

# PRESSURE POINTS

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## ASME CODE NEWS

By Thomas P. Pastor, Vice President, HSB CT Codes and Standards Group

### Questions & Answers

**Q** In the fabrication of U-bundle heat exchangers for the brewery industry, it has become common practice to stress relieve the stainless steel tubes after forming. Since this stress relieving is carried out at a temperature greater than 900°F, am I required to impact test the material per UHA-51(c) of Section VIII, Division 1, even though the tube wall thickness is less than 0.099 in.?

**A** As currently written, an exemption from impact testing based on thickness does not apply when thermal treatments are performed on the material as described in UHA-51(c). After extensive deliberation at ASME, it was concluded that the exemption from impact testing for thin material (< 0.099 in.) as provided in UHA-51(d), should apply to all of UHA-51, even for UHA-51 (c). A revision to UHA-51 was approved in which the thin material exemption is placed in the opening paragraph of UHA-51. This revision will be published in the 2002 Addenda this summer.

**Q** When specifying B16.5 flanges, am I restricted as to the type of gasket that must be used?

**A** The answer depends on the type of bolting that is used. According to 5.4 of B16.5, ring joint gaskets must conform to ASME B16.20. Materials for other gaskets are described in Appendix E of B16.5. However, when low strength bolting is used [see Table 1B of B16.5] only gasket material shown in Fig. E1, Group No. 1a shall be used. Group 1a gaskets tend to be made of soft materials, such as elastomers, vegetable fiber, etc. Also it is recommended that Group No. 1a gaskets always be used for Class 150 flanges. If other gasket materials are used, flange design calculations must be performed per Section VIII, Division 1, Appendix 2.

**Q** Today, it is acceptable for a material test report (MTR) to be transmitted electronically [electronic data interchange (EDI)] from the material manufacturer to the material processor or end user. This is specifically addressed in paragraph 19.8 of SA-20. This being the case, can the results of the heat analysis

performed by the material manufacturer be reported directly on a material processor's test certificate? Would this be acceptable for Section VIII-1 construction?

**A** The use of EDI does not remove the requirement of both SA-20 and Section VIII-1 that traceability to the original material manufacturer must be maintained. Paragraph 19.7 of SA-20 states: "Copies of the original manufacturer's test report shall be included with any subsequent test report." In Appendix 3 of Section VIII, Division 1 under the definition of *Material Test Report* states: "... A material supplier shall not transcribe data certified by a material manufacturer but shall furnish a copy of that certification, supplemented as necessary by additional documents which certify the results of tests, examinations, repairs, or treatments required by the basic material specification and performed by the material supplier." The bottom line is that where MTR's are required by Code, as a minimum, an MTR from the original material manufacturer (the organization that melted the steel and takes responsibility for the heat analysis) must be supplied; if other tests or examinations are performed by a material processor or supplier, then their results would be reported on a separate test report.

### Recent Code Cases

Case 2343

Section I

**Seal Welding of Pressure Retaining Handhole and Inspection Plugs or Fittings Secured by Physical Means After the Hydrostatic Test**

In the current Section I, the only welding permitted after the hydrostatic test and without a retest is that of nonpressure parts to pressure parts (PW-54.3). This case extends this provision to seal welding of handholes and inspection plugs or fittings under the following conditions:

- Welding meets Part PW
- Seal weld must be exempted from PWHT per Table PW-39
- Completed weld must be MT or PT
- Completed weld must be inspected by AI
- Case number must be reported on MDR

(continued on next page)

## Recent Code Cases *(continued from previous page)*

### Case 2351

#### Section VIII, Division 1

#### Alternative Rules for Brazing Qualifications

This Code Case is intended for use in procedure and performance qualifications for furnace brazed plate fin heat exchangers. Due to the unique brazed joint geometry and extremely thin material used in this product type, conventional test methods specified in Section IX have proven to be unpredictable. Therefore, an alternative testing method is permitted that will sufficiently verify the integrity of the brazed joint. This Code Case provides alternative rules that are similar to those in Section IX but are more adapted to this specific product type.

### Case 2357

#### Section I

#### Ni-Fe-Cr Alloy N08801

The subject alloy is nominally a 32Ni-45Fe-20.5Cr-Ti annealed material with a 65/25 ksi minimum specified TS/YS. The material is very similar to Alloy 800 (UNS N08800) except for higher levels of Titanium and no Aluminum. These types of alloys are applied for their excellent corrosion resistance, especially their resistance to stress-corrosion cracking, and for good retention of strength at elevated temperatures.

Two specifications are covered by the Code Case, SB-163 and SB-407. Both specifications contain N08801 but the chemical compositions differs slightly between the two; the chemical composition in the Code Case corresponds to that in SB-163.

## COUNTDOWN TO MAY 29TH

*By Alex Garbolevsky, Senior Code Consultant, HSB CT Codes and Standards Group*

### Questions & Answers

Over the last several months, literally hundreds of questions have come our way on the subject of the European Union Pressure Equipment Directive 97/23/EC (PED). Here is a selection of typical questions and answers:

**Q** Where may I obtain a copy of the PED?

**A** The fastest source to obtain this 55-page document, and at no cost, is on the Internet. Two especially useful sites are: <http://ped.eurodyn.com> - The European Union's Official PED Website and [www.tukes.fi](http://www.tukes.fi) - The Finnish Safety Technology Authority.

**Q** We have heard that the Europeans are coming out with their own pressure vessel code. Will it be mandatory to use it to meet the PED?

**A** The Unfired Pressure Vessel Standard EN 13445 is expected to be issued before the end of 2002. This 900-page-plus document will be a "harmonized product standard" to the PED. This means that if it is followed, it will give a "presumption of conformity" to the Directive. As with all "harmonized standards" however, it is not mandatory to follow. You may use any other technical standards or specification to meet the Essential Safety Requirements of the Directive. It should be noted that many of the referenced standards in EN 13445 are being imposed on manufacturers as a condition for PED compliance. These include: EN 287 for welder approval and EN 288 for weld procedure approval

**Q** Does this mean that Section IX qualifications aren't acceptable for PED fabrication?

**A** The Europeans require that a Notified Body or Registered Third Party Organization approve welders and weld proce-

dures (for categories II, III and IV). This approval process mandates that the welding of the test coupons be witnessed by such an organization. Typically, only the manufacturer witnesses and

certifies the testing under Section IX. Therefore, for PED approval, the weld procedure and personnel testing must be redone in the presence of the Notified Body or Registered Third Party Organization. Latest guidance from the EU's Working Group "Pressure" is that the testing needs to be done to both ASME Section IX and EN requirements. The Notified Body or Registered Third Party Organization issues an approval certificate upon satisfactory results.

**Q** Our firm fabricates compressors and pumps. I understand that these items are excluded under the PED. Is that correct?

**A** The PED does not **automatically** exclude equipment such as actuators, turbines, engines, compressors and pumps. PED Article 1 paragraph 3.10 requires that the manufacturer show that the dimension, choice of material and manufacturing rules for such equipment "...are based primarily on the requirements for sufficient strength, rigidity and stability to meet the static and dynamic operational effects or other operational characteristics and for which design is not a significant factor..."

**Q** If I fabricate a pressure vessel using ASME Section VIII Div. 1 to meet the PED, must I "stamp" the vessel with both the "U" and "CE" symbols?

**A** The PED requires only the CE-mark and dataplate information as outlined in the Directive. A vessel in **full** compliance



with ASME Section VIII Div. 1 may, in addition, bear the “U” stamp. Usually, if both the “U” and “CE” markings appear, it is because of a customer requirement. If ASME Section VIII Div. 1 is used as the design and fabrication basis to meet the PED’s essential safety requirements, but is not inspected by an Authorized Inspector, “U” stamping is prohibited by the ASME Code.

**Q** My pressure equipment falls under “sound engineering practice” (SEP). The customer wants me to apply the CE-mark. Is this allowed? If I can’t CE mark these items, how do I get them in to Europe?

**A** Although the PED allows the manufacturer to select a “higher hazard category” than the one determined from Annex II, SEP is an exception. The Directive prohibits CE-marking of items falling under SEP. To avoid problems at EU Member State’s customs, we recommend that documentation be provided with the shipment stating that it is supplied without CE-marking per PED Article 3 paragraph 3.

**Q** Is there some guidance available on how to use the ASME Code in meeting the PED?

**A** A very useful ASME publication is a [Guide for ASME Stampholders - Use of ASME Section VIII Division 1 to Meet the EC Pressure Equipment Directive \(97/23/EC\)](#). It is available for sale at [www.asme.org](http://www.asme.org).

**Q** Is SNT-TC-1A certification for NDE personnel enough to meet PED?

**A** Only for Category I & II pressure equipment. For Categories III & IV, a Notified Body or Registered Third Party Organization must approve the NDE Personnel. In the European view, approval requires an external body to certify personnel. Hartford Steam Boiler has teamed with the British Institute for Non-destructive Testing (BINDT) to make the approval process a bit easier. A Manufacturer (or NDE subcontractor) prepares a surveillance proposal with a list of recommended NDE personnel together with its “Written Practice” to BINDT for a desktop review. After BINDT’s desktop review, an auditor is assigned to perform an onsite visit, which includes witnessing a practical implementation of NDE procedures by a number of candidate personnel. Upon satisfactory results, BINDT issues an approval certificate and the listed personnel are approved for PED work. Annual desktop audits are used to verify the implementation of the surveillance procedure. A recertification is performed every three years.

**Q** Is it acceptable for a material manufacturer to issue an EN 10204 Type 3.1 C material certificate authorized by an accredited material testing laboratory rather than one countersigned by a Notified Body? We are being told that a certain testing laboratory is acceptable for issuing 3.1.C certificates in accordance with the PED because they are certified for

“Independent Laboratories engaged in services related to classified/certified objects classed by the Society and in accordance with ISO/DIS/ 17025.” This certificate was issued by a Notified Body who is also an ISO 9000 Registrar.

**A** To our understanding, 3.1C certification may be validated either by a Notified Body or a pressure equipment manufacturer who has a certified PED QA System. The current EN10204 will be revised to clarify. The new edition will reference Type 3.1 and 3.2 certificates. Type 3.1 will be the “QA route” and the designations 3.1B and C will disappear.

In the situation you describe, the Notified Body is not involved and since there is no mention of a PED-approved pressure equipment manufacturer’s QA system, it therefore does not meet the requirements.

An A2LA-accredited lab could, on behalf of the Notified Body, conduct the tests without Notified Body presence. The lab would have to be accepted on certification on file by the Notified Body. The Notified Body would need to verify the test bars at the material manufacturer and validate the material test report. Since the testing laboratory is not a Notified Body, it cannot do this. HSB International GmbH has performed audits at laboratories to qualify them as a sub-contractor to perform testing on our behalf, but this does not extend to other Notified Bodies.

In North America, over 60 local representatives of Hartford Steam Boiler International GmbH provide PED Notified Body services including:

- Permanent-joining procedure approval
- Permanent-joining personnel approval (in association with HSB IQ)
- Nondestructive examination personnel auditing (in association with BINDT)
- Particular material appraisals
- Design review or approval
- Inspection
- EC type- and design-examination certification
- Quality system certification
- “Competent Body” certification of material manufacturers [PED Annex I (4.3)]

We welcome your questions on the Pressure Equipment Directive and how HSB CT can assist you in compliance.

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■ **ASME Codes and Standards Group** offers technical consulting and design review services to both manufacturers and users of boilers and pressure vessels. Contact Tom Pastor, 860-722-5615, or via e-mail at thomas\_pastor@hsbct.com.

■ **Pressure Equipment Directive Services** provides auditing and inspection services (through HSB International) for clients shipping pressure vessels into the European Union that require CE Marking. Contact Timothy Nuoffer, 636-305-6522, e-mail: timothy\_nuoffer@hsbct.com or Alex Garbolevsky, 508-875-0710 e-mail: alex\_garbolevsky@hsbct.com.

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■ **Educational Services** provides customized, in-house, technical seminars in areas such as ASME Code Sections I, VIII, IX, and Repairs and Alterations. We also offer a three-week National Board Prep course in a variety of locations around the U.S. Contact Jill Smolnik, 860-722-5294, or via e-mail at jill\_smolnik@hsbct.com.

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