

# CODE CASES

# 2021

ASME Boiler and  
Pressure Vessel Code  
An International Code

Boilers and  
Pressure Vessels

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AN INTERNATIONAL CODE

# 2021 ASME Boiler & Pressure Vessel Code

2021 Edition

July 1, 2021

## CODE CASES

## Boilers and Pressure Vessels

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The American Society of  
Mechanical Engineers

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## LIST OF SECTIONS

### SECTIONS

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- II Materials
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  - Part B — Nonferrous Material Specifications
  - Part C — Specifications for Welding Rods, Electrodes, and Filler Metals
  - Part D — Properties (Customary)
  - Part D — Properties (Metric)
  
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  - Subsection NCA — General Requirements for Division 1 and Division 2
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  - Division 1
    - Subsection NB — Class 1 Components
    - Subsection NCD — Class 2 and Class 3 Components\*
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    - Subsection NF — Supports
    - Subsection NG — Core Support Structures
  - Division 2 — Code for Concrete Containments
  - Division 3 — Containment Systems for Transportation and Storage of Spent Nuclear Fuel and High-Level Radioactive Material
  - Division 5 — High Temperature Reactors
  
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- V Nondestructive Examination
  
- VI Recommended Rules for the Care and Operation of Heating Boilers
  
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- XIII Rules for Overpressure Protection

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\* In the 2021 Edition, Subsections NC and ND have been incorporated into one publication, Subsection NCD (BPVC.III.1.NCD), Class 2 and Class 3 Components.

## **INTERPRETATIONS**

Interpretations are issued in real time in ASME's Interpretations Database at <http://go.asme.org/Interpretations>. Historical BPVC interpretations may also be found in the Database.

## **CODE CASES**

The Boiler and Pressure Vessel Code committees meet regularly to consider proposed additions and revisions to the Code and to formulate Cases to clarify the intent of existing requirements or provide, when the need is urgent, rules for materials or constructions not covered by existing Code rules. Those Cases that have been adopted will appear in the appropriate 2021 Code Cases book: "Boilers and Pressure Vessels" or "Nuclear Components." Each Code Cases book is updated with seven Supplements. Supplements will be sent or made available automatically to the purchasers of the Code Cases books up to the publication of the 2023 Code. Annulments of Code Cases become effective six months after the first announcement of the annulment in a Code Case Supplement or Edition of the appropriate Code Case book. Code Case users can check the current status of any Code Case at <http://go.asme.org/BPVCCDatabase>. Code Case users can also view an index of the complete list of Boiler and Pressure Vessel Code Cases and Nuclear Code Cases at <http://go.asme.org/BPVCC>.

## SUMMARY OF CHANGES

The 2021 Edition of the Code Cases includes Code Case actions published through Supplement 7 to the 2019 Edition.

Changes given below are identified on the pages by a margin note, **(21)**, placed next to the affected area. Errata, if any, are identified by a margin note, **(E)**, placed next to the affected area.

<i>Page</i>	<i>Location</i>	<i>Change</i>
iv	List of Sections	(1) Listing for Section III updated (2) Section XIII added (3) Code Case information updated
x	Notes to Numeric Index	Revised
xi	Numeric Index	Updated
xxi	Subject Index	Updated
xxxii	Index of Material Specifications Referred to in Cases	Updated
1 (2155-3)	2155-3	Impending annulment
1 (2156-4)	2156-4	Impending annulment
1 (2192-10)	2192-9	Revised
1 (2235-14)	2235-14	Annulled
1 (2277)	2277	Annulled
1 (2313)	2313	Annulled
1 (2328-2)	2328-2	Annulled
1 (2437-1)	2437-1	Annulled
1 (2450)	2450	Annulled
1 (2503-1)	2503-1	Annulled
1 (2534)	2534	Annulled
1 (2582-3)	2582-3	Impending annulment
1 (2695-1)	2695-1	Annulled
1 (2709)	2709	Impending annulment
1 (2766)	2766	Impending annulment
1 (2828)	2828	Annulled
1 (2862)	2862	Impending annulment
1 (2863)	2863	Impending annulment
1 (2864-2)	2864-2	In Table 2, under Forgings, "SA-182/SA-182M" added by errata
1 (2867-3)	2867-3	Revised
1 (2891)	2891	Annulled
1 (2903-1)	2903-1	Revised



<i>Page</i>	<i>Location</i>	<i>Change</i>
1 (2908)	2908	Annulled
1 (2925)	2925	Impending annulment
1 (2935)	2935	Impending annulment
1 (2938-1)	2938-1	Revised
1 (3011)	3011	Added
1 (3012)	3012	Added
1 (3013)	3013	Added
1 (3014)	3014	Added
1 (3015)	3015	Added
1 (3016)	3016	Added
1 (3017)	3017	Added

**LIST OF CHANGES IN RECORD NUMBER ORDER**

**DELETED**

# CROSS-REFERENCING AND STYLISTIC CHANGES IN THE BOILER AND PRESSURE VESSEL CODE

There have been structural and stylistic changes to BPVC, starting with the 2011 Addenda, that should be noted to aid navigating the contents. The following is an overview of the changes:

## Subparagraph Breakdowns/Nested Lists Hierarchy

- First-level breakdowns are designated as (a), (b), (c), etc., as in the past.
- Second-level breakdowns are designated as (1), (2), (3), etc., as in the past.
- Third-level breakdowns are now designated as (-a), (-b), (-c), etc.
- Fourth-level breakdowns are now designated as (-1), (-2), (-3), etc.
- Fifth-level breakdowns are now designated as (+a), (+b), (+c), etc.
- Sixth-level breakdowns are now designated as (+1), (+2), etc.

## Footnotes

With the exception of those included in the front matter (roman-numbered pages), all footnotes are treated as endnotes. The endnotes are referenced in numeric order and appear at the end of each BPVC section/subsection.

## Submittal of Technical Inquiries to the Boiler and Pressure Vessel Standards Committees

*Submittal of Technical Inquiries to the Boiler and Pressure Vessel Standards Committees* has been moved to the front matter. This information now appears in all Boiler Code Sections (except for Code Case books).

## Cross-References

It is our intention to establish cross-reference link functionality in the current edition and moving forward. To facilitate this, cross-reference style has changed. Cross-references within a subsection or subarticle will not include the designator/identifier of that subsection/subarticle. Examples follow:

- *(Sub-)Paragraph Cross-References.* The cross-references to subparagraph breakdowns will follow the hierarchy of the designators under which the breakdown appears.
  - If subparagraph (-a) appears in X.1(c)(1) and is referenced in X.1(c)(1), it will be referenced as (-a).
  - If subparagraph (-a) appears in X.1(c)(1) but is referenced in X.1(c)(2), it will be referenced as (1)(-a).
  - If subparagraph (-a) appears in X.1(c)(1) but is referenced in X.1(e)(1), it will be referenced as (c)(1)(-a).
  - If subparagraph (-a) appears in X.1(c)(1) but is referenced in X.2(c)(2), it will be referenced as X.1(c)(1)(-a).
- *Equation Cross-References.* The cross-references to equations will follow the same logic. For example, if eq. (1) appears in X.1(a)(1) but is referenced in X.1(b), it will be referenced as eq. (a)(1)(1). If eq. (1) appears in X.1(a)(1) but is referenced in a different subsection/subarticle/paragraph, it will be referenced as eq. X.1(a)(1)(1).

**NOTES TO NUMERIC INDEX**

- All Code Cases remain available for use until annulled by the ASME Boiler and Pressure Vessel Standards Committees. Code Cases will be reviewed routinely for possible incorporation into the body of the ASME Boiler and Pressure Vessel Code.
- Supplement 7 is the last supplement published for the 2019 edition. Supplement 8 is incorporated into the 2021 edition.
- Cases may be used beginning with the date of approval shown on the Case.
- Annulled Cases will remain in the Numeric Index and Subject Index until the next Edition, at which time they will be deleted.
- Newly revised cases supersede previous versions. Previous code case number will be added in the "Annulled Date/Supersedes" column next to the newly revised code case.
- The digit following a Case Number is used to indicate the number of times a Case has been revised.
- The Cases are arranged in numerical order, and each page of a Case is identified at the top with the appropriate Case Number.

*Legend of Abbreviations*

Supp. = Supplement

R = Reinstated

# NUMERIC INDEX

(21)

Case	Approval Date	Errata	Impending Annulment Date	Annulled Date/ Supersedes
1325-18	6-23-2005	...	...	...
1750-30	9-15-2020	...	...	...
1827-3	12-30-2006	...	...	...
1849-1	8-4-2004	...	...	...
1855-2	12-18-2018	...	...	...
1876-5	4-26-2013	...	...	...
1924-2	12-30-2006	...	...	...
1932-5	8-4-2006	...	...	...
1934	5-25-1983	...	...	...
1935-4	9-23-2007	...	...	...
1936-3	2-20-2002	...	...	...
1949-4	2-20-2004	...	...	...
1968-1	12-2-1990	...	...	...
1993-7	10-26-2016	...	...	...
2016-1	8-12-1996	...	...	...
2038-5	2-7-2000	...	...	...
2055-2	5-4-1999	...	...	...
2063-6	10-2-2008	...	...	...
2073-1	10-29-1999	...	...	...
2093	6-19-1990	...	...	...
2120-1	10-29-1999	...	...	...
2127-3	9-18-2006	...	...	...
2142-6	8-1-2018	...	...	...
2143-2	4-1-2014	...	...	...
2146	11-25-1992	...	...	...
2150	8-12-1993	...	...	...
2151-3	9-30-2018	...	...	...
2155-3	5-17-2019	...	1-1-2022	...
2156-4	5-17-2019	...	1-1-2022	...
2172	8-8-1994	...	...	...
2179-9	7-24-2020	...	...	...
2180-7	4-2-2020	...	...	...
2192-10	12-10-2020	...	...	...
2195-1	2-7-2000	...	...	...
2196-5	4-2-2020	...	...	...
2197-1	2-17-2000	...	...	...
2199-8	9-8-2015	...	...	...
2203-1	5-9-2009	...	...	...
2205	6-5-1995	...	...	...
2217-5	6-17-2003	...	...	...
2222-2	10-29-1999	...	...	...
2223-3	6-20-2002	...	...	...
2224-2	9-18-2006	...	...	...
2226-2	5-21-2003	...	...	...
2230-2	10-29-1999	...	...	...
2235-14	12-12-2018	...	...	3-30-2021
2239-1	10-29-1999	...	...	...
2244-2	1-20-2000	...	...	...
2247	7-9-1998	...	...	...
2249	8-11-1997	...	...	...
2254-1	4-2-2020	...	...	...
2256	8-11-1997	...	...	...
2260-3	12-2-2019	...	...	...
2276-1	2-17-2000	...	...	...

<b>Case</b>	<b>Approval Date</b>	<b>Errata</b>	<b>Impending Annulment Date</b>	<b>Annulled Date/ Supersedes</b>
2277	3-5-1998	...	...	3-30-2021
2286-6	10-30-2015	...	...	...
2297	11-30-1999	...	...	...
2300	9-23-1999	...	...	...
2304-2	5-12-2004	...	...	...
2305-1	12-14-2009	...	...	...
2313	5-4-1999	...	...	3-30-2021
2318	9-23-1999	...	...	...
2321-1	2-20-2002	...	...	...
2324-1	3-21-2012	...	...	...
2327-2	1-29-2009	...	...	...
2328-2	9-18-2010	...	...	3-30-2021
2334	7-10-2000	...	...	...
2346-1	2-14-2003	...	...	...
2350	2-26-2001	...	...	...
2351-1	R11-30-2017	...	...	...
2353-1	10-18-2004	...	...	...
2357-2	12-30-2006	...	...	...
2359-2	6-23-2005	...	...	...
2377	1-27-2003	...	...	...
2385-1	5-4-2004	...	...	...
2397-1	9-21-2016	...	...	...
2400	2-14-2003	...	...	...
2402-1	9-25-2012	...	...	...
2403	2-13-2003	...	...	...
2407	2-13-2003	...	...	...
2411	6-23-2005	...	...	...
2416	2-13-2003	...	...	...
2418-2	6-23-2014	...	...	...
2419	5-21-2003	...	...	...
2421	5-21-2003	...	...	...
2426	1-27-2003	...	...	...
2427	5-21-2003	...	...	...
2428-4	4-17-2020	...	...	...
2430	1-12-2005	...	...	...
2432-1	6-20-2008	...	...	...
2437-1	6-23-2005	...	...	3-30-2021
2439	2-14-2003	...	...	...
2440	2-20-2004	...	...	...
2445-2	6-25-2010	...	...	...
2446	11-29-2004	...	...	...
2450	5-4-2004	...	...	3-30-2021
2458-3	1-22-2007	...	...	...
2461-2	9-12-2017	...	...	...
2463-1	9-8-2010	...	...	...
2468-3	3-13-2020	...	...	...
2469-1	10-21-2009	...	...	...
2473-2	12-18-2018	...	...	...
2475	11-29-2004	...	...	...
2478-1	R3-13-2019	...	...	...
2481-1	11-17-2016	...	...	...
2489	2-22-2005	...	...	...
2493-1	9-12-2017	...	...	...
2494-2	3-28-2017	...	...	...
2496-4	9-30-2018	...	...	...
2498	6-20-2008	...	...	...
2500	11-2-2004	...	...	...
2503-1	11-20-2007	...	...	3-30-2021
2511	8-3-2005	...	...	...
2512	10-27-2005	...	...	...
2514-1	7-7-2006	...	...	...

<b>Case</b>	<b>Approval Date</b>	<b>Errata</b>	<b>Impending Annulment Date</b>	<b>Annulled Date/Supersedes</b>
2515	8-3-2005	...	...	...
2516	8-3-2005	...	...	...
2518-2	12-8-2014	...	...	...
2520	8-4-2006	...	...	...
2523-2	8-30-2018	...	...	...
2527	4-26-2007	...	...	...
2529	10-27-2005	...	...	...
2532-4	12-15-2011	...	1-1-2022	...
2534	1-3-2006	...	...	3-30-2021
2537	10-27-2005	...	...	...
2538	1-19-2006	...	...	...
2540	7-2-2010	...	...	...
2543	1-22-2007	...	...	...
2544-2	1-26-2009	...	...	...
2546	1-19-2006	...	...	...
2554	1-3-2006	...	...	...
2556-2	9-15-2009	...	...	...
2563	12-30-2006	...	...	...
2565	12-30-2006	...	...	...
2568-1	12-21-2016	...	...	...
2570	4-2-2007	...	...	...
2571-1	1-26-2009	...	...	...
2576	12-30-2006	...	...	...
2577	10-2-2008	...	...	...
2581	4-26-2007	...	...	...
2582-3	11-7-2017	...	1-1-2022	...
2585-1	9-15-2009	...	...	...
2586-1	10-2-2008	...	...	...
2587	8-6-2007	...	...	...
2588	10-19-2007	...	...	...
2591	10-2-2008	...	...	...
2594-2	9-30-2018	...	...	...
2595	1-4-2008	...	...	...
2596-1	4-6-2011	...	...	...
2597	5-21-2008	...	...	...
2598	1-29-2008	...	...	...
2603-2	4-15-2017	...	...	...
2604	10-2-2008	...	...	...
2605-4	7-24-2019	...	...	...
2606	1-26-2009	...	...	...
2607	1-26-2009	...	...	...
2608	1-26-2009	...	...	...
2609	1-26-2009	...	...	...
2610	1-26-2009	...	...	...
2611	1-26-2009	...	...	...
2613	1-30-2009	...	...	...
2616-1	9-23-2013	...	...	...
2617	5-9-2009	...	...	...
2618	7-5-2009	...	...	...
2619	6-24-2009	...	...	...
2620-3	10-6-2019	...	...	...
2624-1	12-2-2019	...	...	...
2627	9-30-2009	...	...	...
2628	9-30-2009	...	...	...
2629	1-13-2010	...	...	...
2630	1-13-2010	...	...	...
2631	12-14-2009	...	...	...
2632	10-21-2009	...	...	...
2633	12-14-2009	...	...	...
2634	12-14-2009	...	...	...
2635	12-21-2009	...	...	...



<b>Case</b>	<b>Approval Date</b>	<b>Errata</b>	<b>Impending Annulment Date</b>	<b>Annulled Date/ Supersedes</b>
2636	1-13-2010	...	...	...
2639	1-20-2010	...	...	...
2640-1	1-20-2011	...	...	...
2641	12-14-2009	...	...	...
2643-1	10-6-2019	...	...	...
2645	3-10-2010	...	...	...
2649	7-2-2010	...	...	...
2652-1	6-23-2014	...	...	...
2653-1	3-5-2018	...	...	...
2655	9-8-2010	...	...	...
2656	8-24-2010	...	...	...
2657	7-28-2010	...	...	...
2658	9-8-2010	...	...	...
2659	9-8-2010	...	...	...
2660	9-8-2010	...	...	...
2661-2	4-23-2019	...	...	...
2663	12-7-2010	...	...	...
2665-1	7-13-2011	...	...	...
2666	1-12-2011	...	...	...
2668-1	1-31-2017	...	...	...
2671-2	12-18-2018	...	...	...
2672	6-16-2011	...	...	...
2673	6-16-2011	...	...	...
2674-1	9-30-2018	...	...	...
2675	4-6-2011	...	...	...
2676	6-16-2011	...	...	...
2677	4-6-2011	...	...	...
2678-1	9-26-2011	...	...	...
2679	6-16-2011	...	...	...
2680	6-16-2011	...	...	...
2681-1	9-30-2018	...	...	...
2682	7-13-2011	...	...	...
2683	7-13-2011	...	...	...
2684-5	8-1-2018	...	...	...
2686	8-5-2011	...	...	...
2687-1	12-18-2017	...	...	...
2688	8-19-2011	...	...	...
2690-1	10-2-2014	...	...	...
2691	8-23-2011	...	...	...
2692	8-19-2011	...	...	...
2693-1	4-4-2012	...	...	...
2694	9-26-2011	...	...	...
2695-1	12-11-2017	...	...	6-30-2021
2696	7-13-2011	...	...	...
2697-1	8-1-2016	...	...	...
2698-2	4-2-2020	...	...	...
2699	9-26-2011	...	...	...
2701-1	1-10-2013	...	...	...
2702-6	1-6-2020	...	...	...
2703-1	8-1-2018	...	...	...
2704	9-26-2011	...	...	...
2705	8-9-2011	...	...	...
2706	11-7-2011	...	...	...
2707	11-7-2011	...	...	...
2708	11-7-2011	...	...	...
2709	11-7-2011	...	1-1-2022	...
2710-1	1-7-2013	...	...	...
2711-1	9-30-2018	...	...	...
2712-1	7-9-2014	...	...	...
2715	2-13-2012	...	...	...
2717	3-21-2012	...	...	...

<b>Case</b>	<b>Approval Date</b>	<b>Errata</b>	<b>Impending Annulment Date</b>	<b>Annulled Date/ Supersedes</b>
2718	3-21-2012	...	...	...
2719	4-4-2012	...	...	...
2720	4-4-2012	...	...	...
2721	4-4-2012	...	...	...
2722-1	10-25-2012	...	...	...
2723	4-4-2012	...	...	...
2724	4-4-2012	...	...	...
2725-1	10-6-2020	...	...	...
2726	5-24-2012	...	...	...
2727-1	9-30-2018	...	...	...
2728-1	9-30-2018	...	...	...
2729-2	4-3-2019	...	...	...
2730	6-28-2012	...	...	...
2731	5-16-2012	...	...	...
2733-3	8-1-2018	...	...	...
2734-3	8-1-2018	...	...	...
2735	9-25-2012	...	...	...
2736-2	6-23-2014	...	...	...
2737-2	9-30-2018	...	...	...
2738	9-25-2012	...	...	...
2739	9-25-2012	...	...	...
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2741	8-15-2012	...	...	...
2742	8-29-2012	...	...	...
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2747	8-29-2012	...	...	...
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2756	1-7-2013	...	...	...
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2758	1-10-2013	...	...	...
2759	1-10-2013	...	...	...
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2765	4-15-2013	...	...	...
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2767	6-18-2013	...	...	...
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2770	5-13-2013	...	...	...
2771	6-18-2013	...	...	...
2772	6-18-2013	...	...	...
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2774	9-18-2013	...	...	...
2775	9-18-2013	...	...	...
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2783	9-28-2013	...	...	...
2784	11-1-2013	...	...	...
2786	11-1-2013	...	...	...
2787	11-1-2013	...	...	...
2788	11-1-2013	...	...	...
2789	12-16-2013	...	...	...
2790	11-1-2013	...	...	...
2791	1-6-2014	...	...	...
2792	1-23-2014	...	...	...
2793	3-18-2014	...	...	...
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2795	3-18-2014	...	...	...
2797	3-18-2014	...	...	...
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2801	4-30-2014	...	...	...
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2803	5-19-2014	...	...	...
2804	6-23-2014	...	...	...
2805	5-14-2014	...	...	...
2806	6-23-2014	...	...	...
2807-1	12-30-2018	...	...	...
2808	8-5-2014	...	...	...
2809	10-2-2014	...	...	...
2810	10-2-2014	...	...	...
2811	11-14-2014	...	...	...
2812	12-31-2014	...	...	...
2813	1-12-2015	...	...	...
2814	1-8-2015	...	...	...
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2817	1-8-2015	...	...	...
2820	11-29-2014	...	...	...
2821	2-24-2015	...	...	...
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2828	6-1-2015	...	...	1-28-2021
2830	6-1-2015	...	...	...
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2834	7-15-2015	...	...	...
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2838	9-15-2015	...	...	...
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2852	3-17-2016	...	...	...
2853	3-30-2015	...	...	...
2857	5-2-2016	...	...	...
2858	6-17-2016	...	...	...
2859	6-17-2016	...	...	...
2860	9-1-2016	...	...	...
2861	9-1-2016	...	...	...
2862	8-9-2016	...	1-1-2022	...
2863	8-3-2016	...	1-1-2022	...
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2869	11-28-2016	...	...	...
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2871-1	3-21-2017	...	...	...
2872	11-30-2016	...	...	...
2873	11-30-2016	...	...	...
2874	11-30-2016	...	...	...
2875	11-30-2016	...	...	...
2876-1	3-21-2017	...	...	...
2877	12-12-2016	...	...	...
2878	12-22-2016	...	...	...
2879	1-10-2017	...	...	...
2880	3-21-2017	...	...	...
2881	3-8-2017	...	...	...
2882-1	7-14-2018	...	...	...
2883	4-12-2017	...	...	...
2884	4-4-2017	...	...	...
2885	6-16-2017	...	...	...
2886	8-7-2017	...	...	...
2887-1	12-12-2017	...	...	...
2888	8-24-2017	...	...	...
2889	7-6-2017	...	...	...
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2892	10-13-2017	...	...	...
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2902	12-12-2017	...	...	...
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2905	12-11-2017	...	...	...
2906	12-21-2017	...	...	...
2907	12-11-2017	...	...	...
2908	1-2-2018	...	...	1-28-2021
2909-1	7-2-2019	...	...	...
2910	3-5-2018	...	...	...
2911	3-5-2018	...	...	...
2912	3-5-2018	...	...	...
2913	3-5-2018	...	...	...
2914	3-5-2018	...	...	...

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2917	6-19-2019	...	...	...
2918	1-18-2018	...	...	...
2919	2-5-2018	...	...	...
2920	1-18-2018	...	...	...
2921	5-7-2018	...	...	...
2922	6-26-2018	...	...	...
2923	6-26-2018	...	...	...
2924	9-30-2018	...	...	...
2925	8-30-2018	...	1-1-2022	...
2926	9-19-2018	...	...	...
2927	8-1-2018	...	...	...
2928	9-19-2018	...	...	...
2929	8-1-2018	...	...	...
2930	8-24-2018	...	...	...
2931	8-24-2018	...	...	...
2932	9-17-2018	...	...	...
2933	10-2-2018	...	...	...
2934	10-2-2018	...	...	...
2935	9-30-2018	...	1-1-2022	...
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2942	12-18-2018	...	...	...
2943	12-30-2018	...	...	...
2945	12-30-2018	...	...	...
2946-1	6-8-2020	...	...	...
2947	1-7-2019	...	...	...
2948	12-18-2018	...	...	...
2949-1	9-14-2020	...	...	...
2951	3-13-2019	...	...	...
2952	3-13-2019	...	...	...
2953	5-16-2019	...	...	...
2954	3-13-2019	...	...	...
2955	3-13-2019	...	...	...
2956	3-13-2019	...	...	...
2957	4-12-2019	...	...	...
2958	7-2-2019	...	...	...
2959	7-2-2019	...	...	...
2960	6-19-2019	...	...	...
2961	6-19-2019	...	...	...
2962	7-18-2019	...	...	...
2963	7-30-2019	...	...	...
2964	7-2-2019	...	...	...
2965	7-24-2019	...	...	...
2966	7-24-2019	...	...	...
2967	8-28-2019	...	...	...
2968	8-28-2019	...	...	...
2969-2	9-3-2020	...	...	...
2970	10-15-2018	...	...	...
2971-1	9-3-2020	...	...	...
2972	10-6-2019	...	...	...
2973	11-21-2019	...	...	...
2974	11-1-2019	...	...	...
2975	11-1-2019	...	...	...
2978	7-16-2020	...	...	...
2979	12-4-2019	...	...	...
2981	12-2-2019	...	...	...
2982	12-2-2019	...	...	...

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2984	12-2-2019	...	...	...
2985	12-2-2019	...	...	...
2986-1	7-24-2020	...	...	...
2987	1-21-2020	...	...	...
2988	1-21-2020	...	...	...
2989	1-21-2020	...	...	...
2990	3-13-2020	...	...	...
2991	3-13-2020	...	...	...
2992	3-13-2020	...	...	...
2993	3-13-2020	...	...	...
2994	3-13-2020	...	...	...
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2997	6-5-2020	...	...	...
2998-1	9-15-2020	...	...	...
2999	6-4-2020	...	...	...
3000	6-4-2020	...	...	...
3001	4-23-2020	...	...	...
3002	7-9-2020	...	...	...
3003	7-15-2020	...	...	...
3004	7-15-2020	...	...	...
3005	9-3-2020	...	...	...
3006	9-3-2020	...	...	...
3007	9-8-2020	...	...	...
3008	9-15-2020	...	...	...
3009	9-14-2020	...	...	...
3010	10-6-2020	...	...	...
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EN 515 .....	2627, 2978		
EN 573-3 .....	2627, 2978		
EN 755-1 .....	2627, 2978		
EN 755-2 .....	2978		
EN 1982 .....	1750		
EN 10002-1 .....	2627		
EN 10025-2 .....	2720		
EN 10028-2 .....	2779		
EN 10028-3 .....	2594, 2624		
EN 10028-7 .....	2857		
EN 10088-2 .....	2719		
EN 10216-3 .....	2990		
EN 10217-1 .....	2721		
EN 10222-1 .....	2749		



Approval Date: June 23, 2005

Code Cases will remain available for use until annulled by the applicable Standards Committee.

**Case 1325-18  
Nickel-Iron-Chromium Alloys 800 and 800H (UNS  
N08800 and N08810) and Nickel-Iron-Chromium-  
Molybdenum-Copper Low-Carbon Alloy (UNS N08028)  
Section I**

*Inquiry:* May Nickel-Iron-Chromium Alloys 800 and 800H (UNS N08800 and N08810) and nickel-iron-chromium-molybdenum-copper low-carbon alloy UNS N08028 conforming to the specifications listed in [Table 1](#) be used for water wetted service in Section I construction?

*Reply:* It is the opinion of the Committee that nickel-iron-chromium and nickel-iron-chromium-molybdenum-copper low-carbon alloy forms as shown in [Table 1](#) may be used for water wetted service in Section I construction provided the following requirements are met.

(a) The maximum allowable design stress shall not exceed that shown in Table 1B of Section II, Part D.

(b) Welded fabrication shall conform to the applicable requirements of Section I.

(1) The procedure and performance qualifications shall be conducted as prescribed in Section IX, except that the tensile strength of the reduced section specimen shall not be less than the minimum tensile strength of the materials specified in the Inquiry.

(2) Welding on N08800 and N08810 shall be done by any welding process or combination of processes capable of meeting the requirements. Welding on N08028 shall be by the gas tungsten arc process only.

(3) Welds that are exposed to corrosive action of the contents of the vessel should have a resistance to corrosion equal to that of the base metal. The use of filler metal that will deposit weld metal with practically the same composition as the material joined is recommended. When the manufacturer is of the opinion that a physically

better joint can be made by departure from these limits, filler metal of a different composition may be used provided the strength of the weld metal at the operating temperature is not appreciably less than that of the high-alloy material to be welded, and user is satisfied that its resistance to corrosion is satisfactory for the intended service.

(4) Where welding repair of a defect is required, it shall be followed by reexamination as required in PW-11. Where a defect is removed and welding repair is not necessary, care shall be taken to contour the surface so as to eliminate any sharp notches or corners. The contoured surface shall then be reinspected by the same means originally used for locating the defect to be sure it has been completely removed.

(5) When these materials are cold formed, the rules of Section I, para. PG-19 shall apply for alloys N08800 and N08810. Other than these requirements, any other heat treatment after forming or fabrication is neither required nor prohibited, but if heat treatment is applied to alloy N08028, it shall be performed at 1975°F–2085°F (1080°C–1140°C) followed by rapid cooling.

(c) This Case number shall be shown on the Data Report.

**CAUTION: Austenitic alloys are subject to stress corrosion cracking, intergranular attack, pitting and crevice corrosion when used in boiler applications in aqueous environments. Factors that affect the susceptibility of these materials are applied or residual stress, water chemistry and deposition of solids, and material condition. Susceptibility to attack is enhanced when the material is used in a sensitized condition, or with residual cold work. Concentration of corrosive agents (e.g. chlorides, caustic, or reduced sulfur species) can occur under deposits formed on the surface of these materials, and can result in severe underdeposit wastage or cracking. For successful operation in water environments, careful attention must be paid to continuous control of water chemistry.**

The Committee's function is to establish rules of safety, relating only to pressure integrity, governing the construction of boilers, pressure vessels, transport tanks and nuclear components, and inservice inspection for pressure integrity of nuclear components and transport tanks, and to interpret these rules when questions arise regarding their intent. This Code does not address other safety issues relating to the construction of boilers, pressure vessels, transport tanks and nuclear components, and the inservice inspection of nuclear components and transport tanks. The user of the Code should refer to other pertinent codes, standards, laws, regulations or other relevant documents.