PAPERWORK REDUCTION ACT SUBMISSION

Please read the instructions before completing this form. For additional forms or assistance in completing this form, contact your agency's Paperwork Clearance Officer. Send two copies of this form the collection instrument to be reviewed, the Supporting Statement, and any additional documentation to: Office of Information and Regulatory Affairs, Office of Management and Budget, Docket Library, Room 101022, 725 17th Street, NW, Washington, DC 20503.

1. Agency/Subagency originating request

U.S. DEPARTMENT OF LABOR
OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

2. OMB control number

a. 1218–0223 b. ☐ None ____ (new)

3. Type of information collection *(check one)*

a. ☐ New Collection
b. ☐ Revision of a currently approved collection
c. ☒ Extension of a currently approved collection
d. ☐ Reinstatement, without change, of a previously approved collection for which approval has expired
e. ☐ Reinstatement, with change, of a previously approved collection for which approval has expired
f. ☐ Existing collection in use without an OMB control number

For b-f, note item A2 of Supporting Statement instructions

4. Type of review requested (check one)

a. ☒ Regular submission
b. ☐ Emergency - Approval requested by: ____/____/__
c. ☐ Delegated

5. Small entities

Will this information collection have a significant economic impact on a substantial number of small entities?

☐ Yes ☒ No

6. Requested expiration date

a. ☒ Three years from approval date?
b. ☐ Other Specify: ____ / ____ (month/ year)

7. SLINGS (29 CFR 1910.184)

8. Agency form number(s) (if applicable) None

9. Keywords:

10. Abstract

The provisions of the standard require that the employer make a periodic inspection of alloy steel chain slings at least once a year and to make and maintain a record of the inspection. It also requires the employer to ensure that each new, repaired or reconditioned alloy steel chain sling is proof tested and a certification record maintained. In addition, the standard requires the employer to maintain a record of the proof test on wire rope slings.

11. Affected public *(Mark primary with "P" and all others that apply with "X")*

a. X Individuals or households
b. P Business or other for-profit
c. ___ Not-for-profit institutions
d. ___ Farms
e. X Federal Government
f. X State, Local or Tribal Government

12. Obligation to respond (Mark primary with "P" and all others that apply with "X")

a. ___ Voluntary
b. ___ Required to obtain or retain benefits
c. P Mandatory

13. Annual reporting and recordkeeping hour burden

a. Number of respondents	1,000,000
b. Total annual responses	227,400
1. Percentages of these responses collected electronically	0%
c. Total annual hours requested	17,760
d. Current OMB inventory	19,167
e. Difference	-1,407
f. Explanation of difference	
1. Program change	
2. Adjustments	-1,407

14. Annual reporting and recordkeeping cost burden (in thousands of dollars)

a. Total annualized capital/startup costs	0
b. Total annual costs (O&M)	0
c. Total annualized cost requested	0
d. Current OMB inventory	0
e. Difference	0
f. Explanation of difference	
1. Program change	
2. Adjustment	0

15. Purpose of information collection *(Mark primary with "P" and all others that apply with "X")*

a. ___ Application for benefits
b. ___ Program evaluation
c. ___ General purpose statistics
d. ___ Audit
e. ___ Program planning or management
f. ___ Research
g. P Regulatory or compliance

16. Frequency of recordkeeping or reporting (check all that apply)

a. ☒ Recordkeeping b. ☒ Third party disclosure
c. ___ Reporting
1. ☒ On occasion 2. ☐ Weekly 3. ☐ Monthly
4. ☐ Quarterly 5. ☐ Semi-annually 6. ☐ Annually
7. ☐ Biennially 8. ☐ Other (describe) _____

17. Statistical methods

Does this information collection employ statistical methods?

☐ Yes ☒ No

18. Agency contact (person who can best answer questions regarding the content of this submission)

Name: Theda Kenney

Phone: (202) 693-2222

19. Certification for Paperwork Reduction Act Submissions

On behalf of this Federal agency, I certify that the collection of information encompassed by this request complies with 5 CFR 1320.9.

NOTE: The text of 5 CFR 1320.9, and the related provisions of 5 CFR 1320.8 (b)(3), appear at the end of the instructions. *The certification is to be made with reference to those regulatory provisions as set forth in the instructions.*

The following is a summary of the topics, regarding the proposed collections of information, that the certification covers:

(a) Is necessary for proper performance of the agency's functions and has practical utility;

(b) It avoids unnecessary duplication;

(c) It reduces burden on small entities;

(d) It uses plain, coherent and unambiguous terminology that is understandable to respondents;

(e) Its implementation will be consistent and compatible with current reporting and recordkeeping practices;

(f) It indicates the retention periods for recordkeeping requirements;

(g) It informs respondents of the information called for under 5 CFR 1320.8 (b)(3)

(h) Why the information is being collected;

(ii) Use of information;

(iii) Burden estimate;

(iv) Nature of response (voluntary, required for a benefit, or mandatory);

(v) Nature and extent of confidentiality; and

(vi) Need to display currently valid OMB control number;

(h) It was developed by an office that has planned and allocated resources for the efficient and effective management and use of the information to be collected (see note in Item 19 of the Instructions);

(i) It uses effective and efficient statistical survey methodology; and,

(j) It makes appropriate use of information technology.

If you are unable to certify compliance with any of these provisions, identify the item below and explain the reason in Item 18 of the Supporting Statement.

Agency Clearance Officer	Date
TODD OWEN OSHA Clearance Officer	
Signature of Senior Departmental Official or Designee	Date

SUPPORTING STATEMENT FOR
THE INFORMATION COLLECTION REQUIREMENTS OF
THE STANDARD ON SLINGS (29 CFR 1910.184)[1]
OFFICE OF MANAGEMENT AND BUDGET
(OMB) CONTROL NO. 1218-0223 (April 2008)

JUSTIFICATION

1. Explain the circumstances that make the collection of information necessary. Identify any legal or administrative requirements that necessitate the collection. Attach a copy of the appropriate section of each statute and regulation mandating or authorizing the collection of information.

The main objective of the Occupational Safety and Health Act of 1970 (i.e., "the Act") is to "assure so far as possible every working man and woman in the Nation safe and healthful working conditions and to preserve our human resources" (29 U.S.C. 651). To achieve this objective, the Act authorizes "the development and promulgation of occupational safety and health standards" (29 U.S.C. 651).

Section 6(b)(7) of the Act specifies that "[a]ny standard promulgated under this subsection shall prescribe the use of labels or other appropriate forms of warning as are necessary to insure that employees are apprised of all hazards to which they are exposed, relevant symptoms and appropriate emergency treatment, and proper conditions and precautions of safe use or exposure." This provision goes on to state that "[t]he Secretary, in consultation with the Secretary of Health and Human Services, may by rule promulgated pursuant to section 553 of title 5, United States Code, make appropriate modifications in the foregoing requirements relating to the use of labels or other forms of warning . . . as may be warranted by experience, information, or medical or technological developments acquired subsequent to the promulgation of the relevant standard" (29 U.S.C. 655).

With regard to recordkeeping, the Act specifies that "[e]ach employer shall make, keep and preserve, and make available to the Secretary . . . such records . . . as the Secretary . . . may prescribe by regulation as necessary or appropriate for the enforcement of this Act . . . ." (29 U.S.C. 657). The Act states further that "[t]he Secretary . . . shall prescribe such rules and regulations as [he/she] may deem necessary to carry out [his/her] responsibilities under this Act, including rules and regulations dealing with the inspection of an employer's establishment" (29 U.S.C. 657).

Under the authority granted by the Act, the Occupational Safety and Health Administration (i.e., "OSHA" or "the Agency") published at 29 CFR 1910.184 a safety standard for general industry

[1]The purpose of this Supporting Statement is to analyze and describe the burden hours and cost associated with provisions of this standard that contain paperwork requirements; this Supporting Statement does not provide information or guidance on how to comply with, or how to enforce, these provisions.

regulating the use of slings (i.e., “the Standard"). The collection of information (paperwork) provisions of the Standard specify affixing identification tags or markings on slings, developing and maintaining inspection records, and retaining proof testing certificates. Items 2 and 12 below describe in detail the specific information collection requirements of the Standard.

2. Indicate how, by whom, and for what purpose the information is to be used. Except for a new collection, indicate the actual use the Agency has made of the information received from the current collection.

The Standard specifies several collection of information (paperwork) requirements, depending on the type of sling. The purpose of each of these requirements is to prevent employees from using defective or deteriorated slings, thereby reducing their risk of death or serious injury caused by sling failure during material handling.

Paragraph (e) of the Standard covers alloy steel chain slings.

> Paragraph (e)(1) requires that alloy steel chain slings have permanently affixed and durable identification stating size, grade, rated capacity, and reach of the sling. The information, supplied by the manufacturer, is typically marked on a metal tag and affixed to the sling.
>
> Paragraph (e)(3)(i) requires the employer to make a thorough periodic inspection of alloy steel chain slings in use on a regular basis, but at least once a year. Paragraph (e)(3)(ii) requires the employer to make and maintain a record of the most recent month in which each alloy steel chain sling was thoroughly inspected, and make this record available for examination.
>
> Paragraph (e)(4) requires the employer to retain certificates of proof testing. Employers must ensure that before use, each new, repaired, or reconditioned alloy steel chain sling, including all welded components in the sling assembly, has been proof tested by the sling manufacturer or an equivalent entity. The certificates of proof testing must be retained by the employer and made available for examination.

Paragraph (f) of the Standard covers wire rope slings.

> Paragraph (f)(4)(ii) requires that all welded end attachments of wire rope slings be proof tested by the manufacturer at twice their rated capacity prior to initial use, and that the employer retain a certificate of the proof test and make it available for examination.

Paragraph (g) of the Standard covers metal mesh slings.

> Paragraph (g)(1) requires each metal mesh sling to have a durable marking permanently affixed that states the rated capacity for vertical basket hitch and choker hitch loadings.
>
> Paragraph (g)(8)(ii) requires that once repaired, each metal mesh sling be permanently marked or tagged, or a written record maintained to indicate the date and type of the

repairs made, and the person or organization that performed the repairs. Records of the repairs shall be made available for examination.

Paragraph (i) of the Standard covers synthetic web slings.

Paragraph (i)(1) requires that synthetic web slings be marked or coded to show the rated capacities for each type of hitch and the type of synthetic web material used in the sling.

Paragraph (i)(8)(i) prohibits the use of repaired synthetic web slings until they have been proof tested by the manufacturer or an equivalent entity. Paragraph (i)(8)(ii) requires the employer to retain a certificate of the proof test and make it available for examination.

The information on the identification tags, markings, and codings assist the employer in determining whether the sling can be used for the lifting task. The sling inspections enable early detection of faulty slings. The inspection and repair records provide employers with information about when the last inspection was made and about the type of the repairs made. This information provides some assurance about the condition of the slings. These records also provide the most efficient means for an OSHA compliance officer to determine that an employer is complying with the Standard. Proof-testing certificates give employers, employees, and OSHA compliance officers assurance that slings are safe to use. The certificates also provide the compliance officers with an efficient means to assess employer compliance with the Standard.

3. Describe whether, and to what extent, the collection of information involves the use of automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, e.g., permitting electronic submission of responses, and the basis for the decision for adopting this means of collection. Also describe any consideration of using information technology to reduce burden.

Employers may use automated, electronic, mechanical, or other technological information-collection techniques, or other forms of information technology (e.g., electronic submission of responses) when establishing and maintaining the required records. The Agency wrote the paperwork requirements of the Standard in performance-oriented language (i.e., in terms of what data to collect, not how to record the data).

4. Describe efforts to identify duplication. Show specifically why any similar information already available cannot be used or modified for use for the purpose(s) described in 2 above.

The requirements to collect and maintain information are specific to each employer and employee involved, and no other source or agency duplicates these requirements or can make the required information available to OSHA (i.e., the required information is available only from employers).

5. If the collection of information impacts small businesses or other small entities (Item 5 of OMB Form 83-I), describe the methods used to reduce the burden.

The information collection requirements specified by the Standard do not have a significant impact on a substantial number of small entities.

6. Describe the consequence to Federal program or policy activities if the collection is or is not conducted less frequently, and any technical or legal obstacles to reducing the burden.

The Agency believes that the information collection frequencies required by the Standard are the minimum frequencies necessary to effectively regulate slings, and thereby fulfill its mandate "to assure so far as possible every working man and woman in the Nation safe and healthful working conditions and to preserve our human resources" as specified by the Act at 29 U.S.C. 651. Accordingly, if employers do not perform the required information collections, or delay in providing this information, employees may inadvertently use defective or deteriorated slings, thereby increasing their probability of death and serious injury caused by sling failure during material handling.

7. Explain any special circumstances that would cause an information collection to be conducted in a manner:

- **Requiring respondents to report information to the agency more often than quarterly;**
- **Requiring respondents to prepare a written response to a collection of information in fewer than 30 days after receipt of it;**
- **Requiring respondents to submit more than an original and two copies of any document;**
- **Requiring respondents to retain records, other than health, medical, government contract, grant-in-aid, or tax records for more than three years;**
- **In connection with a statistical survey that is not designed to produce valid and reliable results that can be generalized to the universe of study;**
- **Requiring the use of statistical data classification that has not been reviewed and approved by OMB;**
- **That includes a pledge of confidentially that is not supported by authority established in statute or regulation that is not supported by disclosure and data security policies that are consistent with the pledge, or which unnecessarily impedes sharing of data with other agencies for compatible confidential use; or**
- **Requiring respondents to submit proprietary trade secret, or other confidential information unless the agency can prove that it has instituted procedures to protect the information's confidentially to the extent permitted by law.**

No special circumstances exist that require employers to collect information using the procedures specified by this item. The requirements are within the guidelines set forth in 5 CFR 1320.5.

8. If applicable, provide a copy and identify the date and page number of publication in the Federal Register of the agency's notice, required by 5 CFR 1320.8(d), soliciting comments on the information collection before submission to OMB. Summarize public comments received in response to that notice and describe actions taken by the agency in response to those comments specifically address comments received on cost and hour burdens.

Describe efforts to consult with persons outside the agency to obtain their views on the availability of data, frequency of collection, the clarity of instructions and recordkeeping, disclosure, or reporting format (if any), and on the data elements to be recorded, revealed, or reported.

Consultation with representatives of those from whom information is to be obtained or those who must compile records should occur at least once every three years -- even if the collection of information activity is the same as in prior periods. There may be circumstances that mitigate against consultation in a specific situation. These circumstances should be explained.

As required by the Paperwork Reduction Act of 1995 (44 U.S.C. 3506(c)(2)(A)), OSHA will publish a notice in the *Federal Register* requesting public comment on its proposed extension of the information collection requirements contained in its Standard on Slings (29 CFR 1910.184). This notice is part of a preclearance consultation program to provide those interested parties the opportunity to comment on OSHA's request for an extension by the Office of Management and Budget (OMB) of a previous approval of the information collection requirements found in the Standard. The Agency will address any comments received in response to this request for comment.

9. Explain any decision to provide any payments or gift to respondents, other than reenumeration of contractors or grantees.

The Agency will not provide payments or gifts to the respondents.

10. Describe any assurance of confidentiality provided to respondents and the basis for the assurance in statute, regulation, or agency policy.

The paperwork requirements specified by the Standard do not involve confidential information.

11. Provide additional justification for any questions of a sensitive nature, such as sexual behavior and attitudes, religious beliefs, and other matters that are commonly considered private. This justification should include the reasons why the agency considers the questions necessary, the specific uses to be made of the information, the explanation to be given to persons from whom the information is requested, and any steps to be taken to obtain their consent.

None of the provisions in the Standard request sensitive information.

12. Provide estimates of the hour burden of the collection of information. The statement should:

- **Indicate the number of respondents, frequency of response, annual hour burden, and an explanation of how the burden was estimated. Unless directed to do so, agencies should not conduct special surveys to obtain information on which to base hour burden estimates. Consultation with a sample (fewer than 10) of potential respondents is desirable. If the hour burden on respondents is expected to vary widely because of differences in activity, size, or complexity, show the range of estimated hour burden, and explain the reasons for the variance. Generally, estimates should not include burden hours for customary and usual business practices.**

- **If this request for approval covers more than one form, provide separate hour burden estimates for each form and aggregate the hour burdens in Item 13 of OMB Form 83-I.**

- **Provide estimates of annualized cost to respondents for the hour burdens for collections of information, identifying and using appropriate wage rate categories.**

BURDEN-HOUR AND COST DETERMINATIONS

The Agency contacted the Executive Director of the National Association of Chain Manufacturers (NACM) and the Executive Director of the Associated Wire Rope Fabricators (AWRF), who are also members of the American Society of Mechanical Engineers' (ASME) B30.9 Committee on Slings, requesting updated information on the number of slings used in general industry. The Agency was informed that, while updated statistics had not been developed since the last ICR submission, previous estimates were very likely on the low-end. Based on discussion with the Executive Director of the AWRF, The Agency estimates that the Standard covers approximately 1,000,000 slings, and that roughly 60% (600,000) are wire rope slings, 30% (300,000) are synthetic-web slings, 8% (80,000) are alloy steel chain slings, and 2% (20,000) are metal-mesh slings.

OSHA used a wage rate of $27.00 for a manufacturing worker and $33.76 for a supervisory manufacturing worker in determining the cost of the paperwork requirements specified by the Standard.[2]

(A) Alloy Steel Chain Slings (§1910.184(e))

Paragraph 1910.184(e)(1) requires that alloy steel chain slings have permanently affixed and durable identification stating size, grade, rated capacity, and reach of the sling. The information, supplied by the manufacturer, is typically marked on a metal tag and affixed to the sling. The manufacturer provides this information as a usual and customary practice at the time of sale. However, if the tag comes off, another tag or marking with the required information must be affixed to the sling. OSHA estimates that only a small percentage of slings would fall into this category, as low as .1% (80), and that it would take about 30 minutes (.5 hour) to acquire the information, make a new tag, and affix it to the sling. A manufacturing worker would perform this task.

Burden hours: 80 slings × .5 hour = 40 hours
Cost: 40 hours × $27.00 = $1,080

Paragraph (e)(3)(i) requires the employer to make a thorough periodic inspection of alloy steel chain slings in use on a regular basis, but at least once a year. Paragraph 1910.184(e)(3)(ii) requires the employer to make and maintain a record of the most recent month in which each alloy steel chain sling was thoroughly inspected. OSHA estimates that approximately 70% (56,000) of alloy steel chain slings are in use on a regular basis each year. It is also estimated that it takes 15 minutes (.25 hour) for a manufacturing worker to conduct the inspection and to generate and maintain the inspection record once a year.

Burden hours: 56,000 slings × .25 hour = 14,000 hours
Cost: 14,000 hours × $27.00 = $378,000

[2]SOURCE: *Employer Costs for Employee Compensation*, U.S. Department of Labor, Bureau of Labor Statistics, December 2007 (released March 12, 2008).

Paragraph 1910.184(e)(4) requires the employer to ensure that before use, each new, repaired, or reconditioned alloy steel chain sling, including all welded components in the sling assembly, be proof tested by the sling manufacturer, and that the certificate of proof testing be maintained by the employer and made available for examination. The manufacturer normally performs the proof test and marks the equipment. OSHA estimates that 25% (20,000) of the alloy steel chain slings are replaced, repaired, or reconditioned each year. The manufacturer will prepare a certificate of the proof test as a usual and customary practice, so the employer has no burden for this activity. However, the employer will incur a burden to maintain the certificate, which the Agency estimates takes a manufacturing worker 1 minute (.02 hour) to perform for each sling.

Burden hours: 20,000 slings × .02 hour = 400 hours
Cost: 400 hours × $27.00 = $10,800

(B) Wire Rope Slings (§1910.184(f))

Paragraph 1910.184(f)(4)(ii) requires that all welded end attachments be proof tested by the manufacturer at twice their rated capacity prior to initial use, and that the employer maintain the certificate of proof test. OSHA estimates that 10% (60,000) of the wire rope slings have welded end attachments. The employer has no burden associated with the proof testing because the manufacturer, for liability reasons, and as a normal and customary practice, will test the equipment and provide a certificate to the employer. However, the employer must maintain the certificate. OSHA estimates that a manufacturing worker spends 1 minute (.02 hour) maintaining a certificate for each sling.

Burden hours: 60,000 slings × .02 hour = 1,200 hours
Cost: 1,200 hours × $27.00 = $32,400

(C) Metal Mesh Slings (§1910.184(g))

Paragraph 1910.184(g)(1) requires each metal mesh sling to have a durable marking permanently affixed to it that indicates the rated capacity for vertical basket hitch and choker hitch loadings. This information will be supplied by the manufacturer initially, and the only burden to the employer would be to replace the initial tag or marking. OSHA estimates that only a small percentage of slings would fall into this category, as low as .1% (20), and it would take about 30 minutes (.50 hours) for a manufacturing worker to acquire the information, make a new tag, and affix it to the sling.

Burden hours: 20 slings × .50 hour = 10 hours
Cost: 10 hours × $27.00 = $270

Paragraph 1910.184(g)(8)(ii) requires that once repaired, each sling shall be permanently marked or tagged, or a written record prepared for the employer, that contains the information specified in the Standard. The employer must maintain this record. Accordingly, OSHA estimates that the manufacturer, as a usual and customary practice, will affix markings stating the rated capacity for vertical basket hitch and choker hitch loadings as required under paragraph

1910.184(g)(1). OSHA also estimates that manufacturers will provide written records for about 10% (2,000) of the repaired slings. The remaining slings are either tagged or marked permanently as specified in the Standard. The manufacturer will prepare the certificate for the employer, and will provide tags or markings, as a usual and customary practice; hence, the employer has no burden for this activity. However, the employer must maintain the written records as required by paragraph 1910.184(g)(8)(ii). The Agency estimates that it takes a manufacturing worker 1 minute (.02 hour) to complete this task.

Burden hours: 2,000 slings × .02 hour = 40 hours
Cost: 40 hours × $27.00 = $1,080

(D) Synthetic Web Slings (§1910.184(i))

Paragraph (i)(1) requires that synthetic web slings be marked or coded to show the rated capacities for each type of hitch, and the synthetic web material used in the sling. This information will be provided by the manufacturer as a usual and customary practice at the time of sale. However, if the mark or code needs to be replaced, OSHA estimates that it will take a manufacturing worker about 30 minutes (.50 hour) to acquire the information and attach the marking or coding to the sling. OSHA estimates that only a few slings, about .1% (300), fall into this category.

Burden hours: 300 slings × .50 hour = 150 hours
Cost: 150 hours × $27.00 = $4,050

Paragraph 1910.184(i)(8)(ii) prohibits the use of repaired synthetic web slings that have not been proof tested by the manufacturer. The employer shall maintain a certificate of the proof test. The manufacturer will prepare a certificate of the proof test as a usual and customary practice, so the employer has no burden for this activity. However, the employer will incur a burden to maintain the certificate. The Agency estimates that a manufacturing worker spends 1 minute (.02 hour) performing this activity. OSHA estimates that, in any given year, 25% (75,000) of the synthetic web slings are repaired.

Burden hours: 75,000 slings × .02 hour = 1,500 hours
Cost: 1,500 hours × $27.00 = $40,500

(E) Disclosure of Certificates

The Agency believes that approximately 14,000 slings covered by the Standard[3] may be subject to an inspection each year, during which the employer may be required to disclose certification records. OSHA estimates that it will take a supervisory manufacturing worker 2 minutes (.03 hour) to disclose the records for each sling.

[3]The Agency estimated the number of inspections by determining the inspection rate (1.4%) for all slings under the jurisdiction of the Act (including both Federal OSHA and approved state-plan agencies), and then multiplying the total number of slings regulated under the Standard by this percentage (i.e., 1,000,000 slings × 1.4% = 14,000 slings inspected).

Burden hours: 14,000 slings × .03 hour = 420
Cost: 420 burden hour × $33.76 = $14,179

13. Provide an estimate of the total annual cost burden to respondents or recordkeepers resulting from the collection of information. (Do not include the cost of any hour burden shown in Items 12 and 14.)

- **The cost estimate should be split into two components: (a) a total capital and start-up cost component annualized over its expected useful life); and (b) a total operation and maintenance and purchase of service component. The estimates should take into account costs associated with generating, maintaining, and disclosing or providing the information. Include descriptions of methods used to estimate major cost factors including system and technology acquisition, expected useful life of capital equipment, the discount rate(s), and the time period over which costs will be incurred. Capital and start-up costs include, among other items, preparations for collecting information such as purchasing computers and software; monitoring, sampling, drilling and testing equipment; and record storage facilities.**

- **If cost estimates are expected to vary widely, agencies should present ranges of cost burdens and explain the reasons for the variance. The cost of purchasing or contracting out information collection services should be a part of this cost burden estimate. In developing cost burden estimates, agencies may consult with a sample of respondent (fewer than 10), utilize the 60-day pre-OMB submission public comment process and use existing economic or regulatory impact analysis associated with the rulemaking containing the information collection, as appropriate.**

- **Generally, estimates should not include purchases of equipment or services, or portions thereof, made: 1) prior to October 1, 1995, (2) to achieve regulatory compliance with requirements not associated with the information collection, (3) for reasons other than to provide information or keep records for the government, or (4) as part of customary and usual business or private practices.**

Item 12 above provides the total cost of the information collection requirements specified by the Standard.

14. Provide estimates of the annualized cost to the Federal Government. Also, provide a description of the method used to estimate cost, which should include quantification of hours, operational expenses (such as equipment, overhead, printing, and support staff), any other expense that would not have been incurred without this collection of information. Agencies also may aggregate cost estimates from Items 12, 13, and 14 into a single table.

OSHA estimates that a compliance officer (GS-12, step 5), with an hourly wage rate of $37.89, spends about 5 minutes (.08 hour) during an inspection reviewing the documents required by the Standard. The Agency determined that its compliance officers will inspect 14,000 slings covered by the Standard during each year covered by this ICR (see footnote 3 above). OSHA considers other expenses, such as equipment, overhead, and support staff salaries, to be normal operating expenses that would occur without the paperwork requirements specified by the Standards. Therefore, the total cost of these paperwork requirements to the Federal government is:

Cost: 14,000 inspections × .08 hour × $37.89 = $42,437

15. Explain the reasons for any program changes or adjustments reported in Items 13 or 14 of the OMB Form 83-1.

OSHA is proposing to decrease the existing burden hour estimate for the collection of information requirements specified by the Standard from 19,167 hours to 17,760 hours, a total decrease of 1,407 hours. The decrease occurred because, although there was an increase in the total number of slings, there was a decrease in the number of alloy steel chain slings. Table 1 explains the proposed adjustment decrease.

16. For collections of information whose results will be published, outline plans for tabulation, and publication. Address any complex analytical techniques that will be used. Provide the time schedule for the entire project, including beginning and ending dates of the collection information, completion of report, publication dates, and other actions.

OSHA will not publish the information collected under the Standard.

17. If seeking approval to not display the expiration date for OMB approval of the information collection, explain the reasons that display would be appropriate.

No forms are available for the Agency to display the expiration date.

18. Explain each exception to the certification statement identified in Item 19 per "Certification for Paperwork Reduction Act Submission," of OMB Form 83-I.

OSHA is not seeking an exception to the certification statement specified by Item 19 of OMB 83-I.

Table 1

Proposed Burden-Hour Adjustments

Information Collection Requirement	Current Burden Hours	Proposed Burden Hours	Adjustment (Hours)	Cost Under Item 12	Responses	Explanation of Adjustment
(A) Alloy Steel Chain Slings	0	0	0	0	0	
§1910.184 (e)(1)	49	40	-9	$1,080	80	New data indicates a reduction in the number of alloy steel chain slings from 97,500 to 80,000.
§1910.184(e)(3)(i)	17,063	14,000	-3,063	$378,000	56,000	New data indicates a reduction in the number of alloy steel chain slings from 97,500 to 80,000.
§1910.184(e)(4)	488	400	-88	$10,800	20,000	New data indicates a reduction in the number of alloy steel chain slings from 97,500 to 80,000.
(B) Wire Rope Slings	0	0	0	0	0	
§1910.184(f)(4)(ii)	975	1,200	225	$32,400	60,000	New data indicates an increase in the estimated number of wire rope slings from 487,500 to 600,000.
(C) Metal Mesh Slings	0	0	0	0	0	
§1910.184(g)(1)	7	10	3	$270	20	New data indicates an increase in the estimated number of metal mesh slings from 13,000 to 20,000.
§1910.184(g)(8)(ii)	26	40	14	$1,080	2,000	New data indicates an increase in the estimated number of metal mesh slings from 13,000 to 20,000.
(D) Synthetic Web Slings	0	0	0	0	0	
§1910.184(i)(1)	26	150	124	$4,050	300	New data indicates an increase in the estimated number of synthetic web slings from 52,000 to 300,000.
§1910.184(i)(8)(ii)	260	1,500	1,240	$40,500	75,000	New data indicates an increase in the estimated number of synthetic web slings from 52,000 to 300,000.

Information Collection Requirement	Current Burden Hours	Proposed Burden Hours	Adjustment (Hours)	Cost Under Item 12	Responses	Explanation of Adjustment
(E) Disclosure of Certificates	273	420	147	$14,179	14,000	The disclosure burden assumes that a specific percentage (1.4%) of the 1,000,000 total slings (14,000) covered by the Standard will be subject to an OSHA inspection, and that a supervisory manufacturing worker will disclose the documents to an OSHA compliance officer during the inspection.
TOTALS	**19,167**	**17,760**	**-1,407**	**$482,359**	**227,400**	

SEC. 2. Congressional Findings and Purpose

29 USC 651

(a) The Congress finds that personal injuries and illnesses arising out of work situations impose a substantial burden upon, and are a hindrance to, interstate commerce in terms of lost production, wage loss, medical expenses, and disability compensation payments.

(b) The Congress declares it to be its purpose and policy, through the exercise of its powers to regulate commerce among the several States and with foreign nations and to provide for the general welfare, to assure so far as possible every working man and woman in the Nation safe and healthful working conditions and to preserve our human resources --

(1) by encouraging employers and employees in their efforts to reduce the number of occupational safety and health hazards at their places of employment, and to stimulate employers and employees to institute new and to perfect existing programs for providing safe and healthful working conditions; (2) by providing that employers and employees have separate but dependent responsibilities and rights with respect to achieving safe and healthful working conditions;

(3) by authorizing the Secretary of Labor to set mandatory occupational safety and health standards applicable to businesses affecting interstate commerce, and by creating an Occupational Safety and Health Review Commission for carrying out adjudicatory functions under the Act;

(4) by building upon advances already made through employer and employee initiative for providing safe and healthful working conditions;

(5) by providing for research in the field of occupational safety and health, including the psychological factors involved, and by developing innovative methods, techniques, and approaches for dealing with occupational safety and health problems;

(6) by exploring ways to discover latent diseases, establishing causal connections between diseases and work in environmental conditions, and conducting other research relating to health problems, in recognition of the fact that occupational health standards present problems often different from those involved in occupational safety;

(7) by providing medical criteria which will assure insofar as practicable that no employee will suffer diminished health, functional capacity, or life expectancy as a result of his work experience;

(8) by providing for training programs to increase the number and competence of personnel engaged in the field of occupational safety and health; affecting the OSH Act since its passage in 1970 through January 1, 2004.

(9) by providing for the development and promulgation of occupational safety and health standards;

(10) by providing an effective enforcement program which shall include a prohibition against giving advance notice of any inspection and sanctions for any individual violating this prohibition;

(11) by encouraging the States to assume the fullest responsibility for the administration and enforcement of their occupational safety and health laws by providing grants to the States to assist in identifying their needs and responsibilities in the area of occupational safety and health, to develop plans in accordance with the provisions of this Act, to improve the administration and enforcement of State occupational safety and health laws, and to conduct experimental and demonstration projects in connection therewith;

(12) by providing for appropriate reporting procedures with respect to occupational safety and health which procedures will help achieve the objectives of this Act and accurately describe the nature of the occupational safety and health problem;

(13) by encouraging joint labor-management efforts to reduce injuries and disease arising out of employment.

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6. Occupational Safety and Health Standards

29 USC 655:

(a) Without regard to chapter 5 of title 5, United States Code, or to the other subsections of this section, the Secretary shall, as soon as practicable during the period beginning with the effective date of this Act and ending two years after such date, by rule promulgate as an occupational safety or health standard any national consensus standard, and any established Federal standard, unless he determines that the promulgation of such a standard would not result in improved safety or health for specifically designated employees. In the event of conflict among any such standards, the Secretary shall promulgate the standard which assures the greatest protection of the safety or health of the affected employees.

(b) The Secretary may by rule promulgate, modify, or revoke any occupational safety or health standard in the following manner:

(1) Whenever the Secretary, upon the basis of information submitted to him in writing by an interested person, a representative of any organization of employers or employees, a nationally recognized standards-producing organization, the Secretary of Health and Human Services, the National Institute for Occupational Safety and Health, or a State or political subdivision, or on the basis of information developed by the Secretary or otherwise available to him, determines that a rule should be promulgated in order to serve the objectives of this Act, the Secretary may request the recommendations of an advisory committee appointed under section 7 of this Act. The Secretary shall provide such an advisory committee with any proposals of his own or of the Secretary of Health and Human Services, together with all pertinent factual information developed by the Secretary or the Secretary of Health and Human Services, or otherwise available, including the results of research, demonstrations, and experiments. An advisory committee shall submit to the Secretary its recommendations regarding the rule to be promulgated within ninety days from the date of its appointment or within such longer or shorter period as may be prescribed by the Secretary, but in no event for a period which is longer than two hundred and seventy days.

(2) The Secretary shall publish a proposed rule promulgating, modifying, or revoking an occupational safety or health standard in the Federal Register and shall afford interested persons a period of thirty days after publication to submit written data or comments. Where an advisory committee is appointed and the Secretary determines that a rule should be issued, he shall publish the proposed rule within sixty days after the submission of the advisory committee's recommendations or the expiration of the period prescribed by the Secretary for such submission.

(3) On or before the last day of the period provided for the submission of written data or comments under paragraph (2), any interested person may file with the Secretary written objections to the proposed rule, stating the grounds therefore and requesting a public hearing on such objections. Within thirty days after the last day for filing such objections, the Secretary shall publish in the Federal Register a notice specifying the occupational safety or health standard to which objections have been filed and a hearing requested, and specifying a time and place for such hearing.

(4) Within sixty days after the expiration of the period provided for the submission of written data or comments under paragraph (2), or within sixty days after the completion of any hearing held under paragraph (3), the Secretary shall issue a rule promulgating, modifying, or revoking an occupational safety or health standard or make a determination that a rule should not be issued. Such a rule may contain a provision delaying its effective date for such period (not in excess of ninety days) as the Secretary determines may be necessary to insure that affected employers and employees will be informed of the existence of the standard and of its terms and that employers affected are given an opportunity to familiarize themselves and their employees with the existence of the requirements of the standard.

(5) The Secretary, in promulgating standards dealing with toxic materials or harmful physical agents under this subsection, shall set the standard which most adequately assures, to the extent feasible, on the basis of the best available evidence, that no employee will suffer material impairment of health or functional capacity even if such employee has regular exposure to the hazard dealt with by such standard for the period of his working life. Development of standards under this subsection shall be based upon research, demonstrations, experiments, and such other information as may be appropriate. In addition to the attainment of the highest degree of health and safety protection for the employee, other considerations shall be the latest available scientific data in the field, the feasibility of the standards, and experience gained under this and other health and safety laws. Whenever practicable, the standard promulgated shall be expressed in terms of objective criteria and of the performance desired.

(6) (A) Any employer may apply to the Secretary for a temporary order granting a variance from a standard or any provision thereof promulgated under this section. Such temporary order shall be granted only if the employer files an application which meets the requirements of clause (B) and establishes

that --

(i) he is unable to comply with a standard by its effective date because of unavailability of professional or technical personnel or of materials and equipment needed to come into compliance with the standard or because necessary construction or alteration of facilities cannot be completed by the effective date,

(ii) he is taking all available steps to safeguard his employees against the hazards covered by the standard, and

(iii) he has an effective program for coming into compliance with the standard as quickly as practicable.

Any temporary order issued under this paragraph shall prescribe the practices, means, methods, operations, and processes which the employer must adopt and use while the order is in effect and state in detail his program for coming into compliance with the standard. Such a temporary order may be granted only after notice to employees and an opportunity for a hearing: *Provided,* That the Secretary may issue one interim order to be effective until a decision is made on the basis of the hearing. No temporary order may be in effect for longer than the period needed by the employer to achieve

compliance with the standard or one year, whichever is shorter, except that such an order may be renewed not more that twice (I) so long as the requirements of this paragraph are met and (II) if an application for renewal is filed at least 90 days prior to the expiration date of the order. No interim renewal of an order may remain in effect for longer than 180 days.

(B) An application for temporary order under this paragraph (6) shall contain:

(i) a specification of the standard or portion thereof from which the employer seeks a variance,

(ii) a representation by the employer, supported by representations from qualified persons having firsthand knowledge of the facts represented, that he is unable to comply with the standard or portion thereof and a detailed statement of the reasons therefor,

(iii) a statement of the steps he has taken and will take (with specific dates) to protect employees against the hazard covered by the standard,

(iv) a statement of when he expects to be able to comply with the standard and what steps he has taken and what steps he will take (with dates specified) to come into compliance with the standard, and

(v) a certification that he has informed his employees of the application by giving a copy thereof to their authorized representative, posting a statement giving a summary of the application and specifying where a copy may be examined at the place or places where notices to employees are normally posted, and by other appropriate means.

A description of how employees have been informed shall be contained in the certification. The information to employees shall also inform them of their right to petition the Secretary for a hearing.

(C) The Secretary is authorized to grant a variance from any standard or portion thereof whenever he determines, or the Secretary of Health and Human Services certifies, that such variance is necessary to permit an employer to participate in an experiment approved by him or the Secretary of Health and Human Services designed to demonstrate or validate new and improved techniques to safeguard the health or safety of workers.

(7) Any standard promulgated under this subsection shall prescribe the use of labels or other appropriate forms of warning as are necessary to insure that employees are apprised of all hazards to which they are exposed, relevant symptoms and appropriate emergency treatment, and proper conditions and precautions of safe use or exposure. Where appropriate, such standard shall also prescribe suitable protective equipment and control or technological procedures to be used in connection with such hazards and shall provide for monitoring or measuring employee exposure at such locations and intervals, and in such manner as may be necessary for the protection of employees. In addition, where appropriate, any such standard shall prescribe the type and frequency of medical examinations or other tests which shall be made available, by the employer or at his cost, to employees exposed to such hazards in order to most effectively determine whether the health of such employees is adversely affected by such exposure. In the event such medical examinations are in the nature of research, as determined by the Secretary of

Health and Human Services, such examinations may be furnished at the expense of the Secretary of Health and Human Services. The results of such examinations or tests shall be furnished only to the Secretary or the Secretary of Health and Human Services, and, at the request of the employee, to his physician. The Secretary, in consultation with the Secretary of Health and Human Services, may by rule promulgated pursuant to section 553 of title 5, United States Code, make appropriate modifications in the foregoing requirements relating to the use of labels or other forms of warning, monitoring or measuring, and medical examinations, as may be warranted by experience, information, or medical or technological developments acquired subsequent to the promulgation of the relevant standard.

(8) Whenever a rule promulgated by the Secretary differs substantially from an existing national consensus standard, the Secretary shall, at the same time, publish in the Federal Register a statement of the reasons why the rule as adopted will better effectuate the purposes of this Act than the national consensus standard.

(c) (1) The Secretary shall provide, without regard to the requirements of chapter 5, title 5, Unites States Code, for an emergency temporary standard to take immediate effect upon publication in the Federal Register if he determines --

(A) that employees are exposed to grave danger from exposure to substances or agents determined to be toxic or physically harmful or from new hazards, and

(B) that such emergency standard is necessary to protect employees from such danger.

(2) Such standard shall be effective until superseded by a standard promulgated in accordance with the procedures prescribed in paragraph (3) of this subsection.

(3) Upon publication of such standard in the Federal Register the Secretary shall commence a proceeding in accordance with section 6 (b) of this Act, and the standard as published shall also serve as a proposed rule for the proceeding. The Secretary shall promulgate a standard under this paragraph no later than six months after publication of the emergency standard as provided in paragraph (2) of this subsection.

(d) Any affected employer may apply to the Secretary for a rule or order for a variance from a standard promulgated under this section. Affected employees shall be given notice of each such application and an opportunity to participate in a hearing. The Secretary shall issue such rule or order if he determines on the record, after opportunity for an inspection where appropriate and a hearing, that the proponent of the variance has demonstrated by a preponderance of the evidence that the conditions, practices, means, methods, operations, or processes used or proposed to be used by an employer will provide employment and places of employment to his employees which are as safe and healthful as those which would prevail if he complied with the standard. The rule or order so issued shall prescribe the conditions the employer must maintain, and the practices, means, methods, operations, and

processes which he must adopt and utilize to the extent they differ from the standard in question. Such a rule or order may be modified or revoked upon application by an employer, employees, or by the Secretary on his own motion, in the manner prescribed for its issuance under this subsection at any time after six months from its issuance.

(e) Whenever the Secretary promulgates any standard, makes any rule, order, or decision, grants any exemption or extension of time, or compromises, mitigates, or settles any penalty assessed under this Act, he shall include a statement of the reasons for such action, which shall be published in the Federal Register.

(f) Any person who may be adversely affected by a standard issued under this section may at any time prior to the sixtieth day after such standard is promulgated file a petition challenging the validity of such standard with the United States court of appeals for the circuit wherein such person resides or has his principal place of business, for a judicial review of such standard. A copy of the petition shall be forthwith transmitted by the clerk of the court to the Secretary. The filing of such petition shall not, unless otherwise ordered by the court, operate as a stay of the standard. The determinations of the Secretary shall be conclusive if supported by substantial evidence in the record considered as a whole.

(g) In determining the priority for establishing standards under this section, the Secretary shall give due regard to the urgency of the need for mandatory safety and health standards for particular industries, trades, crafts, occupations, businesses, workplaces or work environments. The Secretary shall also give due regard to the recommendations of the Secretary of Health and Human Services regarding the need for mandatory standards in determining the priority for establishing such standards.

SEC. 8. Inspections, Investigations, and Recordkeeping

(a) In order to carry out the purposes of this Act, the Secretary, upon presenting appropriate credentials to the owner, operator, or agent in charge, is authorized -- 29 USC 657

(1) to enter without delay and at reasonable times any factory, plant, establishment, construction site, or other area, workplace or environment where work is performed by an employee of an employer; and

(2) to inspect and investigate during regular working hours and at other reasonable times, and within reasonable limits and in a reasonable manner, any such place of employment and all pertinent conditions, structures, machines, apparatus, devices, equipment, and materials therein, and to question privately any such employer, owner, operator, agent or employee.

(b) In making his inspections and investigations under this Act the Secretary may require the attendance and testimony of witnesses and the production of evidence under oath. Witnesses shall be paid the same fees and mileage that are paid witnesses in the courts of the United States. In case of a contumacy, failure, or refusal of any person to obey such an order, any district court of the United States or the United States courts of any territory or possession, within the jurisdiction of which such person is found, or resides or transacts business, upon the application by the Secretary, shall have jurisdiction to issue to such person an order requiring such person to appear to produce evidence if, as, and when so ordered, and to give testimony relating to the matter under investigation or in question, and any failure to obey such order of the court may be punished by said court as a contempt thereof.

(c) (1) Each employer shall make, keep and preserve, and make available to the Secretary or the Secretary of Health and Human Services, such records regarding his activities relating to this Act as the Secretary, in cooperation with the Secretary of Health and Human Services, may prescribe by regulation as necessary or appropriate for the enforcement of this Act or for developing information regarding the causes and prevention of occupational accidents and illnesses. In order to carry out the provisions of this paragraph such regulations may include provisions requiring employers to conduct periodic inspections. The Secretary shall also issue regulations requiring that employers, through posting of notices or other appropriate means, keep their employees informed of their protections and obligations under this Act, including the provisions of applicable standards.

(2) The Secretary, in cooperation with the Secretary of Health and Human Services, shall prescribe regulations requiring employers to maintain accurate records of, and to make periodic reports on, work-related deaths, injuries and illnesses other than minor injuries requiring only first aid treatment and which do not involve medical treatment, loss of consciousness, restriction of work or motion, or transfer to another job.

(3) The Secretary, in cooperation with the Secretary of Health and Human Services, shall issue regulations requiring employers to maintain accurate records of employee exposures to potentially toxic materials or harmful physical agents which are required to be monitored or measured under section 6. Such regulations shall provide employees or their representatives with an opportunity to observe such monitoring or measuring, and to have access to the records thereof. Such regulations shall also make appropriate provision for each employee or former employee to have access to such records as will indicate his own exposure to toxic materials or harmful physical agents. Each employer shall promptly notify any employee who has been or is being exposed to toxic materials or harmful physical agents in concentrations or at levels which exceed those prescribed by an applicable occupational safety and health standard promulgated under section 6, and shall inform any employee who is being thus exposed of the corrective action being taken.

(d) Any information obtained by the Secretary, the Secretary of Health and Human Services, or a State agency under this Act shall be obtained with a minimum burden upon employers, especially those operating small businesses. Unnecessary duplication of efforts in obtaining information shall be reduced to the maximum extent feasible.

(e) Subject to regulations issued by the Secretary, a representative of the employer and a representative authorized by his employees shall be given an opportunity to accompany the Secretary or his authorized representative during the physical inspection of any workplace under subsection (a) for the purpose of aiding such inspection. Where there is no authorized employee representative, the Secretary or his authorized representative shall consult with a reasonable number of employees concerning matters of health and safety in the workplace.

(f) (1) Any employees or representative of employees who believe that a violation of a safety or health standard exists that threatens physical harm, or that an imminent danger exists, may request an inspection by giving notice to the Secretary or his authorized representative of such violation or danger. Any such notice shall be reduced to writing, shall set forth with reasonable particularity the grounds for the notice, and shall be signed by the employees or representative of employees, and a copy shall be provided the employer or his agent no later than at the time of inspection, except that, upon the request of the person giving such notice, his name and the names of individual employees referred to therein shall not appear in such copy or on any record published, released, or made available pursuant to subsection (g) of this section. If upon receipt of such notification the Secretary determines there are reasonable grounds to believe that such violation or danger exists, he shall make a special inspection in accordance with the provisions of this section as soon as practicable, to determine if such violation or danger exists. If the Secretary determines there are no reasonable grounds to believe that a violation or danger exists he shall notify the employees or representative of the employees in writing of such determination.

(2) Prior to or during any inspection of a workplace, any employees

or representative of employees employed in such workplace may notify the Secretary or any representative of the Secretary responsible for conducting the inspection, in writing, of any violation of this Act which they have reason to believe exists in such workplace. The Secretary shall, by regulation, establish procedures for informal review of any refusal by a representative of the Secretary to issue a citation with respect to any such alleged violation and shall furnish the employees or representative of employees requesting such review a written statement of the reasons for the Secretary's final disposition of the case.

(g) (1) The Secretary and Secretary of Health and Human Services are authorized to compile, analyze, and publish, either in summary or detailed form, all reports or information obtained under this section.

(2) The Secretary and the Secretary of Health and Human Services shall each prescribe such rules and regulations as he may deem necessary to carry out their responsibilities under this Act, including rules and regulations dealing with the inspection of an employer's establishment.

(h) The Secretary shall not use the results of enforcement activities, such as the number of citations issued or penalties assessed, to evaluate employees directly involved in enforcement activities under this Act or to impose quotas or goals with regard to the results of such activities.

Pub. L. 105-198 added subsection (h).

§ 1910.184 Slings.

(a) *Scope.* This section applies to slings used in conjunction with other material handling equipment for the movement of material by hoisting, in employments covered by this part. The types of slings covered are those made from alloy steel chain, wire rope, metal mesh, natural or synthetic fiber rope (conventional three strand construction), and synthetic web (nylon, polyester, and polypropylene).

(b) *Definitions. Angle of loading* is the inclination of a leg or branch of a sling measured from the horizontal or vertical plane as shown in Fig. N–184–5; provided that an angle of loading of five degrees or less from the vertical may be considered a vertical angle of loading.

Basket hitch is a sling configuration whereby the sling is passed under the load and has both ends, end attachments, eyes or handles on the hook or a single master link.

Braided wire rope is a wire rope formed by plaiting component wire ropes.

Bridle wire rope sling is a sling composed of multiple wire rope legs with the top ends gathered in a fitting that goes over the lifting hook.

Cable laid endless sling-mechanical joint is a wire rope sling made endless by joining the ends of a single length of cable laid rope with one or more metallic fittings.

Cable laid grommet-hand tucked is an endless wire rope sling made from one length of rope wrapped six times around a core formed by hand tucking the ends of the rope inside the six wraps.

Cable laid rope is a wire rope composed of six wire ropes wrapped around a fiber or wire rope core.

Cable laid rope sling-mechanical joint is a wire rope sling made from a cable laid rope with eyes fabricated by pressing or swaging one or more metal sleeves over the rope junction.

Choker hitch is a sling configuration with one end of the sling passing under the load and through an end attachment, handle or eye on the other end of the sling.

Coating is an elastomer or other suitable material applied to a sling or to a sling component to impart desirable properties.

Cross rod is a wire used to join spirals of metal mesh to form a complete fabric. (See Fig. N–184–2.)

Designated means selected or assigned by the employer or the employer's representative as being qualified to perform specific duties.

Equivalent entity is a person or organization (including an employer) which, by possession of equipment, technical knowledge and skills, can perform with equal competence the same repairs and tests as the person or organization with which it is equated.

Fabric (metal mesh) is the flexible portion of a metal mesh sling consisting of a series of transverse coils and cross rods.

Female handle (choker) is a handle with a handle eye and a slot of such dimension as to permit passage of a male handle thereby allowing the use of a metal mesh sling in a choker hitch. (See Fig. N–184–1.)

Handle is a terminal fitting to which metal mesh fabric is attached. (See Fig. N–184–1.)

Handle eye is an opening in a handle of a metal mesh sling shaped to accept a hook, shackle or other lifting device. (See Fig. N–184–1.)

Hitch is a sling configuration whereby the sling is fastened to an object or load, either directly to it or around it.

Link is a single ring of a chain.

Male handle (triangle) is a handle with a handle eye.

Master coupling link is an alloy steel welded coupling link used as an intermediate link to join alloy steel chain to master links. (See Fig. N–184–3.)

Master link or *gathering ring* is a forged or welded steel link used to support all members (legs) of an alloy steel chain sling or wire rope sling. (See Fig. N–184–3.)

Mechanical coupling link is a non-welded, mechanically closed steel link used to attach master links, hooks, etc., to alloy steel chain.

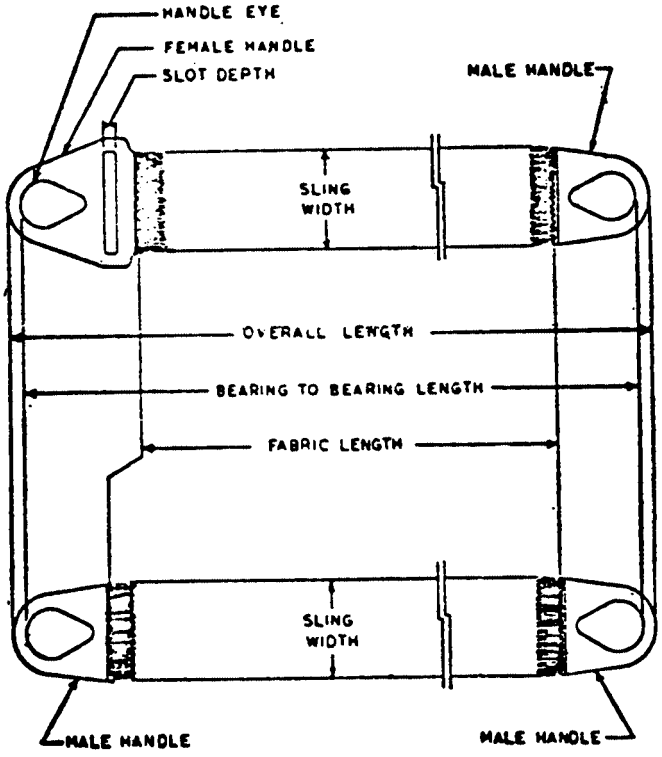


FIG. N-184-1
Metal Mesh Sling (Typical)

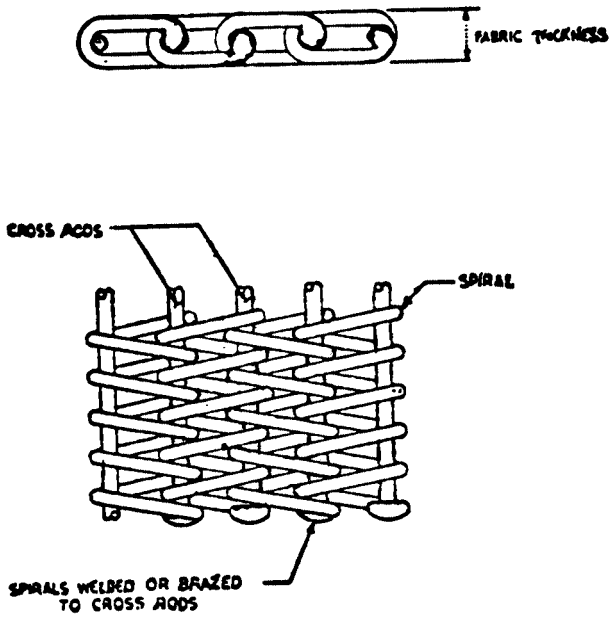


FIG. N-184-2
Metal Mesh Construction

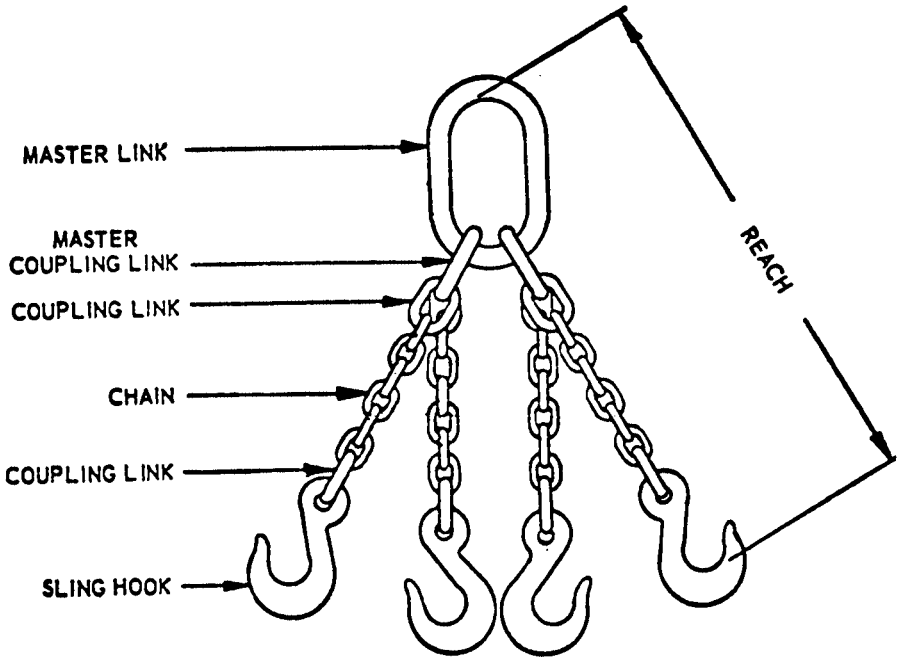


FIG. N-184-3 MAJOR COMPONENTS OF A QUADRUPLE SLING.

Proof load is the load applied in performance of a proof test.

Proof test is a nondestructive tension test performed by the sling manufacturer or an equivalent entity to verify construction and workmanship of a sling.

Rated capacity or *working load limit* is the maximum working load permitted by the provisions of this section.

Reach is the effective length of an alloy steel chain sling measured from the top bearing surface of the upper terminal component to the bottom bearing surface of the lower terminal component.

Selvage edge is the finished edge of synthetic webbing designed to prevent unraveling.

Sling is an assembly which connects the load to the material handling equipment.

Sling manufacturer is a person or organization that assembles sling components into their final form for sale to users.

Spiral is a single transverse coil that is the basic element from which metal mesh is fabricated. (See Fig. N–184–2.)

Strand laid endless sling-mechanical joint is a wire rope sling made endless from one length of rope with the ends joined by one or more metallic fittings.

Strand laid grommet-hand tucked is an endless wire rope sling made from one length of strand wrapped six times around a core formed by hand tucking the ends of the strand inside the six wraps.

Strand laid rope is a wire rope made with strands (usually six or eight) wrapped around a fiber core, wire strand core, or independent wire rope core (IWRC).

Vertical hitch is a method of supporting a load by a single, vertical part or leg of the sling. (See Fig. N–184–4.)

(c) *Safe operating practices.* Whenever any sling is used, the following practices shall be observed:

(1) Slings that are damaged or defective shall not be used.

(2) Slings shall not be shortened with knots or bolts or other makeshift devices.

(3) Sling legs shall not be kinked.

(4) Slings shall not be loaded in excess of their rated capacities.

(5) Slings used in a basket hitch shall have the loads balanced to prevent slippage.

(6) Slings shall be securely attached to their loads.

(7) Slings shall be padded or protected from the sharp edges of their loads.

(8) Suspended loads shall be kept clear of all obstructions.

(9) All employees shall be kept clear of loads about to be lifted and of suspended loads.

(10) Hands or fingers shall not be placed between the sling and its load while the sling is being tightened around the load.

(11) Shock loading is prohibited.

(12) A sling shall not be pulled from under a load when the load is resting on the sling.

(d) *Inspections.* Each day before being used, the sling and all fastenings and attachments shall be inspected for damage or defects by a competent person designated by the employer. Additional inspections shall be performed during sling use, where service conditions warrant. Damaged or defective slings shall be immediately removed from service.

(e) *Alloy steel chain slings*—(1) *Sling identification.* Alloy steel chain slings shall have permanently affixed durable identification stating size, grade, rated capacity, and reach.

(2) *Attachments.* (i) Hooks, rings, oblong links, pear shaped links, welded or mechanical coupling links or other attachments shall have a rated capacity at least equal to that of the alloy steel chain with which they are used or the sling shall not be used in excess of the rated capacity of the weakest component.

(ii) Makeshift links or fasteners formed from bolts or rods, or other such attachments, shall not be used.

(3) *Inspections.* (i) In addition to the inspection required by paragraph (d) of this section, a thorough periodic inspection of alloy steel chain slings in use shall be made on a regular basis, to be determined on the basis of (A) frequency of sling use; (B) severity of service conditions; (C) nature of lifts being made; and (D) experience gained on the service life of slings used in similar circumstances. Such inspections shall in no event be at intervals greater than once every 12 months.

(ii) The employer shall make and maintain a record of the most recent month in which each alloy steel chain sling was thoroughly inspected, and shall make such record available for examination.

(iii) The thorough inspection of alloy steel chain slings shall be performed by a competent person designated by the employer, and shall include a thorough inspection for wear, defective welds, deformation and increase in length. Where such defects or deterioration are present, the sling shall be immediately removed from service.

(4) *Proof testing.* The employer shall ensure that before use, each new, repaired, or reconditioned alloy steel chain sling, including all welded components in the sling assembly, shall be proof tested by the sling manufacturer or equivalent entity, in accordance with paragraph 5.2 of the American Society of Testing and Materials Specification A391–65, which is incorporated by reference as specified in § 1910.6 (ANSI G61.1– 1968). The employer shall retain a certificate of the proof test and shall make it available for examination.

(5) *Sling use.* Alloy steel chain slings shall not be used with loads in excess of the rated capacities prescribed in Table N–184–1. Slings not included in this table shall be used only in accordance with the manufacturer's recommendations.

(6) *Safe operating temperatures.* Alloy steel chain slings shall be permanently removed from service if they are heated above 1000 °F. When exposed to service temperatures in excess of 600 °F, maximum working load limits permitted in Table N–184–1 shall be reduced in accordance with the chain or sling manufacturer's recommendations.

(7) *Repairing and reconditioning alloy steel chain slings.* (i) Worn or damaged alloy steel chain slings or attachments shall not be used until repaired. When

welding or heat testing is performed, slings shall not be used unless repaired, reconditioned and proof tested by the sling manufacturer or an equivalent entity.

(ii) Mechanical coupling links or low carbon steel repair links shall not be used to repair broken lengths of chain.

(8) *Effects of wear.* If the chain size at any point of any link is less than that stated in Table N–184–2, the sling shall be removed from service.

(9) *Deformed attachments.* (i) Alloy steel chain slings with cracked or deformed master links, coupling links or other components shall be removed from service.

TABLE N–184–1—RATED CAPACITY (WORKING LOAD LIMIT), FOR ALLOY STEEL CHAIN SLINGS

Rated Capacity (Working Load Limit), Pounds
[Horizontal angles shown in parentheses]

Chain size, inches	Single branch sling—90° loading	Double sling vertical angle (1)			Triple and quadruple sling (3) vertical angle (1)		
		30° (60°)	45° (45°)	60° (30°)	30° (60°)	45° (45°)	60° (30°)
¼	3,250	5,650	4,550	3,250	8,400	6,800	4,900
⅜	6,600	11,400	9,300	6,600	17,000	14,000	9,900
½	11,250	19,500	15,900	11,250	29,000	24,000	17,000
⅝	16,500	28,500	23,300	16,500	43,000	35,000	24,500
¾	23,000	39,800	32,500	23,000	59,500	48,500	34,500
⅞	28,750	49,800	40,600	28,750	74,500	61,000	43,000
1	38,750	67,100	5,800	38,750	101,000	82,000	58,000
1⅛	44,500	77,000	63,000	44,500	115,500	94,500	66,500
1¼	57,500	99,500	61,000	57,500	149,000	121,500	86,000
1⅜	67,000	116,000	94,000	67,000	174,000	141,000	100,500
1½	80,000	138,000	112,900	80,000	207,000	169,000	119,500
1¾	100,000	172,000	140,000	100,000	258,000	210,000	150,000

(1) Rating of multileg slings adjusted for angle of loading measured as the included angle between the inclined leg and the vertical as shown in Figure N–184–5.
(2) Rating of multileg slings adjusted for angle of loading between the inclined leg and the horizontal plane of the load, as shown in Figure N–184–5.
(3) Quadruple sling rating is same as triple sling because normal lifting practice may not distribute load uniformly to all 4 legs.

TABLE N–184–2—MINIMUM ALLOWABLE CHAIN SIZE AT ANY POINT OF LINK

Chain size, inches	Minimum allowable chain size, inches
¼	13/64
⅜	19/64
½	25/64
⅝	31/64
¾	19/32
⅞	45/64
1	13/16
1⅛	29/32
1¼	1
1⅜	1 3/32
1½	1 3/16
1¾	1 13/32

(ii) Slings shall be removed from service if hooks are cracked, have been opened more than 15 percent of the normal throat opening measured at the narrowest point or twisted more than 10 degrees from the plane of the unbent hook.

(f) *Wire rope slings*—(1) *Sling use.* Wire rope slings shall not be used with loads in excess of the rated capacities shown in Tables N–184–3 through N–184–14. Slings not included in these tables shall be used only in accordance with the manufacturer's recommendations.

(2) *Minimum sling lengths.* (i) Cable laid and 6×19 and 6×37 slings shall have a minimum clear length of wire rope 10 times the component rope diameter between splices, sleeves or end fittings.

(ii) Braided slings shall have a minimum clear length of wire rope 40 times the component rope diameter between the loops or end fittings.

(iii) Cable laid grommets, strand laid grommets and endless slings shall have a minimum circumferential length of 96 times their body diameter.

(3) *Safe operating temperatures.* Fiber core wire rope slings of all grades shall be permanently removed from service if they are exposed to temperatures in excess of 200 °F. When nonfiber core wire rope slings of any grade are used at temperatures above 400 °F or below minus 60 °F, recommendations of the sling manufacturer regarding use at that temperature shall be followed.

(4) *End attachments.* (i) Welding of end attachments, except covers to thimbles, shall be performed prior to the assembly of the sling.

(ii) All welded end attachments shall not be used unless proof tested by the manufacturer or equivalent entity at twice their rated capacity prior to initial use. The employer shall retain a certificate of the proof test, and make it available for examination.

TABLE N–184–3—RATED CAPACITIES FOR SINGLE LEG SLINGS

6×19 and 6×37 Classification Improved Plow Steel Grade Rope With Fiber Core (FC)

Rope		Rated capacities, tons (2,000 lb)								
Dia (inches)	Constr	Vertical			Choker			Vertical basket [1]		
		HT	MS	S	HT	MS	S	HT	MS	S
1/4	6×19	0.49	0.51	0.55	0.37	0.38	0.41	0.99	1.0	1.1
5/16	6×19	0.76	0.79	0.85	0.57	0.59	0.64	1.5	1.6	1.7
3/8	6×19	1.1	1.1	1.2	0.80	0.85	0.91	2.1	2.2	2.4
7/16	6×19	1.4	1.5	1.6	1.1	1.1	1.2	2.9	3.0	3.3
1/2	6×19	1.8	2.0	2.1	1.4	1.5	12.6	3.7	3.9	4.3
9/16	6×19	2.3	2.5	2.7	1.7	1.9	2.0	4.6	5.0	5.4
5/8	6×19	2.8	3.1	3.3	2.1	2.3	2.5	5.6	6.2	6.7
3/4	6×19	3.9	4.4	4.8	2.9	3.3	3.6	7.8	8.8	9.5
7/8	6×19	5.1	5.9	6.4	3.9	4.5	4.8	10.0	12.0	13.0
1	6×19	6.7	7.7	8.4	5.0	5.8	6.3	13.0	15.0	17.0
1 1/8	6×19	8.4	9.5	10.0	6.3	7.1	7.9	17.0	19.0	21.0
1 1/4	6×37	9.8	11.0	12.0	7.4	8.3	9.2	20.0	22.0	25.0
1 3/8	6×37	12.0	13.0	15.0	8.9	10.0	11.0	24.0	27.0	30.0
1 1/2	6×37	14.0	16.0	15.0	10.0	12.0	13.0	28.0	32.0	35.0
1 5/8	6×37	16.0	18.0	21.0	12.0	14.0	15.0	33.0	27.0	41.0
1 3/4	6×37	19.0	21.0	24.0	14.0	16.0	18.0	38.0	43.0	48.0
2	6×37	25.0	28.0	31.0	18.0	21.0	23.0	49.0	55.0	62.0

HT = Hand Tucked Splice and Hidden Tuck Splice. For hidden tuck splice (IWRC) use values in HT columns.
MS = Mechanical Splice.
S = Swaged or Zinc Poured Socket.

[1] These values only apply when the D/d ratio for HT slings is 10 or greater, and for MS and S slings is 20 or greater where: D=Diameter of curvature around which the body of the sling is bent; d=Diameter of rope.

TABLE N–184–4—RATED CAPACITIES FOR SINGLE LEG SLINGS

6×19 and 6×37 Classification Improved Plow Steel Grade Rope With Independent Wire Rope Core (IWRC)

Rope		Rated capacities, tons (2,000 lb)								
Dia (inches)	Constr	Vertical			Choker			Vertical basket [1]		
		HT	MS	S	HT	MS	S	HT	MS	S
1/4	6×19	0.53	0.56	0.59	0.40	0.42	0.44	1.0	1.1	1.2
5/16	6×19	0.81	0.87	0.92	0.61	0.65	0.69	1.6	1.7	1.8
3/8	6×19	1.1	1.2	1.3	0.86	0.93	0.98	2.3	2.5	2.6
7/16	6×19	1.5	1.7	1.8	1.2	1.3	1.3	3.1	3.4	3.5
1/2	6×19	2.0	2.2	2.3	1.5	1.6	1.7	3.9	4.4	4.6
9/16	6×19	2.5	2.7	2.9	1.8	2.1	2.2	4.9	5.5	5.8
5/8	6×19	3.0	3.4	3.6	2.2	2.5	2.7	6.0	6.8	7.2
3/4	6×19	4.2	4.9	5.1	3.1	3.6	3.8	8.4	9.7	10.0
7/8	6×19	5.5	6.6	6.9	4.1	4.9	5.2	11.0	13.0	14.0
1	6×19	7.2	8.5	9.0	5.4	6.4	6.7	14.0	17.0	18.0
1 1/8	6×19	9.0	10.0	11.0	6.8	7.8	8.5	18.0	21.0	23.0
1 1/4	6×37	10.0	12.0	13.0	7.9	9.2	9.9	21.0	24.0	26.0
1 3/8	6×37	13.0	15.0	16.0	9.6	11.0	12.0	25.0	29.0	32.0
1 1/2	6×37	15.0	17.0	19.0	11.0	13.0	14.0	30.0	35.0	38.0
1 5/8	6×37	18.0	20.0	22.0	13.0	15.0	17.0	35.0	41.0	44.0
1 3/4	6×37	20.0	24.0	26.0	15.0	18.0	19.0	41.0	47.0	51.0
2	6×37	26.0	30.0	33.0	20.0	23.0	25.0	53.0	61.0	66.0

HT = Hand Tucked Splice. For hidden tuck splice (IWRC) use Table I values in HT column.
MS = Mechanical Splice.
S = Swaged or Zinc Poured Socket.

[1] These values only apply when the D/d ratio for HT slings is 10 or greater, and for MS and S Slings is 20 or greater where: D=Diameter of curvature around which the body of the sling is bent; d=Diameter of rope.

TABLE N–184–5—RATED CAPACITIES FOR SINGLE LEG SLINGS

Cable Laid Rope—Mechanical Splice Only
7×7×7&7×19 Constructions Galvanized Aircraft Grade Rope
7×6×19 IWRC Construction Improved Plow Steel Grade Rope

Rope		Rated capacities, tons (2,000 lb)		
Dia (inches)	Constr	Vertical	Choker	Vertical basket [1]
1/4	7×7×7	0.50	0.38	1.0
3/8	7×7×7	1.1	0.81	2.0
1/2	7×7×7	1.8	1.4	3.7
5/8	7×7×7	2.8	2.1	5.5
3/4	7×7×7	3.8	2.9	7.6
5/8	7×7×19	2.9	2.2	5.8
3/4	7×7×19	4.1	3.0	8.1
7/8	7×7×19	5.4	4.0	11.0
1	7×7×19	6.9	5.1	14.0
1 1/8	7×7×19	8.2	6.2	16.0
1 1/4	7×7×19	9.9	7.4	20.0
3/4	7×6×19 IWRC	3.8	2.8	7.6
7/8	7×6×19 IWRC	5.0	3.8	10.0
1	7×6×19 IWRC	6.4	4.8	13.0
1 1/8	7×6×19 IWRC	7.7	5.8	15.0
1 1/4	7×6×19 IWRC	9.2	6.9	18.0
1 5/16	7×6×19 IWRC	10.0	7.5	20.0
1 3/8	7×6×19 IWRC	11.0	8.2	22.0
1 1/2	7×6×19 IWRC	13.0	9.6	26.0

[1] These values only apply when the D/d ratio is 10 or greater where: D=Diameter of curvature around which the body of the sling is bent; d=Diameter of rope.

TABLE N–184–6—RATED CAPACITIES FOR SINGLE LEG SLINGS

8-Part and 6-Part Braided Rope
6×7 and 6×19 Construction Improved Plow Steel Grade Rope
7×7 Construction Galvanized Aircraft Grade Rope

Component ropes		Rated capacities, tons (2,000 lb)					
Diameter (inches)	Constr	Vertical		Choker		Basket, vertical to 30° [1]	
		8-Part	6-Part	8-Part	6-Part	8-Part	6-Part
3/32	6×7	0.42	0.32	0.32	0.24	0.74	0.55
1/8	6×7	0.75	0.57	0.57	0.42	1.3	0.98
3/16	6×7	1.7	1.3	1.3	0.94	2.9	2.2
3/32	7×7	0.51	0.39	0.38	0.29	0.89	0.67
1/8	7×7	0.95	0.7	0.71	0.53	1.6	1.2
3/16	7×7	2.1	1.5	1.5	1.2	3.6	2.7
3/16	6×19	1.7	1.3	1.3	0.98	3.0	2.2
1/4	6×19	3.1	2.3	2.3	1.7	5.3	4.0
5/16	6×19	4.8	3.6	3.6	2.7	8.3	6.2
3/8	6×19	6.8	5.1	5.1	3.8	12.0	8.9
7/16	6×19	9.3	6.9	6.9	5.2	16.0	12.0
1/2	6×19	12.0	9.0	9.0	6.7	21.0	15.0
9/16	6×19	15.0	11.0	11.0	8.5	26.0	20.0
5/8	6×19	19.0	14.0	14.0	10.0	32.0	24.0
3/4	6×19	27.0	20.0	20.0	15.0	46.0	35.0
7/8	6×19	36.0	27.0	27.0	20.0	62.0	47.0
1	6×19	47.0	35.0	35.0	26.0	81.0	61.0

[1] These values only apply when the D/d ratio is 20 or greater where: D=Diameter of curvature around which the body of the sling is bent; d=Diameter of component rope.

TABLE N–184–7—RATED CAPACITIES FOR 2-LEG AND 3-LEG BRIDLE SLINGS

6×19 and 6×37 Classification Improved Plow Steel Grade Rope With Fiber Core (FC)

[Horizontal angles shown in parentheses]

Rope		Rated capacities, tons (2,000 lb)											
		2-Leg bridle slings						3-Leg bridle slings					
Dia (in.)	Constr	30° (60°)		45° angle		60° (30°)		30° (60°)		45° angle		60° (30°)	
		HT	MS	HT	MS	HT	MS	HT	MS	HT	MS	HT	MS
¼	6×19	0.85	0.83	0.70	0.72	0.49	0.51	1.3	1.3	1.0	1.1	0.74	0.76
5/16	6×19	1.3	1.4	1.1	1.1	0.76	0.79	2.0	2.0	1.6	1.7	1.1	1.2
3/8	6×19	1.8	1.9	1.5	1.6	1.1	1.1	2.8	2.9	2.3	2.4	1.6	1.7
7/16	6×19	2.5	2.6	2.0	2.2	1.4	1.5	3.7	4.0	3.0	3.2	2.1	2.3
½	6×19	3.2	3.4	2.6	2.8	1.8	2.0	4.8	5.1	3.9	4.2	2.8	3.0
9/16	6×19	4.0	4.3	3.2	3.5	2.3	2.5	6.0	6.5	4.9	5.3	3.4	3.7
5/8	6×19	4.8	5.3	4.0	4.4	2.8	3.1	7.3	8.0	5.9	6.5	4.2	4.6
¾	6×19	6.8	7.6	5.5	6.2	3.9	4.4	10.0	11.0	8.3	9.3	5.8	6.6
⅞	6×19	8.9	10.0	7.3	8.4	5.1	5.9	13.0	15.0	11.0	13.0	7.7	8.9
1	6×19	11.0	13.0	9.4	11.0	6.7	7.7	17.0	20.0	14.0	16.0	10.0	11.0
1⅛	6×19	14.0	16.0	12.0	13.0	8.4	9.3	22.0	24.0	18.0	20.0	13.0	14.0
1¼	6×37	17.0	19.0	14.0	16.0	9.8	11.0	25.0	29.0	21.0	23.0	15.0	17.0
1⅜	6×37	20.0	23.0	17.0	19.0	12.0	13.0	31.0	35.0	25.0	28.0	18.0	20.0
1½	6×37	24.0	27.0	20.0	22.0	14.0	16.0	36.0	41.0	30.0	33.0	21.0	24.0
1⅝	6×37	28.0	32.0	23.0	26.0	16.0	18.0	43.0	48.0	35.0	39.0	25.0	28.0
1¾	6×37	33.0	37.0	27.0	30.0	19.0	21.0	49.0	56.0	40.0	45.0	28.0	32.0
2	6×37	43.0	48.0	35.0	39.0	25.0	28.0	64.0	72.0	52.0	59.0	37.0	41.0

HT=Hand Tucked Splice. MS=Mechanical Splice.

TABLE N–184–8—RATED CAPACITIES FOR 2-LEG AND 3-LEG BRIDLE SLINGS

6×19 and 6×37 Classification Improved Plow Steel Grade Rope With Independent Wire Rope Core (IWRC)

[Horizontal angles shown in parentheses]

Rope		Rated capacities, tons (2,000 lb)											
		2-Leg bridle slings						3-Leg bridle slings					
Dia (in.)	Constr	30° (60°)		45° angle		60° (30°)		30° (60°)		45° angle		60° (30°)	
		HT	MS	HT	MS	HT	MS	HT	MS	HT	MS	HT	MS
¼	6×19	0.92	0.97	0.75	0.79	0.53	0.56	1.4	1.4	1.1	1.2	0.79	0.84
5/16	6×19	1.4	1.5	1.1	1.2	0.81	0.87	2.1	2.3	1.7	1.8	1.2	1.3
3/8	6×19	2.0	2.1	1.6	1.8	1.1	1.2	3.0	3.2	2.4	2.6	1.7	1.9
7/16	6×19	2.7	2.9	2.2	2.4	1.5	1.7	4.0	4.4	3.3	3.6	2.3	2.5
½	6×19	3.4	3.8	2.8	3.1	2.0	2.2	5.1	5.7	4.2	4.6	3.0	3.3
9/16	6×19	4.3	4.8	3.5	3.9	2.5	2.7	6.4	7.1	5.2	5.8	3.7	4.1
5/8	6×19	5.2	5.9	4.2	4.8	3.0	3.4	7.8	8.8	6.4	7.2	4.5	5.1
¾	6×19	7.3	8.4	5.9	6.9	4.2	4.9	11.0	13.0	8.9	10.0	6.3	7.3
⅞	6×19	9.6	11.0	7.8	9.3	5.5	6.6	14.0	17.0	12.0	14.0	8.3	9.9
1	6×19	12.0	15.0	10.0	12.0	7.2	8.5	19.0	22.0	15.0	18.0	11.0	13.0
1⅛	6×19	16.0	18.0	13.0	15.0	9.0	10.0	23.0	27.0	19.0	22.0	13.0	16.0
1¼	6×37	18.0	21.0	15.0	17.0	10.0	12.0	27.0	32.0	22.0	26.0	16.0	18.0
1⅜	6×37	22.0	25.0	18.0	21.0	13.0	15.0	33.0	38.0	27.0	31.0	19.0	22.0
1½	6×37	26.0	30.0	21.0	25.0	15.0	17.0	39.0	45.0	32.0	37.0	23.0	26.0
1⅝	6×37	31.0	35.0	25.0	29.0	18.0	20.0	46.0	53.0	38.0	43.0	27.0	31.0
1¾	6×37	35.0	41.0	29.0	33.0	20.0	24.0	53.0	61.0	43.0	50.0	31.0	35.0
2	6×37	46.0	53.0	37.0	43.0	26.0	30.0	68.0	79.0	56.0	65.0	40.0	46.0

HT=Hand Tucked Splice. MS=Mechanical Splice.

TABLE N–184–9—RATED CAPACITIES FOR 2-LEG AND 3-LEG BRIDLE SLINGS

Cable Laid Rope—Mechanical Splice Only

7×7×7 and 7×7×19 Constructions Galvanized Aircraft Grade Rope

7×6×19 IWRC Construction Improved Plow Steel Grade Rope

[Horizontal angles shown in parentheses]

Rope		Rated capacities, tons (2,000 lb)					
		2-Leg bridle sling			3-Leg bridle sling		
Dia (inches)	Constr	30° (60°)	45° angle	60° (30°)	30° (60°)	45° angle	60° (30°)
¼	7×7×7	0.87	0.71	0.50	1.3	1.1	0.75

TABLE N–184–9—RATED CAPACITIES FOR 2-LEG AND 3-LEG BRIDLE SLINGS—Continued

Cable Laid Rope—Mechanical Splice Only
7×7×7 and 7×7×19 Constructions Galvanized Aircraft Grade Rope
7×6×19 IWRC Construction Improved Plow Steel Grade Rope
[Horizontal angles shown in parentheses]

Rope		Rated capacities, tons (2,000 lb)					
		2-Leg bridle sling			3-Leg bridle sling		
Dia (inches)	Constr	30° (60°)	45° angle	60° (30°)	30° (60°)	45° angle	60° (30°)
3/8	7×7×7	1.9	1.5	1.1	2.8	2.3	1.6
1/2	7×7×7	3.2	2.6	1.8	4.8	3.9	2.8
5/8	7×7×7	4.8	3.9	2.8	7.2	5.9	4.2
3/4	7×7×7	6.6	5.4	3.8	9.9	8.1	3.7
5/8	7×7×19	5.0	4.1	2.9	7.5	6.1	4.3
3/4	7×7×19	7.0	5.7	4.1	10.0	8.6	6.1
7/8	7×7×19	9.3	7.6	5.4	14.0	11.0	8.1
1	7×7×19	12.0	9.7	6.9	18.0	14.0	10.0
1 1/8	7×7×19	14.0	12.0	8.2	21.0	17.0	12.0
1 1/4	7×7×19	17.0	14.0	9.9	26.0	21.0	15.0
3/4	7×6×19 IWRC	6.6	5.4	3.8	9.9	8.0	5.7
7/8	7×6×19 IWRC	8.7	7.1	5.0	13.0	11.0	7.5
1	7×6×19 IWRC	11.0	9.0	6.4	17.0	13.0	9.6
1 1/8	7×6×19 IWRC	13.0	11.0	7.7	20.0	16.0	11.0
1 1/4	7×6×19 IWRC	16.0	13.0	9.2	24.0	20.0	14.0
1 5/16	7×6×19 IWRC	17.0	14.0	10.0	26.0	21.0	15.0
1 3/8	7×6×19 IWRC	19.0	15.0	11.0	28.0	23.0	16.0
1 1/2	7×6×19 IWRC	22.0	18.0	13.0	33.0	27.0	19.0

TABLE N–184–10—RATED CAPACITIES FOR 2-LEG AND 3-LEG BRIDLE SLINGS

8-Part and 6-Part Braided Rope
6×7 and 6×19 Construction Improved Plow Steel Grade Rope
7×7 Construction Galvanized Aircraft Grade Rope
[Horizontal angles shown in parentheses]

Rope		Rated capacities, tons (2,000 lb)											
		2-Leg bridle slings						3-Leg bridle slings					
Dia (in.)	Constr	30° (60°)		45° angle		60° (30°)		30° (60°)		45° angle		60° (30°)	
		8-Part	6-Part	8-Part	6-Part	8-Part	6-Part	8-Part	6-Part	8-Part	6-Part	8-Part	6-Part
3/32	6×7	0.74	0.55	0.60	0.45	0.42	0.32	1.1	0.83	0.90	0.68	0.64	0.48
1/8	6×7	1.3	0.98	1.1	0.80	0.76	0.57	2.0	1.5	1.6	1.2	1.1	0.85
3/16	6×7	2.9	2.2	2.4	1.8	1.7	1.3	4.4	3.3	3.6	2.7	2.5	1.9
3/32	7×7	0.89	0.67	0.72	0.55	0.51	0.39	1.3	1.0	1.1	0.82	0.77	0.58
1/8	7×7	1.6	1.2	1.3	1.0	0.95	0.71	2.5	1.8	2.0	1.5	1.4	1.1
3/16	7×7	3.6	2.7	2.9	2.2	2.1	1.5	5.4	4.0	4.4	3.3	3.1	2.3
3/16	6×19	3.0	2.2	2.4	1.8	1.7	1.3	4.5	3.4	3.7	2.8	2.6	1.9
1/4	6×19	5.3	4.0	4.3	3.2	3.1	2.3	8.0	6.0	6.5	4.9	4.6	3.4
5/16	6×19	8.3	6.2	6.7	5.0	4.8	3.6	12.0	9.3	10.0	7.6	7.1	5.4
3/8	6×19	12.0	8.9	9.7	7.2	6.8	5.1	18.0	13.0	14.0	11.0	10.0	7.7
7/16	6×19	16.0	12.0	13.0	9.8	9.3	6.9	24.0	18.0	20.0	15.0	14.0	10.0
1/2	6×19	21.0	15.0	17.0	13.0	12.0	9.0	31.0	23.0	25.0	19.0	18.0	13.0
9/16	6×19	26.0	20.0	21.0	16.0	15.0	11.0	39.0	29.0	32.0	24.0	23.0	17.0
5/8	6×19	32.0	24.0	26.0	20.0	10.0	14.0	48.0	36.0	40.0	30.0	28.0	21.0
3/4	6×19	46.0	35.0	38.0	28.0	27.0	20.0	69.0	52.0	56.0	42.0	40.0	30.0
7/8	6×19	62.0	47.0	51.0	38.0	36.0	27.0	94.0	70.0	76.0	57.0	54.0	40.0
1	6×19	81.0	61.0	66.0	50.0	47.0	35.0	122.0	91.0	99.0	74.0	70.0	53.0

TABLE N–184–11—RATED CAPACITIES FOR STRAND LAID GROMMET—HAND TUCKED

Improved Plow Steel Grade Rope

Rope body		Rated capacities, tons (2,000 lb)		
Dia (inches)	Constr	Vertical	Choker	Vertical basket [1]
1/4	7×19	0.85	0.64	1.7
5/16	7×19	1.3	1.0	2.6
3/8	7×19	1.9	1.4	3.8
7/16	7×19	2.6	1.9	5.2
1/2	7×19	3.3	2.5	6.7
9/16	7×19	4.2	3.1	8.4
5/8	7×19	5.2	3.9	10.0
3/4	7×19	7.4	5.6	15.0
7/8	7×19	10.0	7.5	20.0
1	7×19	13.0	9.7	26.0
1 1/8	7×19	16.0	12.0	32.0
1 1/4	7×37	18.0	14.0	37.0
1 3/8	7×37	22.0	16.0	44.0
1 1/2	7×37	26.0	19.0	52.0

[1] These values only apply when the D/d ratio is 5 or greater where: D=Diameter of curvature around which rope is bent. d=Diameter of rope body.

TABLE N–184–12—RATED CAPACITIES FOR CABLE LAID GROMMET—HAND TUCKED

7×6×7 and 7×6×19 Constructions Improved Plow Steel Grade Rope

7×7×7 Construction Galvanized Aircraft Grade Rope

Cable body		Rated capacities, tons (2,000 lb)		
Dia (inches)	Constr	Vertical	Choker	Vertical basket [1]
3/8	7×6×7	1.3	0.95	2.5
9/16	7×6×7	2.8	2.1	5.6
5/8	7×6×7	3.8	2.8	7.6
3/8	7×7×7	1.6	1.2	3.2
9/16	7×7×7	3.5	2.6	6.9
5/8	7×7×7	4.5	3.4	9.0
5/8	7×6×19	3.9	3.0	7.9
3/4	7×6×19	5.1	3.8	10.0
15/16	7×6×19	7.9	5.9	16.0
1 1/8	7×6×19	11.0	8.4	22.0
1 5/16	7×6×19	15.0	11.0	30.0
1 1/2	7×6×19	19.0	14.0	39.0
1 11/16	7×6×19	24.0	18.0	49.0
1 7/8	7×6×19	30.0	22.0	60.0
2 1/4	7×6×19	42.0	31.0	84.0
2 5/8	7×6×19	56.0	42.0	112.0

[1] These values only apply when the D/d ratio is 5 or greater where: D=Diameter of curvature around which cable body is bent. d=Diameter of cable body.

TABLE N–184–13—RATED CAPACITIES FOR STRAND LAID ENDLESS SLINGS—MECHANICAL JOINT

Improved Plow Steel Grade Rope

Rope body		Rated capacities, tons (2,000 lb)		
Dia (inches)	Constr	Vertical	Choker	Vertical basket [1]
1/4	[2] 6×19	0.92	0.69	1.8
3/8	[2] 6×19	2.0	1.5	4.1
1/2	[2] 6×19	3.6	2.7	7.2
5/8	[2] 6×19	5.6	4.2	11.0
3/4	[2] 6×19	8.0	6.0	16.0
7/8	[2] 6×19	11.0	8.1	21.0

TABLE N–184–13—RATED CAPACITIES FOR STRAND LAID ENDLESS SLINGS—MECHANICAL JOINT—Continued

Improved Plow Steel Grade Rope

Rope body		Rated capacities, tons (2,000 lb)		
Dia (inches)	Constr	Vertical	Choker	Vertical basket [1]
1	[2] 6×19	14.0	10.0	28.0
1 1/8	[2] 6×19	18.0	13.0	35.0
1 1/4	[2] 6×37	21.0	15.0	41.0
1 3/8	[2] 6×37	25.0	19.0	50.0
1 1/2	[2] 6×37	29.0	22.0	59.0

[1] These values only apply when the D/d ratio is 5 or greater where: D=Diameter of curvature around which rope is bent. d=Diameter of rope body.
[2] IWRC.

TABLE N–184–14—RATED CAPACITIES FOR CABLE LAID ENDLESS SLINGS—MECHANICAL JOINT

7×7×7 and 7×7×19 Constructions Galvanized Aircraft Grade Rope

7×6×19 IWRC Construction Improved Plow Steel Grade Rope

Cable body		Rated capacities, tons (2,000 lb)		
Dia (inches)	Constr	Vertical	Choker	Vertical basket [1]
1/4	7×7×7	0.83	0.62	1.6
3/8	7×7×7	1.8	1.3	3.5
1/2	7×7×7	3.0	2.3	6.1
5/8	7×7×7	4.5	3.4	9.1
3/4	7×7×7	6.3	4.7	12.0
5/8	7×7×19	4.7	3.5	9.5
3/4	7×7×19	6.7	5.0	13.0
7/8	7×7×19	8.9	6.6	18.0
1	7×7×19	11.0	8.5	22.0
1 1/8	7×7×19	14.0	10.0	28.0
1 1/4	7×7×19	17.0	12.0	33.0
3/4	[2] 7×6×19	6.2	4.7	12.0
7/8	[2] 7×6×19	8.3	6.2	16.0
1	[2] 7×6×19	10.0	7.9	21.0
1 1/8	[2] 7×6×19	13.0	9.7	26.0
1 1/4	[2] 7×6×19	16.0	12.0	31.0
1 3/8	[2] 7×6×19	18.0	14.0	37.0
1 1/2	[2] 7×6×19	22.0	16.0	43.0

[1] These values only apply when the D/d value is 5 or greater where: D=Diameter of curvature around which cable body is bent. d=Diameter of cable body.
[2] IWRC.

(5) *Removal from service.* Wire rope slings shall be immediately removed from service if any of the following conditions are present:

(i) Ten randomly distributed broken wires in one rope lay, or five broken wires in one strand in one rope lay.

(ii) Wear or scraping of one-third the original diameter of outside individual wires.

(iii) Kinking, crushing, bird caging or any other damage resulting in distortion of the wire rope structure.

(iv) Evidence of heat damage.

(v) End attachments that are cracked, deformed or worn.

(vi) Hooks that have been opened more than 15 percent of the normal throat opening measured at the narrowest point or twisted more than 10 degrees from the plane of the unbent hook.

(vii) Corrosion of the rope or end attachments.

(g) *Metal mesh slings*—(1) *Sling marking.* Each metal mesh sling shall have permanently affixed to it a durable marking that states the rated capacity for vertical basket hitch and choker hitch loadings.

(2) *Handles.* Handles shall have a rated capacity at least equal to the metal fabric and exhibit no deformation after proof testing.

(3) *Attachments of handles to fabric.* The fabric and handles shall be joined so that:

(i) The rated capacity of the sling is not reduced.

(ii) The load is evenly distributed across the width of the fabric.

(iii) Sharp edges will not damage the fabric.

(4) *Sling coatings.* Coatings which diminish the rated capacity of a sling shall not be applied.

(5) *Sling testing.* All new and repaired metal mesh slings, including handles, shall not be used unless proof tested by the manufacturer or equivalent entity at a minimum of 1½ times their rated capacity. Elastomer impregnated slings shall be proof tested before coating.

(6) *Proper use of metal mesh slings.* Metal mesh slings shall not be used to lift loads in excess of their rated capacities as prescribed in Table N–184–15. Slings not included in this table shall be used only in accordance with the manufacturer's recommendations.

(7) *Safe operating temperatures.* Metal mesh slings which are not impregnated with elastomers may be used in a temperature range from minus 20 °F to plus 550 °F without decreasing the working load limit. Metal mesh slings impregnated with polyvinyl chloride or neoprene may be used only in a temperature range from zero degrees to plus 200 °F. For operations outside these temperature ranges or for metal mesh slings impregnated with other materials, the sling manufacturer's recommendations shall be followed.

(8) *Repairs.* (i) Metal mesh slings which are repaired shall not be used unless repaired by a metal mesh sling manufacturer or an equivalent entity.

(ii) Once repaired, each sling shall be permanently marked or tagged, or a written record maintained, to indicate the date and nature of the repairs and the person or organization that performed the repairs. Records of repairs shall be made available for examination.

(9) *Removal from service.* Metal mesh slings shall be immediately removed from service if any of the following conditions are present:

(i) A broken weld or broken brazed joint along the sling edge.

(ii) Reduction in wire diameter of 25 per cent due to abrasion or 15 per cent due to corrosion.

(iii) Lack of flexibility due to distortion of the fabric.

TABLE N–184–15—RATED CAPACITIES

Carbon Steel and Stainless Steel Metal Mesh Slings

[Horizontal angles shown in parentheses]

Sling width in inches	Vertical or choker	Vertical basket	Effect of angle on rated capacities in basket hitch		
			30° (60°)	45° (45°)	60° (30°)
Heavy Duty–10 Ga 35 Spirals/Ft of sling width					
2	1,500	3,000	2,600	2,100	1,500
3	2,700	5,400	4,700	3,800	2,700
4	4,000	8,000	6,900	5,600	4,000
6	6,000	12,000	10,400	8,400	6,000
8	8,000	16,000	13,800	11,300	8,000
10	10,000	20,000	17,000	14,100	10,000
12	12,000	24,000	20,700	16,900	12,000
14	14,000	28,000	24,200	19,700	14,000
16	16,000	32,000	27,700	22,600	16,000
18	18,000	36,000	31,100	25,400	18,000
20	20,000	40,000	34,600	28,200	20,000
Medium Duty–12 Ga 43 Spirals/Ft of sling width					
2	1,350	2,700	2,300	1,900	1,400
3	2,000	4,000	3,500	2,800	2,000
4	2,700	5,400	4,700	3,800	2,700
6	4,500	9,000	7,800	6,400	4,500
8	6,000	12,000	10,400	8,500	6,000
10	7,500	15,000	13,000	10,600	7,500
12	9,000	18,000	15,600	12,700	9,000
14	10,500	21,000	18,200	14,800	10,500
16	12,000	24,000	20,800	17,000	12,000
18	13,500	27,000	23,400	19,100	13,500
20	15,000	30,000	26,000	21,200	15,000
Light Duty–14 Ga 59 Spirals/Ft of sling width					
2	900	1,800	1,600	1,300	900
3	1,400	2,800	2,400	2,000	1,400
4	2,000	4,000	3,500	2,800	2,000
6	3,000	6,000	5,200	4,200	3,000
8	4,000	8,000	6,900	5,700	4,000
10	5,000	10,000	8,600	7,100	5,000

(2) *Safe operating temperatures.* Natural and synthetic fiber rope slings, except for wet frozen slings, may be used in a temperature range from minus 20 °F to plus 180 °F without decreasing the working load limit. For operations outside this temperature range and for wet frozen slings, the sling manufacturer's recommendations shall be followed.

(3) *Splicing.* Spliced fiber rope slings shall not be used unless they have been spliced in accordance with the following minimum requirements and in accordance with any additional recommendations of the manufacturer:

(i) In manila rope, eye splices shall consist of at least three full tucks, and short splices shall consist of at least six full tucks, three on each side of the splice center line.

(ii) In synthetic fiber rope, eye splices shall consist of at least four full tucks, and short splices shall consist of at least eight full tucks, four on each side of the center line.

(iii) Strand end tails shall not be trimmed flush with the surface of the rope immediately adjacent to the full tucks. This applies to all types of fiber rope and both eye and short splices. For fiber rope under one inch in diameter, the tail shall project at least six rope diameters beyond the last full tuck. For fiber rope one inch in diameter and larger, the tail shall project at least six inches beyond the last full tuck. Where a projecting tail interferes with the use of the sling, the tail shall be tapered and spliced into the body of the rope using at least two additional tucks (which will require a tail length of approximately six rope diameters beyond the last full tuck).

(iv) Fiber rope slings shall have a minimum clear length of rope between eye splices equal to 10 times the rope diameter.

(v) Knots shall not be used in lieu of splices.

(vi) Clamps not designed specifically for fiber ropes shall not be used for splicing.

(vii) For all eye splices, the eye shall be of such size to provide an included angle of not greater than 60 degrees at the splice when the eye is placed over the load or support.

(4) *End attachments.* Fiber rope slings shall not be used if end attachments in contact with the rope have sharp edges or projections.

(5) *Removal from service.* Natural and synthetic fiber rope slings shall be immediately removed from service if any of the following conditions are present:

(i) Abnormal wear.

(ii) Powdered fiber between strands.

(iii) Broken or cut fibers.

(iv) Variations in the size or roundness of strands.

(v) Discoloration or rotting.

(vi) Distortion of hardware in the sling.

(6) *Repairs.* Only fiber rope slings made from new rope shall be used. Use of repaired or reconditioned fiber rope slings is prohibited.

(i) *Synthetic web slings*—(1) *Sling identification.* Each sling shall be marked or coded to show the rated capacities for each type of hitch and type of synthetic web material.

(2) *Webbing.* Synthetic webbing shall be of uniform thickness and width and selvage edges shall not be split from the webbing's width.

(3) *Fittings.* Fittings shall be:

(i) Of a minimum breaking strength equal to that of the sling; and

(ii) Free of all sharp edges that could in any way damage the webbing.

(4) *Attachment of end fittings to webbing and formation of eyes.* Stitching shall be the only method used to attach end fittings to webbing and to form eyes. The thread shall be in an even pattern and contain a sufficient number of stitches to develop the full breaking strength of the sling.

(5) *Sling use.* Synthetic web slings illustrated in Fig. N–184–6 shall not be used with loads in excess of the rated capacities specified in Tables N–184–20 through N–184–22. Slings not included in these tables shall be used only in accordance with the manufacturer's recommendations.

(6) *Environmental conditions.* When synthetic web slings are used, the following precautions shall be taken:

(i) Nylon web slings shall not be used where fumes, vapors, sprays, mists or liquids of acids or phenolics are present.

(ii) Polyester and polypropylene web slings shall not be used where fumes, vapors, sprays, mists or liquids of caustics are present.

(iii) Web slings with aluminum fittings shall not be used where fumes, vapors, sprays, mists or liquids of caustics are present.

Fig. N-184-6
Basic Synthetic Web Sling Constructions

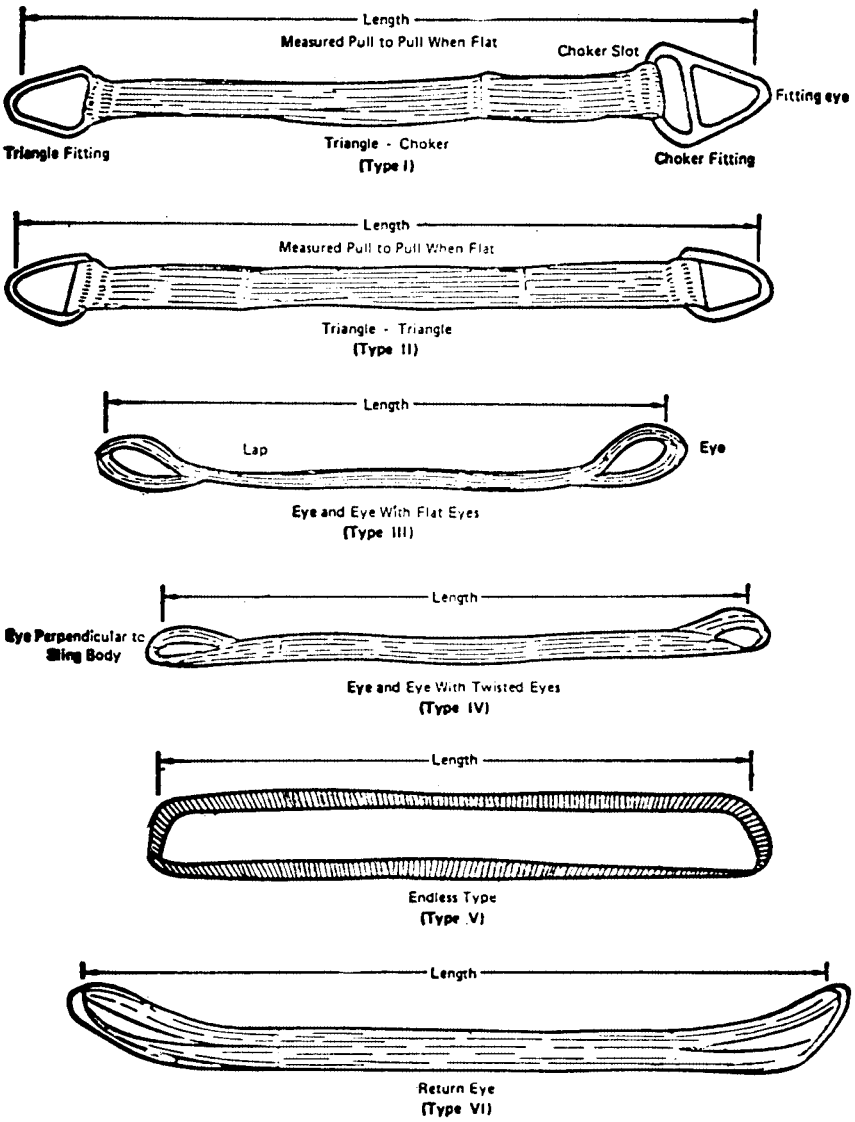


TABLE N–184–20—SYNTHETIC WEB SLINGS—1,000 POUNDS PER INCH OF WIDTH—SINGLE-PLY

[Rated capacity in pounds]

Sling body width, inches	Triangle—Choker slings, type I: Triangle—Triangle slings, type II: Eye and eye with flat eye slings, type III: Eye and eye with twisted eye slings, type IV						Endless slings, type V						Return eye slings, type VI					
	Vert.	Choker	Vert. basket	30° basket	45° basket	60° basket	Vert.	Choker	Vert. basket	30° basket	45° basket	60° basket	Vert.	Choker	Vert. basket	30° basket	45° basket	60° basket
1	1,000	750	2,000	1,700	1,400	1,000	1,600	1,300	3,200	2,800	2,300	1,600	800	650	1,600	1,400	1,150	800
2	2,000	1,500	4,000	3,500	2,800	2,000	3,200	2,600	6,400	5,500	4,500	3,200	1,600	1,300	3,200	2,800	2,300	1,600
3	3,000	2,200	6,000	5,200	4,200	3,000	4,800	3,800	9,600	8,300	6,800	4,800	2,400	1,950	4,800	4,150	3,400	2,400
4	4,000	3,000	8,000	6,900	5,700	4,000	6,400	5,100	12,800	11,100	9,000	6,400	3,200	2,600	6,400	5,500	4,500	3,200
5	5,000	3,700	10,000	8,700	7,100	5,000	8,000	6,400	16,000	13,900	11,300	8,000	4,000	3,250	8,000	6,900	5,650	4,000
6	6,000	4,500	12,000	10,400	8,500	6,000	9,600	7,700	19,200	16,600	13,600	9,600	4,800	3,800	9,600	8,300	6,800	4,800

NOTES: 1. All angles shown are measured from the vertical.
2. Capacities for intermediate widths not shown may be obtained by interpolation.

TABLE N–184–21—SYNTHETIC WEB SLINGS—1,200 POUNDS PER INCH OF WIDTH—SINGLE-PLY

[Rated capacity in pounds]

Sling body width, inches	Triangle—Choker slings, type I: Triangle—Triangle slings, type II: Eye and eye with flat eye slings, type III: Eye and eye with twisted eye slings, type IV						Endless slings, type V						Return eye slings, type VI					
	Vert.	Choker	Vert. basket	30° basket	45° basket	60° basket	Vert.	Choker	Vert. basket	30° basket	45° basket	60° basket	Vert.	Choker	Vert. basket	30° basket	45° basket	60° basket
1	1,200	900	2,400	2,100	1,700	1,200	1,900	1,500	3,800	3,300	2,700	1,900	950	750	1,900	1,650	1,350	950
2	2,400	1,800	4,800	4,200	3,400	2,400	3,800	3,000	7,600	6,600	5,400	3,800	1,900	1,500	3,800	3,300	2,700	1,900
3	3,600	2,700	7,200	6,200	5,100	3,600	5,800	4,600	11,600	10,000	8,200	5,800	2,850	2,250	5,700	4,950	4,050	2,850
4	4,800	3,600	9,600	8,300	6,800	4,800	7,700	6,200	15,400	13,300	10,900	7,700	3,800	3,000	7,600	6,600	5,400	3,800
5	6,000	4,500	12,000	10,400	8,500	6,000	9,600	7,700	19,200	16,600	13,600	9,600	4,750	3,750	9,500	8,250	6,750	4,750
6	7,200	5,400	14,400	12,500	10,200	7,200	11,500	9,200	23,000	19,900	16,300	11,500	5,800	4,600	11,600	10,000	8,200	5,800

NOTES: 1. All angles shown are measured from the vertical.
2. Capacities for intermediate widths not shown may be obtained by interpolation.

TABLE N–184–22—SYNTHETIC WEB SLINGS—1,600 POUNDS PER INCH OF WIDTH—SINGLE-PLY

[Rated capacity in pounds]

Sling body width, inches	Triangle—Choker slings, type I: Triangle—Triangle slings, type II: Eye and eye with flat eye slings, type III: Eye and eye with twisted eye slings, type IV						Endless slings, type V						Return eye slings, type VI					
	Vert.	Choker	Vert. basket	30° basket	45° basket	60° basket	Vert.	Choker	Vert. basket	30° basket	45° basket	60° basket	Vert.	Choker	Vert. basket	30° basket	45° basket	60° basket
1	1,600	1,200	3,200	2,800	2,300	1,600	2,600	2,100	5,200	4,500	3,700	2,600	1,050	1,050	2,600	2,250	1,850	1,300

TABLE N–184–22—SYNTHETIC WEB SLINGS—1,600 POUNDS PER INCH OF WIDTH—SINGLE-PLY—Continued

[Rated capacity in pounds]

Sling body width, inches	Triangle—Choker slings, type I: Triangle—Triangle slings, type II: Eye and eye with flat eye slings, type III: Eye and eye with twisted eye slings, type IV						Endless slings, type V						Return eye slings, type VI					
	Vert.	Choker	Vert. basket	30° basket	45° basket	60° basket	Vert.	Choker	Vert. basket	30° basket	45° basket	60° basket	Vert.	Choker	Vert. basket	30° basket	45° basket	60° basket
2	3,200	2,400	6,400	5,500	4,500	3,200	5,100	4,100	10,200	8,800	7,200	5,100	2,600	2,100	5,200	4,500	3,700	2,600
3	4,800	3,600	9,600	8,300	6,800	4,800	7,700	6,200	15,400	13,300	10,900	7,700	3,900	3,150	7,800	6,750	5,500	3,900
4	6,400	4,800	12,800	11,100	9,000	6,400	10,100	8,200	20,400	17,700	14,400	10,200	5,100	4,100	10,200	8,800	7,200	5,100
5	8,000	6,000	16,000	13,800	11,300	8,000	12,800	10,200	25,600	22,200	18,100	12,800	6,400	5,150	12,800	11,050	9,050	6,400
6	9,600	7,200	19,200	16,600	13,600	9,600	15,400	12,300	30,800	26,700	21,800	15,400	7,700	6,200	15,400	13,300	10,900	7,700

NOTES: 1. All angles shown are measured from the vertical.

2. Capacities for intermediate widths not shown may be obtained by interpolation.

(7) *Safe operating temperatures.* Synthetic web slings of polyester and nylon shall not be used at temperatures in excess of 180 °F. Polypropylene web slings shall not be used at temperatures in excess of 200 °F.

(8) *Repairs.* (i) Synthetic web slings which are repaired shall not be used unless repaired by a sling manufacturer or an equivalent entity.

(ii) Each repaired sling shall be proof tested by the manufacturer or equivalent entity to twice the rated capacity prior to its return to service. The employer shall retain a certificate of the proof test and make it available for examination.

(iii) Slings, including webbing and fittings, which have been repaired in a temporary manner shall not be used.

(9) *Removal from service.* Synthetic web slings shall be immediately removed from service if any of the following conditions are present:

(i) Acid or caustic burns;

(ii) Melting or charring of any part of the sling surface;

(iii) Snags, punctures, tears or cuts;

(iv) Broken or worn stitches; or

(v) Distortion of fittings.

[40 FR 27369, June 27, 1975, as amended at 40 FR 31598, July 28, 1975; 41 FR 13353, Mar. 30, 1976; 58 FR 35309, June 30, 1993; 61 FR 9240, Mar. 7, 1996]

Subpart O—Machinery and Machine Guarding

AUTHORITY: Sections 4, 6, and 8 of the Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, 657); Secretary of Labor's Order No. 12–71 (36 FR 8754), 8–76 (41 FR 25059), 9–83 (48 FR 35736), 1–90 (55 FR 9033), or 5–2002 (67 FR 65008), as applicable; 29 CFR part 1911. Sections 1910.217 and 1910.219 also issued under 5 U.S.C. 553.

§ 1910.211 Definitions.

(a) As used in §§ 1910.213 and 1910.214 unless the context clearly requires otherwise, the following woodworking machinery terms shall have the meaning prescribed in this paragraph.

(1) *Point of operations* means that point at which cutting, shaping, boring, or forming is accomplished upon the stock.

(2) *Push stick* means a narrow strip of wood or other soft material with a notch cut into one end and which is used to push short pieces of material through saws.

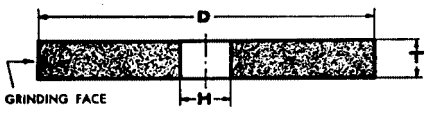
(3) *Block* means a short block of wood, provided with a handle similar to that of a plane and a shoulder at the rear end, which is used for pushing short stock over revolving cutters.

(b) As used in § 1910.215 unless the context clearly requires otherwise, the following abrasive wheel machinery terms shall have the meanings prescribed in this paragraph.

(1) *Type 1 straight wheels* means wheels having diameter, thickness, and hole size dimensions, and they should be used only on the periphery. Type 1 wheels shall be mounted between flanges.

LIMITATION: Hole dimension (H) should not be greater than two-thirds of wheel diameter dimension (D) for precision, cylindrical, centerless, or surface grinding applications. Maximum hole size for all other applications should not exceed one-half wheel diameter.

FIGURE NO. 0–1—TYPE 1 STRAIGHT WHEELS



TYPE 1—STRAIGHT WHEEL

Peripheral grinding wheel having a diameter, thickness and hole.

(2) *Type 2 cylinder wheels* means wheels having diameter, wheel thickness, and rim thickness dimensions. Grinding is performed on the rim face only, dimension W. Cylinder wheels may be plain, plate mounted, inserted nut, or of the projecting stud type.

LIMITATION: Rim height, T dimension, is generally equal to or greater than rim thickness, W dimension.