Heat Recovery Steam Generators

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Suggested revisions are invited and should be submitted to the Standards and Publications Department, API, 200 Massachusetts Avenue, NW, Washington, DC 20001, standards@api.org.

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1 General

1.1 SCOPE

This publication provides guidelines for the selection or evaluation of heat recovery steam generator (HRSG) systems. Details of related equipment designs are considered only where they interact with the HRSG system design. This publication does not provide rules for design, but indicates areas that need attention and offers information and description of HRSG types available to the designer or user to aid in the selection of the appropriate HRSG system.

The HRSG systems discussed are those currently in industry use. A general description of each HRSG system begins Sections 2 and 3. Selection of an HRSG system for description does not imply other systems are not available nor recommended. Many individual features described in these guidelines will be applicable to any type of HRSG system.

Appendices A, B, and C refer to Sections 1 through 3.

1.2 REFERENCED PUBLICATIONS

1.2.1 The editions of the following standards, codes and specifications that are in effect at the time of publication of this publication shall, to the extent specified herein, form a part of this publication.

API/ISO[1]

Std 530/ISO 13704	*Petroleum and natural gas industries—Calculation of heater-tube thickness in petroleum refineries*
RP 536	*Post Combustion NO_x Control for Fired Equipment in General Refinery Services*
Std 560/ISO 13705	*Petroleum and natural gas industries—Fired heaters for general refinery service*
Std 660/ISO 16812	*Petroleum and natural gas industries—Shell-and-tube heat exchangers for general refinery service*

ABMA[2]

Boiler 402	*Boiler Water Quality Requirements and Associated Steam Quality for Industrial/Commercial and Institutional Boilers*

ANSI[3]/ASME[4]

ANSI 14.3	*Fixed Ladders—Safety Requirements*
PTC 4.4	*Gas Turbine Heat Recovery Steam Generators Performance Test Code*

ASME

Boiler and Pressure Vessel Code, Section I: "Power Boilers" and Section VIII, Division 1, "Pressure Vessels."	
Consensus Operating Practices for Control of Feedwater/Boiler Water Chemistry in Modern Industrial Boilers CRTD–Vol. 34	
SA-106	*Standard Specification for Seamless Carbon Steel Pipe for High-Temperature Service*
SA-178/SA-178M	*Standard Specification for Electric-Resistance-Welded Carbon Steel and Carbon-Manganese Steel Boiler and Superheater Tubes*
SA-214/SA-214M	*Specification for Electric-Resistance-Welded Carbon Steel Heat-Exchanger and Condenser Tubes*
STS-1	*Steel Stacks*

ASTM[5]

D 1066-97(2001)	*Standard Practice for Sampling Steam*

NFPA[6]

8501	*Standard for the Prevention of Furnace Explosions/Implosions in Multiple Burner Boilers*

[1]International Organization for Standards, 25 West 43rd Street, 4 Floor, New York, New York, 10036, www.iso.org.
[2]American Boiler Manufacturers Association, 8221 Old Courthouse Road, Suite 207, Vienna, Virginia 22182, www.abma.com.
[3]American National Standards Institute, 25 West 43rd Street, 4th floor, New York, New York, 10036, www.ansi.org.
[4]ASME International, 3 Park Avenue, New York, New York, 10016, www.asme.org.
[5]ASTM International, 100 Bar Harbor Drive, West Conshohocken, Pennsylvania 19428, www.astm.org.
[6]National Fire Protection Association, 1 Batterymarch Park, PO Box 9101, Quincy, Massachusetts 02269-9101, www.nfpa.org.