	3.6	2.1
5/8	3.1	3.4	3.7	2.6	6.2	6.8	6.8	5.3	4.4	3.1	3.4	4.5	2.6
3/4	4.3	4.8	5.2	3.7	8.6	9.7	9.7	7.4	6.1	4.3	4.8	6.3	3.7
7/8	5.7	6.6	7.1	5.0	11	13	13	9.8	8.0	5.7	6.6	8.6	5.0
1	7.4	8.3	9.2	6.4	15	17	17	13	10	7.4	8.3	11	6.4
1 1/8	9.3	10	12	8.1	19	21	21	16	13	9.3	10	14	8.1
1 1/4	11	13	14	9.9	23	26	26	20	16	11	13	17	9.9

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).







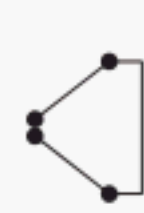
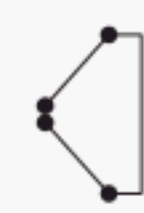

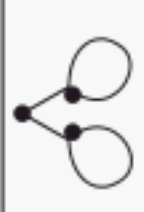

**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

Hitch Type	Single-Leg					Two-Leg Bridle or Basket					Choker		
	Vertical	Choker	Vertical Basket	Vertical	60 deg	45 deg	30 deg	60 deg	45 deg	30 deg	60 deg	30 deg	
													
Rope Diameter, in.	HT	MS	S	HT&MS	HT	MS	S	HT	MS	HT	MS	HT&MS	HT&MS
1/4	0.54	0.56	0.60	0.42	1.1	1.1	1.1	0.94	0.97	0.77	0.79	0.54	0.56
5/16	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.4	1.5	1.2	1.2	0.83	0.87
3/8	1.2	1.2	1.3	0.94	2.4	2.5	2.5	2.0	2.2	1.7	1.8	1.2	1.2
7/16	1.6	1.7	1.8	1.3	3.2	3.4	3.4	2.7	2.9	2.2	2.4	1.6	1.7
1/2	2.0	2.2	2.4	1.6	4.0	4.4	4.4	3.5	3.8	2.9	3.1	2.0	2.2
9/16	2.5	2.7	3.0	2.1	5.0	5.5	5.5	4.4	4.8	3.6	3.9	2.5	2.7
5/8	3.1	3.4	3.7	2.6	6.2	6.8	6.8	5.3	5.9	4.4	4.8	3.1	3.4
3/4	4.3	4.8	5.2	3.7	8.6	9.7	9.7	7.4	8.4	6.1	6.8	4.3	4.8
7/8	5.7	6.6	7.1	5.0	11	13	13	9.8	11	8.0	9.3	5.7	6.6
1	7.4	8.3	9.2	6.4	15	17	17	13	14	10	12	7.4	8.3
1 1/8	9.3	10	12	8.1	19	21	21	16	18	13	15	9.3	10
1 1/4	11	13	14	9.9	23	26	26	20	22	16	18	11	13

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).

**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

Hitch Type	Single-Leg					Two-Leg Bridle or Basket					Choker			
	Vertical	Choker	Vertical Basket	Vertical	60 deg	45 deg	30 deg	60 deg	45 deg	30 deg	60 deg	30 deg		
														
Rope Diameter, in.	HT	MS	S	HT&MS	HT	MS	S	HT	MS	HT	MS	HT&MS	HT&MS	
1/4	0.54	0.56	0.60	0.42	1.1	1.1	1.1	0.94	0.77	0.79	0.54	0.56	0.73	0.42
5/16	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.4	1.2	1.2	0.83	0.87	1.1	0.66
3/8	1.2	1.2	1.3	0.94	2.4	2.5	2.5	2.0	1.7	1.8	1.2	1.2	1.6	0.94
7/16	1.6	1.7	1.8	1.3	3.2	3.4	3.4	2.7	2.2	2.4	1.6	1.7	2.2	1.3
1/2	2.0	2.2	2.4	1.6	4.0	4.4	4.4	3.5	2.9	3.1	2.0	2.2	2.9	1.6
9/16	2.5	2.7	3.0	2.1	5.0	5.5	5.5	4.4	3.6	3.9	2.5	2.7	3.6	2.1
5/8	3.1	3.4	3.7	2.6	6.2	6.8	6.8	5.3	4.4	4.8	3.1	3.4	4.5	2.6
3/4	4.3	4.8	5.2	3.7	8.6	9.7	9.7	7.4	6.1	6.8	4.3	4.8	6.3	3.7
7/8	5.7	6.6	7.1	5.0	11	13	13	9.8	8.0	9.3	5.7	6.6	8.6	5.0
1	7.4	8.3	9.2	6.4	15	17	17	13	10	12	7.4	8.3	11	6.4
1 1/8	9.3	10	12	8.1	19	21	21	16	13	15	9.3	10	14	8.1
1 1/4	11	13	14	9.9	23	26	26	20	16	18	11	13	17	9.9

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).

**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

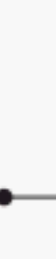


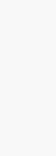
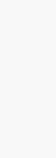



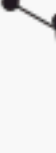
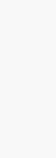


Hitch Type	Single-Leg										Two-Leg Bridle or Basket				Choker	
	Vertical					Horizontal Angle					Horizontal Angle					
	HT	MS	S	HT&MS	Choker	Vertical Basket	Vertical	60 deg	45 deg	30 deg	60 deg	45 deg	30 deg	HT&MS	HT&MS	
<b>Rope Diameter, in.</b>																
$\frac{1}{4}$	0.54	0.56	0.60	0.42	1.1	1.1	1.1	0.94	0.77	0.54	0.73	0.54	0.56	0.73	0.42	
$\frac{5}{16}$	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.4	1.2	0.83	1.1	1.2	0.87	1.1	0.66	
$\frac{3}{8}$	1.2	1.2	1.3	0.94	2.4	2.5	2.5	2.0	1.7	1.2	1.6	1.7	1.2	1.6	0.94	
$\frac{7}{16}$	1.6	1.7	1.8	1.3	3.2	3.4	3.4	2.7	2.2	1.6	2.2	2.4	1.7	2.2	1.3	
$\frac{1}{2}$	2.0	2.2	2.4	1.6	4.0	4.4	4.4	3.5	2.9	2.0	2.9	3.1	2.2	2.9	1.6	
$\frac{9}{16}$	2.5	2.7	3.0	2.1	5.0	5.5	5.5	4.4	3.6	2.5	3.6	3.9	2.7	3.6	2.1	
$\frac{5}{8}$	3.1	3.4	3.7	2.6	6.2	6.8	6.8	5.3	4.4	3.1	4.5	4.8	3.4	4.5	2.6	
$\frac{3}{4}$	4.3	4.8	5.2	3.7	8.6	9.7	9.7	7.4	6.1	4.3	6.3	6.8	4.8	6.3	3.7	
$\frac{7}{8}$	5.7	6.6	7.1	5.0	11	13	13	9.8	8.0	5.7	8.6	9.3	6.6	8.6	5.0	
1	7.4	8.3	9.2	6.4	15	17	17	13	10	7.4	11	12	8.3	11	6.4	
$1\frac{1}{8}$	9.3	10	12	8.1	19	21	21	16	13	9.3	14	15	10	14	8.1	
$1\frac{1}{4}$	11	13	14	9.9	23	26	26	20	16	11	17	18	13	17	9.9	

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).



**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

Hitch Type	Single-Leg					Two-Leg Bridle or Basket					Choker		
						Horizontal Angle					Horizontal Angle		
	Vertical	Choker	Vertical Basket	Vertical	60 deg	45 deg	30 deg	60 deg	45 deg	30 deg	60 deg	30 deg	
													
Rope Diameter, in.	HT	MS	S	HT&MS	HT	MS	S	HT	MS	HT	MS	HT&MS	HT&MS
1/4	0.54	0.56	0.60	0.42	1.1	1.1	1.1	1.1	0.94	0.77	0.79	0.54	0.56
5/16	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.7	1.4	1.2	1.2	0.83	0.87
3/8	1.2	1.2	1.3	0.94	2.4	2.5	2.5	2.5	2.0	1.7	1.8	1.2	1.2
7/16	1.6	1.7	1.8	1.3	3.2	3.4	3.4	3.4	2.7	2.2	2.4	1.6	1.7
1/2	2.0	2.2	2.4	1.6	4.0	4.4	4.4	4.4	3.5	2.9	3.1	2.0	2.2
9/16	2.5	2.7	3.0	2.1	5.0	5.5	5.5	5.5	4.4	3.6	3.9	2.5	2.7
5/8	3.1	3.4	3.7	2.6	6.2	6.8	6.8	6.8	5.3	4.4	4.8	3.1	3.4
3/4	4.3	4.8	5.2	3.7	8.6	9.7	9.7	9.7	7.4	6.1	6.8	4.3	4.8
7/8	5.7	6.6	7.1	5.0	11	13	13	13	9.8	8.0	9.3	5.7	6.6
1	7.4	8.3	9.2	6.4	15	17	17	17	13	10	12	7.4	8.3
1 1/8	9.3	10	12	8.1	19	21	21	21	16	13	15	9.3	10
1 1/4	11	13	14	9.9	23	26	26	26	20	16	18	11	13

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).

**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

Hitch Type	Single-Leg										Two-Leg Bridle or Basket				Choker	
	Vertical					Horizontal Angle					Horizontal Angle					
	HT	MS	S	HT&MS	Choker	Vertical Basket	Vertical	60 deg	45 deg	30 deg	60 deg	45 deg	30 deg	HT&MS	HT&MS	
<b>Rope Diameter, in.</b>																
$\frac{1}{4}$	0.54	0.56	0.60	0.42	1.1	1.1	1.1	1.1	0.94	0.97	0.77	0.79	0.54	0.56	0.73	0.42
$\frac{5}{16}$	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.7	1.4	1.5	1.2	1.2	0.83	0.87	1.1	0.66
$\frac{3}{8}$	1.2	1.2	1.3	0.94	2.4	2.5	2.5	2.4	2.0	2.2	1.7	1.8	1.2	1.2	1.6	0.94
$\frac{7}{16}$	1.6	1.7	1.8	1.3	3.2	3.4	3.4	3.2	2.7	2.9	2.2	2.4	1.6	1.7	2.2	1.3
$\frac{1}{2}$	2.0	2.2	2.4	1.6	4.0	4.4	4.4	4.0	3.5	3.8	2.9	3.1	2.0	2.2	2.9	1.6
$\frac{9}{16}$	2.5	2.7	3.0	2.1	5.0	5.5	5.5	5.0	4.4	4.8	3.6	3.9	2.5	2.7	3.6	2.1
$\frac{5}{8}$	3.1	3.4	3.7	2.6	6.2	6.8	6.8	6.2	5.3	5.9	4.4	4.8	3.1	3.4	4.5	2.6
$\frac{3}{4}$	4.3	4.8	5.2	3.7	8.6	9.7	9.7	8.6	7.4	8.4	6.1	6.8	4.3	4.8	6.3	3.7
$\frac{7}{8}$	5.7	6.6	7.1	5.0	11	13	13	11	9.8	11	8.0	9.3	5.7	6.6	8.6	5.0
1	7.4	8.3	9.2	6.4	15	17	17	15	13	14	10	12	7.4	8.3	11	6.4
$1\frac{1}{8}$	9.3	10	12	8.1	19	21	21	19	16	18	13	15	9.3	10	14	8.1
$1\frac{1}{4}$	11	13	14	9.9	23	26	26	23	20	22	16	18	11	13	17	9.9

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).

**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)






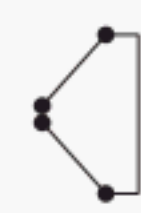
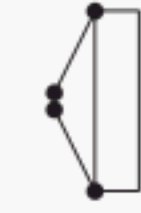


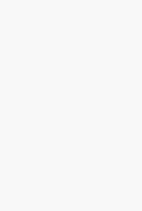
Hitch Type	Single-Leg					Two-Leg Bridle or Basket					Choker				
	Vertical					Horizontal Angle					Horizontal Angle				
	Choker					Vertical					60 deg		30 deg		
	HT	MS	S	HT&MS		HT	MS	S	HT	MS	HT	MS	HT&MS	HT&MS	
Rope Diameter, in.															
1/4	0.54	0.56	0.60	0.42	1.1	1.1	1.1	1.1	0.94	0.97	0.77	0.79	0.54	0.56	0.42
5/16	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.7	1.4	1.5	1.2	1.2	0.83	0.87	0.66
3/8	1.2	1.2	1.3	0.94	2.4	2.4	2.5	2.5	2.0	2.2	1.7	1.8	1.2	1.2	0.94
7/16	1.6	1.7	1.8	1.3	3.2	3.2	3.4	3.4	2.7	2.9	2.2	2.4	1.6	1.7	1.3
1/2	2.0	2.2	2.4	1.6	4.0	4.0	4.4	4.4	3.5	3.8	2.9	3.1	2.0	2.2	1.6
9/16	2.5	2.7	3.0	2.1	5.0	5.0	5.5	5.5	4.4	4.8	3.6	3.9	2.5	2.7	2.1
5/8	3.1	3.4	3.7	2.6	6.2	6.2	6.8	6.8	5.3	5.9	4.4	4.8	3.1	3.4	2.6
3/4	4.3	4.8	5.2	3.7	8.6	8.6	9.7	9.7	7.4	8.4	6.1	6.8	4.3	4.8	3.7
7/8	5.7	6.6	7.1	5.0	11	13	13	13	9.8	11	8.0	9.3	5.7	6.6	5.0
1	7.4	8.3	9.2	6.4	15	17	17	17	13	14	10	12	7.4	8.3	6.4
1 1/8	9.3	10	12	8.1	19	21	21	21	16	18	13	15	9.3	10	8.1
1 1/4	11	13	14	9.9	23	26	26	26	20	22	16	18	11	13	9.9

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).



**Table 9-2.5.2-1 Rated Load for Single- and Two-Leg Slings 6×19 or 6×36 Classification  
Extra Improved Plow Steel (EIPS) Grade Fiber Core (FC) Wire Rope**  
Based on Design Factor = 5 and Rated Loads Expressed in Tons (2,000 lb)

Hitch Type	Single-Leg										Two-Leg Bridle or Basket				Choker	
	Vertical					Horizontal Angle					Horizontal Angle					
	HT	MS	S	HT&MS	Choker	Vertical Basket	Vertical	60 deg	45 deg	30 deg	60 deg	45 deg	30 deg	HT&MS	HT&MS	
																
Rope Diameter, in.	HT	MS	S	HT&MS	Choker	Vertical Basket	Vertical	60 deg	45 deg	30 deg	60 deg	45 deg	30 deg	HT&MS	HT&MS	
$\frac{1}{4}$	0.54	0.56	0.60	0.42	1.1	1.1	1.1	0.94	0.77	0.54	0.73	0.54	0.36	0.73	0.42	
$\frac{5}{16}$	0.83	0.87	0.94	0.66	1.7	1.7	1.7	1.4	1.2	0.83	1.1	0.83	0.56	1.1	0.66	
$\frac{3}{8}$	1.2	1.2	1.3	0.94	2.4	2.4	2.4	2.0	1.7	1.2	1.6	1.2	0.87	1.6	0.94	
$\frac{7}{16}$	1.6	1.7	1.8	1.3	3.2	3.2	3.2	2.7	2.2	1.6	2.2	1.6	1.7	2.2	1.3	
$\frac{1}{2}$	2.0	2.2	2.4	1.6	4.0	4.0	4.0	3.5	2.9	2.0	2.9	2.0	2.2	2.9	1.6	
$\frac{9}{16}$	2.5	2.7	3.0	2.1	5.0	5.0	5.0	4.4	3.6	2.5	3.6	2.5	2.7	3.6	2.1	
$\frac{5}{8}$	3.1	3.4	3.7	2.6	6.2	6.2	6.2	5.3	4.4	3.1	4.5	3.1	3.4	4.5	2.6	
$\frac{3}{4}$	4.3	4.8	5.2	3.7	8.6	8.6	8.6	7.4	6.1	4.3	6.3	4.3	4.8	6.3	3.7	
$\frac{7}{8}$	5.7	6.6	7.1	5.0	11	11	11	9.8	8.0	5.7	8.6	5.7	6.6	8.6	5.0	
1	7.4	8.3	9.2	6.4	15	15	15	13	10	7.4	11	7.4	8.3	11	6.4	
$1\frac{1}{8}$	9.3	10	12	8.1	19	19	19	16	13	9.3	14	9.3	10	14	8.1	
$1\frac{1}{4}$	11	13	14	9.9	23	23	23	20	16	11	17	11	13	17	9.9	

## GENERAL NOTES:

- (a) HT = hand-tucked splice.  
 (b) MS = mechanical splice.  
 (c) S = swaged or poured socket.  
 (d) Rated loads for HT based on minimum  $D/d$  ratio of 15/1; rated loads for MS and S based on  $D/d$  ratio of 25/1  
 (e) Rated load based on pin diameter not larger than natural eye width or less than the nominal sling diameter.  
 (f) For choker hitch, the angle of choke shall be 120 deg or greater (see para. 9-2.5.4).