



**American Water Works
Association**

The Authoritative Resource on Safe Water®

ANSI/AWWA C230-11
(First Edition)

AWWA Standard

Stainless-Steel Full-Encirclement Repair and Service Connection Clamps



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6666 West Quincy Avenue
Denver, CO 80235-3098
T 800.926.7337
www.awwa.org

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Committee Personnel

The Steel Water Pipe Manufacturer's Technical Advisory Committee (SWMPTAC) Task Group for AWWA C230, which developed this standard, had the following personnel at the time:

Daryl Piontek, *Chair*

E. Bird, Smith-Blair, Texarkana, Texas	(AWWA)
S. Bradberry, Ford Meter Box Company, Pell City, Ala.	(AWWA)
A. Collins, JCM Industries, Nash, Texas	(AWWA)
T. Crail, Straub Coupling, Bonsall, Calif.	(AWWA)
B. Kane, Cascade Waterworks Manufacturing Company, Yorkville, Ill.	(AWWA)
T. Keffaber, Ford Meter Box Company, Wabash, Ind.	(AWWA)
G. Kohlbeck, Felker Brothers, Marshfield, Wis.	(AWWA)
S. Lamb, Nickel Institute, Huntington, W.Va.	(AWWA)
M. Langenhan, Total Piping Solutions Inc., Olean, N.Y.	(AWWA)
G. Larsen, Smith Blair, Texarkana, Texas	(AWWA)
A. Lemke, Romac Industries Inc., Bothell, Wash.	(AWWA)
M. Naber, Mueller Company, Decatur, Ill.	(AWWA)
D. Seals, JCM Industries, Nash, Texas	(AWWA)
N. Thorgersen, Romac Industries Inc., Bothel, Wash.	(AWWA)
G. Washburn, Consultant, Easton, Pa.	(AWWA)

The AWWA Standards Committee on Stainless-steel Pipe, which reviewed and approved this standard, had the following personnel at the time of approval:

J. Warren Green, *Chair*

John O'Brien, *Vice-Chair*

Mike Quinnell, *Secretary*

General Interest Members

R.J. Card,* Lockwood Andrews & Newman, Sugar Hill, Ga.	(AWWA)
J.W. Green, Lockwood, Andrews & Newman, Naperville, Ill.	(AWWA)

* Alternate

M.W. Grimm,* Aquamize LLC, Happy Valley, Ore.	(AWWA)
J.K. Jeyapalan P.E., Jeyapalan & Associates, New Milford, Conn.	(AWWA)
J.E. Koch, HDR Engineering Inc., Burlington, Wash.	(AWWA)
C.A. Prein, Prein & Newhof, Grand Rapids, Mich.	(AWWA)
E.S. Ralph,* Staff Advisor, AWWA, Denver, Colo.	(AWWA)
R.M. Schwecke,† HDR Engineering Inc., Phoenix, Ariz.	(AWWA)
C.C. Sundberg, CH2M HILL, Issaquah, Wash.	(AWWA)
G.J. Tupac, G.J. Tupac & Associates Inc., Sun City West, Ariz.	(AWWA)
G.L. Washburn, Consultant, Easton, Pa.	(AWWA)

Producer Members

D. Dechant, Dechant Infrastructure Service, Aurora, Colo.	(AWWA)
B.D. Keil, Northwest Pipe Company, Pleasant Grove, Utah	(AWWA)
G. Kohlbeck, Felker Brothers, Marshfield, Wis.	(AWWA)
S. Lamb, Nickel Institute, Huntington, W.Va.	(AWWA)
R.D. Mielke,† Northwest Pipe Company, Raleigh, N.C.	(AWWA)
C.P. Shelley, Victaulic Company, Atlanta, Ga.	(AWWA)
D.R. Wagner, Consultant, Saint Louis, Mo.	(AWWA)

User Members

M. Garcia, Denver Water, Denver, Colo.	(AWWA)
D.J. Martin, Ashwaubenon Water & Sewer Utility, Green Bay, Wis.	(AWWA)
J.F. O'Brien, Genesee County Water & Waste Service, Flint, Mich.	(AWWA)
B.R. Osborne, Clark County Water Reclamation District, Las Vegas, Nev.	(AWWA)
B. Powell, Green Bay Water Utility, Green Bay, Wis.	(AWWA)
M. Quinnell, Saginaw-Midland Water Supply, Bay City, Mich.	(AWWA)

* Liaison, nonvoting

† Alternate

Contents

All AWWA standards follow the general format indicated subsequently. Some variations from this format may be found in a particular standard.

SEC.	PAGE	SEC.	PAGE
Foreword		2	References 2
I	vii	3	Definitions 3
I.A	vii	4	Requirements
I.B	vii	4.1	Materials of Construction 5
I.C	vii	4.2	Design 6
II	viii	4.3	Manufacturing 7
II.A	vii	4.4	Installation Instructions 8
Advisory Information on Product Performance		5	Verification
III	ix	5.1	Inspection 8
III.A	ix	5.2	Quality Assurance 9
Purchaser Options and Alternatives		5.3	Test Procedures 9
III.B	ix	6	Delivery
IV	ix	6.1	Marking 10
V	ix	6.2	Packing and Shipping 11
Major Revisions		6.3	Affidavit of Compliance 11
Comments		Figures	
Standard		1	Hydrostatic Test Fixture for Full-Encirclement Repair Clamp 9
1	General		
1.1	1		
1.2	2		
1.3	2		

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Foreword

This foreword is for information only and is not a part of ANSI/AWWA C230.*

I. Introduction.

I.A. *Background.* Stainless-steel full-encirclement repair clamps are used to provide a simple and economical means of repairing holes, cracks, or breaks in water or wastewater mains. The stainless-steel full-encirclement service connection clamp includes a branch outlet and matt gasket that provides a full-encirclement (360°) seal around the existing pipe. The full-encirclement service connection clamp outlet is an effective means of attaching a tapping valve and tapping machine for main-line tapping.

I.B. *History.* This is the first edition of this standard. This standard was prepared in response to requests from users of stainless-steel full-encirclement repair and service connection clamps for various pipe materials. It was approved by the AWWA Board of Directors on Jan. 23, 2011.

I.C. *Acceptance.* In May 1985, the US Environmental Protection Agency (USEPA) entered into a cooperative agreement with a consortium led by NSF International (NSF) to develop voluntary third-party consensus standards and a certification program for direct and indirect drinking water additives. Other members of the original consortium included the American Water Works Association Research Foundation (AwwaRF, now Water Research Foundation[†]) and the Conference of State Health and Environmental Managers (COSHEM). The American Water Works Association and the Association of State Drinking Water Administrators (ASDWA) joined later.

In the United States, authority to regulate products for use in, or in contact with, drinking water rests with individual states.[‡] Local agencies may choose to impose requirements more stringent than those required by the state. To evaluate the health effects of products and drinking water additives from such products, state and local agencies may use various references, including

1. An advisory program formerly administered by USEPA, Office of Drinking Water, discontinued on Apr. 7, 1990.
2. Specific policies of the state or local agency.

* American National Standards Institute, 25 West 43rd Street, Fourth Floor, New York, NY 10036.

† Water Research Foundation, 6666 W. Quincy Avenue, Denver, CO 80235.

‡ Persons outside the United States should contact the appropriate authority having jurisdiction.

3. Two standards developed under the direction of NSF, NSF*/ANSI 60, Drinking Water Treatment Chemicals—Health Effects, and NSF/ANSI 61, Drinking Water System Components—Health Effects.

4. Other references, including AWWA standards, *Food Chemicals Codex*, *Water Chemicals Codex*,[†] and other standards considered appropriate by the state or local agency.

Various certification organizations may be involved in certifying products in accordance with NSF/ANSI 60 or NSF/ANSI 61. Individual states or local agencies have authority to accept or accredit certification organizations within their jurisdiction. Accreditation of certification organizations may vary from jurisdiction to jurisdiction.

Annex A, "Toxicology Review and Evaluation Procedures," to NSF/ANSI 61 does not stipulate a maximum allowable level (MAL) of a contaminant for substances not regulated by a USEPA final maximum contaminant level (MCL). The MALs of an unspecified list of "unregulated contaminants" are based on toxicity testing guidelines (noncarcinogens) and risk characterization methodology (carcinogens). Use of Annex A procedures may not always be identical, depending on the certifier.

AWWA/ANSI C230 does not address additives requirements. Users of this standard should consult the appropriate state or local agency having jurisdiction in order to

1. Determine additives requirements, including applicable standards.
2. Determine the status of certifications by parties offering to certify products for contact with, or treatment of, drinking water.
3. Determine current information on product certification.

II. Special Issues.

II.A. *Advisory Information on Product Performance.* Repair clamp applications for pipeline repairs are wide and varied. The service performance of the full-encirclement repair clamp is dependent on a number of variables, including size and type of repair; the structural integrity of the pipe; pipe material; pipe diameter; the pipe line content; surface finish; temperature; and working pressure of the piping system. Because of the number of variables involved, it is recommended that the repair clamp manufacturer be consulted regarding the repair clamp model selection, proper application, and the anticipated performance of the repair clamp for specific end user pipe repair needs prior to product purchase and usage.

* NSF International, 789 N. Dixboro Road, Ann Arbor, MI 48105.

† Both publications available from National Academy of Sciences, 500 Fifth Street, NW, Washington, DC 20001.

III. Use of This Standard. It is the responsibility of the user of an AWWA standard to determine that the products described in that standard are suitable for use in the particular application being considered.

III.A. *Purchaser Options and Alternatives.* The following information should be provided by the purchaser:

1. Standard used—that is, ANSI/AWWA C230, Standard for Stainless-Steel Full-Encirclement Repair and Service Connection Clamps, of latest revision.
2. Quantity and type.
3. Materials of construction.
4. Type of pipe(s), including specification to which it is made, or specification and tolerance of outside diameter.
5. Nominal pipe size(s) and range.
6. Actual outside diameter (OD) of pipe, including any coatings.
7. Wall thickness or class of pipe.
8. Type of service, including line content; above or below ground; etc.
9. System pressure requirements.
10. Operating temperature range.
11. Special requirements, such as gasket material, gaskets for electrical conductivity, corrosive environment, coatings, etc.
12. Tapping outlet specifications (if required), including thread type and size.
13. Width of full-encirclement repair clamp band desired.
14. Inspection by the purchaser.
15. Documentation requirements, including material certifications and certificate of compliance.
16. Hydrostatic proof test.
17. Details of other federal, state or provincial, and local requirements (Section 4).
18. Whether compliance with NSF/ANSI 61, Drinking Water System Components—Health Effects, is required.

III.B. *Modification to Standard.* Any modification to the provisions, definitions, or terminology in this standard must be provided by the purchaser.

IV. Major Revisions. This is the first edition of this standard.

V. Comments. If you have any comments or questions about this standard, please call AWWA Engineering and Technical Services at 303.794.7711, FAX at 303.795.7603, write to the department at 6666 West Quincy Avenue, Denver, CO 80235-3098, or e-mail at standards@awwa.org.

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AWWA Standard

Stainless-Steel Full-Encirclement Repair and Service Connection Clamps

SECTION 1: GENERAL

Sec. 1.1 Scope

This standard describes fabricated full-encirclement stainless-steel band clamps for use in the repair or service connection of potable water, wastewater, and reclaimed water piping systems. They are intended for pipe sizes 2 in. (50 mm) through 12 in. (300 mm). Full-encirclement repair clamps shall be manufactured completely from stainless-steel or a combination of stainless-steel band and cast ductile-iron lug, along with stainless or low-alloy carbon steel bolts and nuts, depending on service requirements and the purchaser's documents. Tapped service connection outlets may be provided and shall range from ½ in. through 3 in. (12 mm through 75 mm) sizes, with either NPT- or AWWA-type threaded connections. This standard does not cover stainless-steel tapping saddles whose seal is not fully circumferential. Repair clamps for larger than 12-in. (300-mm) diameter pipe are available from various manufacturers but are not covered by this standard.