ASME B29.400-2001

REAFFIRMED 2018

COMBINATION, "H" TYPE MILL CHAINS, AND SPROCKETS

Incorporating ASME B29.11M and ASME B29.14M

AN AMERICAN NATIONAL STANDARD

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This Standard will be revised when the Society approves the issuance of a new edition. There will be no addenda issued to this edition.

ASME issues written replies to inquiries concerning interpretations of technical aspects of this Standard. Interpretations are published on the ASME Web site under the Committee Pages at http://www.asme.org/codes/ as they are issued.

The American Society of Mechanical Engineers
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FOREWORD

This Standard is a consolidation of two ASME standards, ASME B29.11M-1994 (Combination Chains, Attachments, and Sprocket Teeth) and ASME B29.14M-1996 ("H" Type Mill Chains, Attachments, and Sprocket Teeth). These two standards were combined into one because of the similarity of construction and the unusual applications for the two types of chains.

B29.11M — Combination Chains, Attachments, and Sprocket Teeth

In 1886 a patent was granted for a chain comprised of cast metal block links, fitted with bronze bushings, and connected with wrought steel sidebars and removable pins. This chain was the forerunner of the present combination chain (B29.11M), later placed on the market around 1900. Many sizes and types of combination chains were developed and marketed in the next several years.

During World War I, the War Industries Board insisted that chain manufacture be confined to the necessary sizes. This caused elimination of several types and sizes, and planted the seed for future standardization. Following World War I, the Malleable Chain Manufacturers Institute was formed, and this group did considerable work on standardization of chain and sprocket dimensions for combination chains of the more popular sizes. There were still dimensional variations that would not permit universal intercoupling of chains of different manufacture, necessitating repairs made with chains of the original manufacturer.

The ASCMA (now the American Chain Association), recognizing the need for a complete standard providing intercoupling and direct replacement of chains of different manufacture, established this Standard utilizing the minimum number of chains to meet requirements of industry for the chains widely used in conveyor and elevator applications.

To facilitate the use of this Standard in the international market, the metric equivalents of all dimensions are given.

This Standard was presented to the USASI (now the American National Standards Institute) B29 Committee in December 1963 and, upon approval by the USASI on May 24, 1968, was adopted and published.

The 1974 revision included minor changes in metric units and change from ultimate strengths to proof test loads with the corresponding explanatory and caution notes.

The American National Standards Institute approved the previous revision in 1984.

The 1994 revision defines the proof test loads as "minimum" in Table 1 and adds minimum attachment hole diameters in Tables 4 through 9. The information in Fig. 4 was modified to strengthen the recommendation for undersized root diameters and pocket radii.

B29.14M — "H" Type Mill Chains, Attachments, and Sprocket Teeth

The "H" type mill chains (B29.14M) are a derivative of the malleable detachable chains and were developed to meet the demands of heavier duty service.

These chains were developed principally for the lumber and pulp and paper industries for drives, transfer, and drag conveyors. They are also well adapted to elevator service of moderate speeds and loads.

Interchangeability between chains of various manufacturers is important with the widespread usage of these chains.

In September 1967, a subcommittee of American National Standards Committee B29 was appointed with members from the malleable chain industry to develop a standard for the "H" type mill chains, attachments, and sprocket teeth.

The standard developed by this committee restricts only those dimensions that affect interchangeability.

To promote the use of this Standard in the International Market, the metric equivalent of all dimensions is given.

The document was approved as an American National Standard on December 17, 1971.

The revision was approved by the American National Standards Institute on July 16, 1996.

Added to the 1996 revision is the minimum bolt hole diameter required for bolt diameter given for the particular attachments.

The 2001 revisions of both ASME B29.11M and ASME B29.14M have been incorporated to form the ASME B29.400-2001 standard. This Standard was approved as an American National Standard on November 27, 2001.

ASME STANDARDS COMMITTEE B29
Chains, Attachments, and Sprockets for Power Transmission and Conveying

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

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CORRESPONDENCE WITH THE B29 COMMITTEE

General. ASME Codes and Standards are developed and maintained with the intent to represent the consensus of concerned interests. As such, users of this Standard may interact with the Committee by requesting interpretations, proposing revisions, and attending Committee meetings. Correspondence should be addressed to:

Secretary, B29 Main Committee
The American Society of Mechanical Engineers
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Proposing Revisions. Revisions are made periodically to the Standard to incorporate changes that appear necessary or desirable, as demonstrated by the experience gained from the application of the Standard. Approved revisions will be published periodically.

The Committee welcomes proposals for revisions to this Standard. Such proposals should be as specific as possible, citing the paragraph number(s), the proposed wording, and a detailed description of the reasons for the proposal, including any pertinent documentation.

Interpretations. Upon request, the B29 Committee will render an interpretation of any requirement of the Standard. Interpretations can only be rendered in response to a written request sent to the Secretary of the B29 Main Committee.

The request for interpretation should be clear and unambiguous. It is further recommended that the inquirer submit his/her request in the following format:

Subject: Cite the applicable paragraph number(s) and the topic of the inquiry.
Edition: Cite the applicable edition of the Standard for which the interpretation is being requested.
Question: Phrase the question as a request for an interpretation of a specific requirement suitable for general understanding and use, not as a request for an approval of a proprietary design or situation. The inquirer may also include any plans or drawings which are necessary to explain the question; however, they should not contain proprietary names or information.

Requests that are not in this format will be rewritten in this format by the Committee prior to being answered, which may inadvertently change the intent of the original request.

ASME procedures provide for reconsideration of any interpretation when or if additional information that might affect an interpretation is available. Further, persons aggrieved by an interpretation may appeal to the cognizant ASME Committee or Subcommittee. ASME does not "approve," "certify," "rate," or "endorse" any item, construction, proprietary device, or activity.

Attending Committee Meetings. The B29 Main Committee regularly holds meetings, which are open to the public. Persons wishing to attend any meeting should contact the Secretary of the B29 Main Committee.

ASME B29.11M-2001

COMBINATION CHAINS, ATTACHMENTS, AND SPROCKET TEETH

1 DEFINITION

combination chains: a series of block links having barrels to contact the sprocket teeth, alternating with links composed of sidebars and pins that articulate in the barrels of the block link.

Pins are fixed against rotation in sidebar pitch holes by mechanical locks, such as flats, or by interference fits, or both. Assembly of pins may be from either side or alternated, at the manufacturer's option.

Figures 1, 2, and 3 illustrate a typical chain and the principal dimensions of a chain.

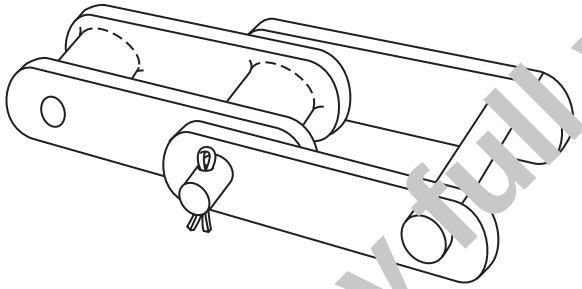

Fig. 1 Assembled Chain

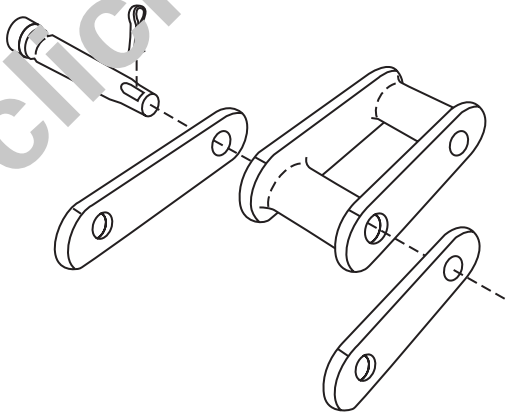

Fig. 2 Disassembled Chain

2 GENERAL CHAIN PROPORTIONS AND DESIGNATIONS

2.1 Proof Test Load

The proof test load is the tensile load in pounds (or kilonewtons) the chain has withstood at the time of assembly at the factory.

All chains must be subjected to this test.

WARNING: DO NOT USE THESE PROOF TEST LOADS FOR CHAIN APPLICATION. FOR APPLICATION GUIDE CONSULT MANUFACTURERS' CATALOG.

The values listed in Table 1 cover the two most common materials used in the links:

(a) Class M — Malleable Iron (ASTM Specification A 47-68, Grade 32510 or Grade 35018)

(b) Class P — Pearlitic Malleable Iron (ASTM Specification A 220-68, Grade 60004)

Class P chains are approximately 25% stronger than Class M chains.

2.2 Measuring Load

Measuring load is approximately 6% of proof test load as listed in Table 1. This is the load under which a dry or lightly lubricated chain should be measured for length.

2.3 Strand Length Tolerance

New chains under measuring load may be over theoretical length up to 0.75 in. in 120 in. (19.05 mm in 3048 mm), but must not be under theoretical length.

2.4 Dimensions for Chain Links

To assure interchangeability of links as produced by different makers of chain, standard maximum and minimum dimensions are adopted. They are not actual dimensions used in manufacturing, but limiting dimensions, maximum or minimum, required to assure the desired interchangeability.

All dimensions are given in a decimal inch system. The metric equivalent dimensions are for reference only.