ASME B29.28-2015

REAFFIRMED 2026

High-Strength Chains for Power Transmission and Tension Linkages

AN AMERICAN NATIONAL STANDARD

The American Society of Mechanical Engineers

ASME B29.28-2015

High-Strength Chains for Power Transmission and Tension Linkages

AN AMERICAN NATIONAL STANDARD

The American Society of Mechanical Engineers

Two Park Avenue • New York, NY • 10016 USA

Date of Issuance: December 14, 2015

This Standard will be revised when the Society approves the issuance of a new edition.

ASME issues written replies to inquiries concerning interpretations of technical aspects of this Standard. Interpretations are published on the Committee Web page under go.asme.org/InterpsDatabase. Periodically certain actions of the ASME B29 Committee may be published as Cases. Cases are published on the ASME Web site under the B29 Committee Page at go.asme.org/B29committee as they are issued.

Errata to codes and standards may be posted on the ASME Web site under the Committee Pages to provide corrections to incorrectly published items, or to correct typographical or grammatical errors in codes and standards. Such errata shall be used on the date posted.

The B29 Committee Page can be found at go.asme.org/B29committee. There is an option available to automatically receive an e-mail notification when errata are posted to a particular code or standard. This option can be found on the appropriate Committee Page after selecting "Errata" in the "Publication Information" section.

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

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

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

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

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

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

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

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

Copyright © 2015 by
THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS
All rights reserved
Printed in U.S.A.

CONTENTS

Foreword iv
Committee Roster v
Correspondence With the B29 Committee vi

1 Scope 1

2 High-Strength Roller Chains 1

3 References 2

Figure
1 High-Strength Roller Chain and Components 3

Tables
1 General Chain Dimensions, in. and lb 4
1M General Chain Dimensions, mm and N 4
2 Dimensional Limits for Interchangeability, in. 5
2M Dimensional Limits for Interchangeability, mm 5

Nonmandatory Appendices
A Supplementary Information on Chain Selection for Drives 7
B Supplementary Information on Chain Selection for Tension Linkages 19

FOREWORD

For many years, several manufacturers have provided a line of high-strength chains for use on certain construction equipment and other machinery that encounter high starting or shock loads. These high-strength chains generally have medium-carbon, through-hardened pins to withstand high shock loads and solid rollers to withstand very high tooth pressures. These chains are normally offered only in heavy series.

In 2014, the ASME B29 Committee decided to develop a new standard to cover these high-strength chains. The new standard is intended to list limiting dimensions to ensure interchangeability, to set forth minimum tensile strength and dynamic strength values, and to provide supplemental information concerning the application of high-strength chains. This Standard was approved as an American National Standard on September 9, 2015.

ASME B29 COMMITTEE
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.)

STANDARDS COMMITTEE OFFICERS

C. G. Springman, *Chair*
A. J. Binford, *Vice Chair*
R. Richmond, *Secretary*

STANDARDS COMMITTEE PERSONNEL

M. A. Bergel, EBC, A Division of BDI USA
A. J. Binford, IWIS Drive Systems
R. V. Dickey, Hitachi Maxco, Ltd.
D. W. Egbert, Hitachi Maxco, Ltd.
D. G. Fannin, Emerson Power Transmission
G. A. Hansen, *Alternate,* Emerson Power Transmission
W. C. Hall, Ramsey Products Corp.
D. B. Holcomb, *Alternate,* Ramsey Products Corp.
C. R. Langner, Timken Drives, LLC
M. Manickam, Webster Industries, Inc.
S. Rhoad, *Alternate,* Webster Industries, Inc.
E. Pawlicki, Drives, Inc.
R. A. Reinfried, Conveyor Equipment Manufacturers Association
R. Richmond, The American Society of Mechanical Engineers
K. J. Smith, Ken Smith & Associates
C. G. Springman, Diamond Chain Co.
R. Brandon, *Alternate,* Diamond Chain Co.
J. L. Wright, Technical Consultant

CORRESPONDENCE WITH THE B29 COMMITTEE

General. ASME 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 or a Case, and attending Committee meetings. Correspondence should be addressed to:

Secretary, B29 Standards Committee
The American Society of Mechanical Engineers
Two Park Avenue
New York, NY 10016-5990
http://go.asme.org/Inquiry

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.

Proposing a Case. Cases may be issued for the purpose of providing alternative rules when justified, to permit early implementation of an approved revision when the need is urgent, or to provide rules not covered by existing provisions. Cases are effective immediately upon ASME approval and shall be posted on the ASME Committee Web page.

Requests for Cases shall provide a Statement of Need and Background Information. The request should identify the Standard and the paragraph, figure, or table number(s), and be written as a Question and Reply in the same format as existing Cases. Requests for Cases should also indicate the applicable edition(s) of the Standard to which the proposed Case applies.

Interpretations. Upon request, the B29 Standards 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 Standards Committee at go.asme.org/Inquiry.

The request for an 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 that are necessary to explain the question; however, they should not contain proprietary names or information.

Requests that are not in this format may be rewritten in the appropriate 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 Standards Committee regularly holds meetings and/or telephone conferences that are open to the public. Persons wishing to attend any meeting and/or telephone conference should contact the Secretary of the B29 Standards Committee. Future Committee meeting dates and locations can be found on the Committee Page at go.asme.org/B29committee.

HIGH-STRENGTH CHAINS FOR POWER TRANSMISSION AND TENSION LINKAGES

1 SCOPE

This Standard covers roller chains that are specifically designed to withstand occasional high shock loads or high starting loads that are encountered in certain construction equipment and other severe-duty applications.

WARNING: Chains covered in this Standard shall not be used as the primary lifting member, or in the direct drive line of elevators, escalators, or similar devices for lifting human passengers unless applied in accordance with ASME A17.1. Chains covered in this Standard shall not be used as climbing chains.

2 HIGH-STRENGTH ROLLER CHAINS

2.1 Nomenclature

high-strength roller chain: roller chain consisting of a series of alternately assembled roller links [see Fig. 1, illustrations (a) and (b)] and pin links [see Fig. 1, illustration (c) and *pin link*] in which the pins articulate inside the bushings and the rollers are free to turn on the bushings. The pins and bushings are press fit in their respective link plates.

roller link: link consisting of two roller link plates *A–A*, two bushings *B–B*, and two rollers *C–C*.

pin link: link consisting of two pin link plates *E–E*, and two pins *F–F*.

NOTES:
(1) Only heavy series high-strength roller chains are covered in this Standard.
(2) Multiple-strand high-strength roller chains are not covered in this Standard.

cotter-type connecting link: link consisting of a pin link plate *E*, two cross-drilled pins *G–G*, and a detachable pin link plate *D*, retained by two cotters *H–H*. Cotter-type connecting links are used to connect the chain endless on a drive, or to connect the ends of the chain to terminal fittings in a tension linkage [see Fig. 1, illustration (d)]. Some manufacturers may use a retention means other than, but equivalent to, cotters.

NOTE: Offset links for high-strength roller chains are not covered in this Standard.

2.2 General Proportions

The general proportions of high-strength roller chains are the same as for heavy series chains listed in ASME B29.1.

2.3 Numbering System

For chains covered in this Standard, the right-hand digit in the number is a zero. The numbers to the left of the right-hand digit denote the number of eighths-of-an-inch in the chain pitch. The letters following the chain number shall be "HE," with the letter "H" denoting heavy series and the letter "E" denoting high-tensile strength.

2.4 Chain Strength Requirements

2.4.1 Minimum Ultimate Tensile Strength. The minimum ultimate tensile strength (M.U.T.S.) for chains covered in this Standard is the minimum force at which an unused, undamaged chain could fail when subjected to a single tensile loading test.

WARNING: The M.U.T.S. is NOT a working load! The M.U.T.S. greatly exceeds the maximum force that may be applied to the chain in service.

(a) Test Specimen. A length of chain, containing not less than five free pitches, shall be submitted for testing.

(b) Test Procedure. A tensile force shall be applied slowly, not to exceed 2.0 in./min (50.8 mm/min), in a uniaxial direction, to the ends of the test specimen.

(c) Conformance. Chains conforming to this Standard shall have a M.U.T.S. equal to or greater than the value listed for that specific chain listed in Table 1 or 1M.

WARNING: The tensile test is a destructive test! Even though the chain might not visibly fail when subjected to the minimum ultimate tensile force, it will have been damaged and will be unfit for service.

2.4.2 Minimum Dynamic Strength. Only high-strength chains are subject to the minimum dynamic strength requirement; connecting links are not.

WARNING: The dynamic test values are not valid characteristics for designing actual applications. Neither the specified values nor the test results are to be interpreted as allowable working loads.

(a) Test Procedure. The chain shall be tested according to the conformance test described in ASME B29.26.

(b) Conformance. Chains covered in this Standard shall survive a conformance test at load listed for the subject chain in Table 1 or 1M.

WARNING: The dynamic test is a destructive test! Even though the chain might have survived the test without failure, it will have been damaged and will be unfit for service.