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FOREWORD

This Code on General Instructions was first printed in preliminary form in *Mechanical Engineering* in 1920 and was presented at a public hearing at the spring meeting of the Society held in Chicago, Illinois in 1921. It was approved and adopted as a standards practice of the Society in 1924.

During the years 1920 through 1970, the function of the Power Test Codes (as they were then known) continued to evolve and broaden. In recognition of these developments, the Code on General Instructions was revised twice. The revisions were approved by the Council on June 17, 1945 and May 7, 1970, respectively.

During the years 1970 through 1985, the scope of the Power Test Codes, now known as Performance Test Codes (PTCs), was further broadened as a result of

(a) their designation as American National Standards by the American National Standards Institute (ANSI)

(b) an increased awareness of the relationship between U.S. domestic standards and their international counterpart and a related need to reconcile substantially conflicting requirements between U.S. and international documents

(c) clarification on the use of uncertainty in test codes

These developments resulted in several additional revisions to the Code on General Instructions that were approved by the Board on Performance Test Code (BPTC) on May 13, 1970 (with the October 1971 Addenda), October 29, 1979, June 18, 1986, and June 12, 1991.

The subsequent revision of the Code was initiated in mid-1998. A Project Team was appointed by the BPTC to develop this revision under the ASME Redesign Process. The revised document was approved by the BPTC on November 19, 1998.

The next revision was a major updating of PTC 1. The existing information contained in PTC 1 was divided into two separate documents. One is the code writer's guide, the PTC 1 Template. The other, PTC 1, contains mandatory information for all code users. This revision was approved by the BPTC on December 9, 2003. It was also approved as an American National Standard by the ANSI Board on Standards Review on March 10, 2004.

The current revision contains modifications to the previous version. Some new committees have been added and others discontinued. The template has not been updated at this time.

This revision was approved by the PTC Standards Committee on May 24, 2011 and approved and adopted as a Standard practice of the Society by action of the Board on Standardization and Testing on August 8, 2011. It was also approved as an American National Standard, by the ANSI Board of Standards Review, on November 14, 2011.

ASME PTC COMMITTEE
Performance Test Codes

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

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J. W. Milton, *Vice Chair*
J. H. Karian, *Secretary*

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PTC 1 COMMITTEE — GENERAL INSTRUCTIONS

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J. H. Karian, *Secretary,* The American Society of Mechanical Engineers
J. R. Friedman, Siemens Energy, Inc.
D. R. Keyser, Survice Engineering Co.

CORRESPONDENCE WITH THE PTC COMMITTEE

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

Secretary, PTC Committee
The American Society of Mechanical Engineers
Three Park Avenue
New York, NY 10016-5990

Proposing Revisions. Revisions are made periodically to the Code to incorporate changes that appear necessary or desirable, as demonstrated by the experience gained from the application of the Code. Approved revisions will be published periodically.

The Committee welcomes proposals for revisions to this Code. 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 Code, 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 Code to which the proposed Case applies.

Interpretations. Upon request, the PTC Committee will render an interpretation of any requirement of the Code. Interpretations can only be rendered in response to a written request sent to the Secretary of the PTC 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 Code 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 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 PTC Committee regularly holds meetings, which are open to the public. Persons wishing to attend any meeting should contact the Secretary of the PTC Committee.

INTRODUCTION

This document provides direction to users and code-writing committees of Performance Test Codes (PTCs). Code users shall consider it as part of each test.

(a) The objectives of PTC 1, General Instructions are as follows:

(1) to define the purpose and scope of ASME PTCs

(2) to list major industry applications where PTCs can be used

(3) to provide direction on the use of equipment PTCs concerning the planning, preparation, implementation, and reporting of test results

(b) The PTC Template is a separate document. Relevant material was excerpted from PTC 1, General Instructions and should be incorporated in equipment PTCs. Use of the template ensures uniformity and consistency throughout all of the PTCs that are being revised or issued for the first time. Changes to the Template will not be published. Instead, it will be posted on the PTC Committee Web pages and therefore accessible for no charge to committee members. It may be revised as the need arises. ANSI approval is not required for any changes to the Template. The objectives of the Template are as follows:

(1) to provide guidelines and directions to code-writing committees

(2) to specify the required content in each equipment PTC

(3) to define the standard format for the content of individual equipment PTCs

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GENERAL INSTRUCTIONS

Section 1
Purpose, Scope, and Organization

1-1 DEFINITION AND PURPOSE

ASME Performance Test Codes (PTCs) provide uniform rules and procedures for the planning, preparation, execution, and reporting of performance test results. Test results provide numerical characteristics to the performance of equipment, systems, and plants being tested. Throughout ASME PTC 1, when the term "equipment" is used with reference to the object of a performance test, it can refer to specific equipment, systems, or to entire plants.

1-2 SCOPE AND ORGANIZATION OF PTCs

Most ASME PTCs are applicable to a specified type of equipment defined by the Code. There may be several subcategories of equipment covered by a single code. Types of equipment to which PTCs apply can be classified into five broad categories.

– power production
– combustion and heat transfer
– fluid handling
– emission
– instruments, apparatus, and other supplemental documents

The quantities that characterize performance are defined in each code for the equipment within its scope. Absolute performance characteristics determined by adherence to a PTC can be evaluated as compared to design or predicted characteristics, to previous test results, or they can be used to benchmark or ascertain performance at a particular time.

Some PTCs are written as general documents for reference in support of the equipment PTCs. These can be considered as technical reference material for the equipment codes. Three types of reference codes exist.

The first type covers instrumentation used in the measurement of thermodynamic or process fluid parameters, such as pressure, temperature, flow, and shaft power. Such individual codes referring to process or thermodynamic quantities are known as Performance Test Code Instruments and Apparatus Supplements. They are supplementary to the information on mandatory instrumentation requirements contained in the equipment codes. Instrumentation information in equipment test codes supersedes the information given in these supplements, but otherwise these supplements should be incorporated by reference in equipment test codes where deemed appropriate by the committee.

The second type covers guidance and reference information. It currently consists of PTC 1, General Instructions, and PTC 2, Definitions and Values. PTC 2 contains standards for terms, units, values of constants, and technical nomenclature.

The third type addresses how to analyze the uncertainties associated with measurement of all primary parameters to develop overall test uncertainty.

Figures 1-2-1 and 1-2-2 show the organization of ASME Performance Test Code categories.

1-3 PHILOSOPHY

PTCs provide guidelines for test procedures that yield results of the highest level of accuracy based on current engineering knowledge, taking into account test costs and the value of information obtained from testing. Precision and reliability of test results must underlie all considerations in the development of an ASME Performance Test Code, consistent with economic considerations as judged appropriate by each technical committee and in keeping with the philosophy of the ASME Performance Test Codes Supervisory Committee.

1-4 APPLICATIONS OF PTCs

Code tests are suitable for use whenever performance must be determined with minimum uncertainty. They are meant specifically for equipment operating in an industrial setting. Typical uses include

(a) determining if the equipment meets design or expected performance criteria.

(b) incorporating by reference into contracts to serve as a means to determine fulfillment of guarantees.