

Moisture Separator Reheaters

PERFORMANCE
TEST
CODES

ASME PTC 12.4–1992

AN AMERICAN NATIONAL STANDARD

THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS
United Engineering Center 345 East 47th Street New York, N.Y. 10017

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FOREWORD

(This Foreword is not part of ASME PTC 12.4-1992.)

Moisture Separator Reheaters (MSRs) were introduced to steam power cycles after the advent of commercial nuclear power. A moisture separator, with no reheat was first added to nuclear power cycles to minimize the low pressure (LP) turbine erosion caused by wet steam prevalent in those cycles and improve turbine cycle performance. Steam reheat was added later to reduce further the quantity of moisture in the steam passing through the LP turbine and to increase further the efficiency of the LP turbine.

The first MSRs were susceptible to many modes of failure. Great technological advances have occurred over the past 30 years with respect to MSR design and operation. These advances increased the reliability and enhanced the performance of the MSR which provided the momentum and justification for MSR upgrades.

During the 1970s and early 1980s an increasing number of utilities were involved in MSR upgrades which included replacing portions of or their entire MSRs. The ASME Board on Performance Test Code was notified in June 1984 that no code existed for the testing and analysis of MSRs. PTC-6 (1982) on steam turbines treated the MSR as an integral part of a turbine generator, which it is when purchased as a package. The Board authorized the formation of a new performance test code committee to develop a code for the treatment of the MSR as a separate component.

A new committee was formed and first met in December 1985. Numerous drafts were developed over the next 4 years, each more detailed than the previous. Upon the completion of appendices containing a set of sample calculations and a complete uncertainty analysis, the draft was released for the industry review in July of 1990. The comment resolution process, completed in April 1991, strengthened the document. The committee was balloted and approved the code draft in July 1991. The Board on Performance Test Codes approved the code in January 1992. This test code has been approved as an American National Standard by the ANSI Board of Standards Review on November 24, 1992.