Controls and Safety Devices for Automatically Fired Boilers

AN AMERICAN NATIONAL STANDARD



(Revision of ASME CSD-1-2012)

Controls and Safety Devices for Automatically Fired Boilers

AN AMERICAN NATIONAL STANDARD



Date of Issuance: March 24, 2016

The next edition of this Standard is scheduled for publication in 2018.

ASME issues written replies to inquiries concerning interpretations of technical aspects of this Standard. Periodically certain actions of the ASME CSDAFB Committee may be published as Cases. Cases and interpretations are published on the ASME Web site under the Committee Pages at http://cstools.asme.org/ as they are issued. Interpretations are also included with each edition.

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 Committee Pages can be found at http://cstools.asme.org/. 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 © 2016 by THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS All rights reserved Printed in U.S.A.

CONTENTS

Foreword	1	v
Committe	ee Roster	vi
Correspo	ndence With the CSDAFB Committee	viii
Summary	y of Changes	ix
Part CG CG-100 CG-200 CG-300 CG-400 CG-500 CG-600 CG-700	General General Requirements General Provisions Material Requirements Testing and Maintenance Certification and Reporting Operation Definitions	1 1 2 2 2 2 3 3 3
Part CM CM-100	Testing and Maintenance	9 9
Part CE CE-100	Electrical Electrical Requirements	10 10
Part CW CW-100	Steam and Waterside Control	12
CW-200 CW-300 CW-400 CW-500 CW-600 CW-700	Feeding Device Automatic Fuel Cutoff for Forced Circulation Boilers Pressure Controls Temperature Controls Safety and Safety Relief Valves Modular Boilers Vacuum Boilers	12 14 14 15 15 16 16
Part CF CF-100 CF-200 CF-300 CF-400 CF-500 CF-600 CF-700 CF-800 CF-900	Combustion Side Control Gas-Fired Boiler Units, Equipment Gas-Fired Boiler Units, Purging Gas-Fired Boiler Units, Safety Controls Oil-Fired Boiler Units, Equipment Oil-Fired Boiler Units, Safety Controls Low Fire Start, Gas- or Oil-Fired Boiler Units Combination Gas- and Oil-Fired Units Electrically Heated Boilers Combustion Side Controls for Modular Boilers	17 17 25 26 27 29 29 30 30 30
Figure CG-1	Sediment Trap	7
Tables CF-1 CF-2	400,000 Btu/hr (117 kW) and Smaller (Gas — Natural Draft)	18
CF-3	(11.4 L/h) and Smaller (Oil)	19
	Systems	21

CF-4	Safety Controls for Automatically Fired Units: Atmospheric Gas Burners — Natural Draft	22
CF-5	Safety Controls for Automatically Fired Units: Oil-Fired Burners	28
Nonma	andatory Appendices	
A	Comparison of This Standard and ANSI Z21.13/CSA 4.9	31
В	Typical Fuel Trains	32
C	Manufacturer's/Installing Contractor's Report for ASME CSD-1	39
D	Recommended Preventive Maintenance Schedule	42
E	References	46
F	Guidance for the Use of U.S. Customary and SI Units in ASME CSD-1	47
Index		51