ASME B5.60-2014
(Revision of ASME B5.60-2002)

REAFFIRMED 2019

Workholding Chucks: Jaw-Type Chucks

AN AMERICAN NATIONAL STANDARD

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Two Park Avenue • New York, NY • 10016 USA

Date of Issuance: February 6, 2015

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

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FOREWORD

During the review, revision, and update of the existing inch-based American National Standard B5.8 on Chucks and Chuck Jaws, Technical Committee 11 of the ASME B5 Committee on Machine Tools recognized the need for an industry standard on metric-dimensioned chucks.

This Standard was developed after reviewing currently available national and international standards, which were used as its foundation.

ASME B5.60-2002 was approved by the American National Standards Institute on June 6, 2002. Addenda were approved on February 24, 2005 and February 2, 2009.

ASME B5.60-2014 was approved by the American National Standards Institute on September 15, 2014.

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Machine Tools — Components, Elements, Performance, and Equipment

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Secretary, B5 Standards Committee
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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.

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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 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.

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WORKHOLDING CHUCKS: JAW-TYPE CHUCKS

Chapter 1
General Description and Definitions of Terms

1-1 INTRODUCTION

This Standard establishes technical requirements for workholding chucks used primarily in turning operations. It covers jaw-type chucks, whether manual or power-operated.

1-2 SCOPE

This Chapter covers the general description and definitions of terms related to jaw-type workholding chucks.

1-3 TYPES OF JAW CHUCKS BY DESIGN

compensating chuck: a chuck in which the jaw(s) moves to or away from the workpiece without altering the position of the workpiece.

independent chuck: a chuck in which each individual workholding jaw is moved to or from the workpiece without disturbing the position of any other jaw.

self-centering chuck: a chuck in which all jaws move to or away from the workpiece and maintain one common center.

An example of a power chuck assembly is presented in Fig. 1-1.

1-4 METHODS OF ACTUATION

manual: a chuck that is actuated by hand with the aid of human energy (e.g., by means of a chuck wrench). Refer to Fig. 1-2.

power: a chuck that is actuated by means of, e.g., pneumatic, hydraulic, or electrical energy. Refer to Fig. 1-3.

1-5 DEFINITIONS

actuator: a component within a chuck's body, used to operate the chuck's mechanism, e.g., a wedge, lever, or scroll.

base jaw: see *master jaw.*

centrifugal force: force generated by rotation that tends to move all parts radially away from the axis of rotation of the chuck.

chuck adapter: interface between the machine and the chuck. It can be a separate component or integral to the chuck body.

chuck body: that part of the chuck that contains the actuator and master jaws.

clamping cylinder: device that actuates the chuck through a drawbar or drawtube with the aid of pneumatic or hydraulic energy.

clamping force: algebraic sum of the individual radial forces applied by the top jaws on the workpiece.

clamping torque: product of the clamping force, clamping radius, and the coefficient of friction between the top jaw(s) and the workpiece.

countercentrifugal chuck: a chuck in which there is a system that permits compensation for the loss of clamping force due to centrifugal force.

drawbar: a bar or tube that connects the clamping cylinder to the chuck's actuator to transmit the input force to the chuck.

dynamic clamping force: actual clamping force when the chuck is rotating.

hysteresis: change in static clamping force after the chuck has been rotated at working rotational speed with a constant input force.

indicating band: a diameter on the chuck body designated for measuring runout of a chuck.

input force: force acting on the chuck's actuator, applied from an external energy source.

input torque: torque acting on the chuck's actuator, applied from an external energy source.

master jaw: radial moving part within the chuck body to which the top jaw is mounted.

maximum rotational speed: maximum rotational speed in rpm specified by the manufacturer for a chuck with