

# CEPEDA Associates, Inc.

**Number:** Q-52

**Revision:** 8/29/2014

**Title:** **WELDING AND BRAZING PROCEDURE APPROVAL**

**Clause:** CEPEDA and/or their customer shall approve the supplier's welding/brazing personnel and procedures prior to performing any production or repair welding or brazing.

The requirements contained herein apply to procedures (both military and commercial) used in fulfilling the requirements of this purchase order. The requirements are applicable to both suppliers and their subcontractor(s).

Material welded or brazed with unapproved procedures or unapproved procedure revisions is subject to rejection. Suppliers must work to the most recent approved revision of their procedure. Each approval for a new procedure revision supersedes the previous revision approval. The use of earlier revisions of a procedure requires specific approval. The procedure must be submitted on a Supplier Procedure Approval Request (SPAR, form F-7420-014) and must identify what application the earlier revision of the procedure will be used on as well as justification for using that revision of the procedure.

## A. Specification Substitution Allowance

The requirements in this section shall apply except where NAVSEA approved equipment specifications state otherwise; in which case, the requirements of the NAVSEA-approved equipment specifications shall take precedence.

1. Wherever reference is made to the Table 1 specifications in this purchase order or in referenced documents (i.e. purchase specifications, drawings), the corresponding substitution shall be used.
2. When the supplier elects to use the alternate substitution, the supplier must use the alternate substitution for all referenced documents therein unless otherwise specified. In addition, new procedures, or procedures which are revised to reference the alternate substitution, shall be submitted for approval in accordance with the requirements of this standard clause. However, revisions to vendor drawings to reflect use of the alternate substitution are not mandatory.
3. Exceptions to paragraph 2 above:
  - I. Suppliers welding materials other than titanium, who have obtained prior EB or Newport News Shipbuilding, Newport News Operations approval of nondestructive test procedures or weld procedure qualification test records for use with the specification substitutions, may continue to use the specification substitution.
  - II. Suppliers welding titanium:
    1. Only suppliers with titanium weld procedures that had the weld procedure

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qualification test records approved in accordance with the specification substitution prior to 1 October 1997 and have performed titanium fabrication prior to 1 October 1997 may continue to use the specification substitution.

2. All other suppliers welding titanium must use the alternate substitution unless otherwise specifically approved to continue to use the specification substitution.

*Table 1 - Specification Substitutions*

SPECIFICATION	SUBSTITUTION
MIL-STD-248	S9074-AQ-GIB-010/248 (1 AUGUST 1995)
MIL-STD-278	S9074-AR-GIB-010/278 (1 AUGUST 1995)
MIL-STD-1681	T9074-AD-GIB-010/1688 (1 MAY 1997)
MIL-STD-1688	T9074-AD-GIB-010/1688 (1 MAY 1997)
MIL-STD-1689	T9074-AD-GIB-010/1688 (1 MAY 1997)

4. The specification used shall be clearly noted on required documentation (e.g. procedures, records, certifications, etc.).

## B. Use of Unlisted Base Materials

1. All base metals (specification, type and class or grade) that are not listed in MIL-STD-248/MIL-STD-278 S-Group tables must have NAVSEA or NAVSEA authorized representative approval to be used as an S-numbered material in accordance with MIL-STD-248/MIL-STD-278 or NAVSEA S9074-AQ-GIB-010/248/S9074-AR-GIB-010/278, Table 1 footnote 1.
2. If the supplier does not have an approval reference (approval letter number), the supplier must request approval. The request must provide the material specification, type, condition, and application where this material is being used.

NOTE: Approval to classify a material to an S-group does not constitute approval to use that material for a particular application or to authorize substitution of a material on a drawing.

## C. Preparation of Welding Procedures

Instructions for the preparation of welding procedure qualification records and welding procedures that will be submitted to CEPEDA via a SPAR can be found by following the instructions below:

1. See SPAR Instructions, F-7420-014A, on CEPEDA's Supplier website, <http://www.cepedaassociates.com/suppliers>. These instructions offer a guide to preparing and presenting the qualification and welding procedure information such that it will conform to the requirements of MIL-STD-248 or S9074-AQ-GIB-010/248 Table V.
2. Also on CEPEDA's Supplier website, suppliers can find a weld procedure template, which can be used to develop approvable documentation.

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3. Suppliers and sub-tier suppliers may use the NavWeld system in preparing procedures and qualification data. Information may be obtained by contacting Troy Paskell at 614-487-7207, or [paskell@weldqc.com](mailto:paskell@weldqc.com). Visit the website at <https://www.navweld.com>.

### D. Procedure Approval

Material welded or brazed with unapproved procedures or unapproved procedure revisions is subject to rejection. Suppliers must work to the most recent approved revision of their procedure. Each SPAR approval for a new procedure revision supersedes the previous revision approval. The use of earlier revisions of a procedure requires specific SPAR approval. The procedure must be submitted on a SPAR and must identify what application the earlier revision of the procedure will be used on as well as justification for using that revision of the procedure.

1. All production and repair welding (including base metal repair) and brazing when required by this purchase order or sub-tier documents (i.e., fabrication/material specifications, drawings, etc.), must be performed in accordance with written procedures.
2. Written procedures shall be approved by the buyer prior to performance of welding or brazing and should be submitted for approval within thirty (30) days of supplier's receipt of a purchase order. In addition, evidence of personnel qualifications shall be available upon request when such qualification is a requirement.
3. Procedures shall be provided to the buyer via a properly completed Supplier Procedure Approval Request (SPAR). Only one weld procedure (including supporting qualification data, test reports and previous approval information) shall be submitted per SPAR. Records for more than one supporting qualification test may be submitted with a SPAR, as necessary, in support of a single welding procedure.
4. Welding/brazing procedures are typically approved for either general use without restriction for procedures using Table 1 specifications. For non-critical applications (as defined by section 4.2 of MIL-STD-1689 and/or paragraph 4.2.1.1 of MIL-STD-278), minor structure (as defined in paragraph 3.33.3.1 of NAVSEA T9074-AD-GIB-010/1688), commercial specifications, or other specifications, approval is limited. Limited approval may be obtained for a single purchase order or single application. Single application approval shall be based on drawing number/piece numbers and revision or part number.
5. Submerged arc welding of HY and HSLA materials shall be subject to additional controls. Contact the buyer for more details.
6. Commercial welding: Applications for which commercial welding is allowed shall have procedures and qualification data which meets all applicable requirements of the specification (AWS, ASME, etc.). The procedure and qualification data shall state the specification and revision that is being used. In addition, all applications allowing commercial welding require approval, in writing, by CEPEDA and/or their customer. Suppliers that are unsure if commercial welding is allowed for a particular application

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should submit a request to CEPEDA.

7. Other welding specifications not listed in Table 1 above and excluding commercial welding specifications (AWS, ASME, etc.) (This includes other military specifications): When allowed, welding procedures shall meet all the requirements (including qualification testing) of that specification. Procedures and qualification must list the specification and revision used. All applications allowing other welding specifications welding require approval, in writing, by CEPEDA and/or their customer. Suppliers that are unsure if commercial welding is allowed for a particular application should submit a request to CEPEDA.
8. Commercial welding practice is defined as welding performed without direction from any particular specification, based on supplier's knowledge and experience. When allowed, the supplier shall, at a minimum, have a written procedure which defines all parameters necessary to produce a sound weld. The supplier may be requested to perform testing in order to provide objective quality evidence that the procedure will produce satisfactory results. All applications allowing commercial welding practice welding require approval, in writing, by CEPEDA and/or their customer. Suppliers that are unsure if commercial welding is allowed for a particular application should submit a request to CEPEDA.
9. Each welding procedure test assembly and associated records shall be identified by a unique PQR number which is different from the welding procedure number or another PQR number. The unique PQR number must be applied to all qualification support documents, including test lab reports. The test lab reports shall identify the following as applicable:
  - I. the NDT performance standard and revision
  - II. NDT acceptance standard and revision
  - III. destructive test performance standard
  - IV. destructive test acceptance criteria (standard, paragraph, and subparagraph if applicable)
  - V. bend tests shall report bend angle, thickness, and bend radius
  - VI. all changes to lab reports shall be accomplished by the cognizant lab, without exceptions
10. When revisions are required to correct discrepancies to weld procedures and/or qualification records/supporting documentation. The following shall apply:
  - I. Procedures that have been previously issued for work shall require both a change in the revision level and the date. Procedures that have not been previously issued for work need not change the revision level change but shall have the date changed.
  - II. Procedure qualification records/supporting documents shall retain the original date that the test assembly was welded or that the test was performed, and shall identify what items were corrected and the date the corrections were made.

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- III. For previously approved procedure qualification records/supporting documents, the documents shall be presented to the original approval authority for approval of the corrections.
11. Any activity performing the RT evaluation of welding procedure qualification test assemblies shall have their RT procedures approved by CEPEDA and/or their customer. The guidelines for submittal of a SPAR for an RT procedure for approval or extending a previous approval shall be in accordance with the guidelines of Q-53.
- I. For welding procedure qualifications working to NAVSEA Technical Publications, RT procedures must be written to NAVSEA T9074-AS-GIB-010/271.
  - II. For welding procedure qualifications working to military standards, RT procedures shall be written to MIL-STD-271F.

NOTE: It is highly recommended that each cassette be double loaded so that questionable indications or artifacts can be resolved without the need for re-inspection.

12. Radiography submittal: For MIL-STD-248/NAVSEA S9074-AQ-GIB-010/248, welding procedure qualification records (PQRs) for which radiography (RT) inspection is required and which have not been previously approved shall require submittal of the RT film and RT data for review and approval on a SPAR separate from the welding procedure SPAR.
- I. The RT film with associated set-up (technique) and reader's sheet shall be submitted (separate from the welding procedure SPAR) to the buyer. In addition, a copy of the SPAR that approved the RT procedure shall be attached to this submittal.
  - II. The RT film and associated data shall be submitted for review and approval prior to sectioning the qualification test assembly for destructive testing.
  - III. The RT performance standard and acceptance criteria must be listed per a. or b. below:
    - a. for Tech Pub qualifications the RT performance standard shall be NAVSEA T9074-AS-GIB-010/271; acceptance to MIL-STD-2035A Class I
    - b. for MIL-STD qualifications the performance shall be MIL-STD-271F standard; acceptance to MIL-STD-2035A Class I
  - IV. The approval request shall contain the following items:
    - a. the statement, "RT film and data for welding procedure qualification"
    - b. PQR number
    - c. welding procedure number
    - d. the statement, "Visual inspection (VT) was conducted and the weld found to be SAT"
    - e. RT procedure (identified by performing activity) number, revision, and

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- date (and any addenda)
- f. joint type, i.e. butt, single bevel, double bevel, backing bar, etc.
- g. base material type
- h. filler material type
- i. joint thickness
- j. joint form plate/ pipe

### E. Supplier's and Subcontractors' Previously Approved Procedures

1. All revisions to welding or brazing procedures which require qualification or requalification as specified by paragraphs 4.7 and 4.8 of MIL-STD-248, paragraph 6.3.3 of NAVSEA 250-1500-1, or paragraph 4.2.8.1 of NAVSEA 0900-LP-001-7000 must be submitted for approval on a SPAR within thirty (30) days after receipt of a purchase order. The buyer must be notified if submittal of the SPAR will be delayed past thirty (30) days.
2. All procedures which have been revised but do not require requalification as specified in paragraphs 4.7 and 4.8 of MIL-STD-248, paragraph 6.3.3 of NAVSEA 250-1500-1, or paragraph 4.2.8.1 of NAVSEA 0900-LP-001-7000 shall be submitted for approval using a SPAR prior to start of manufacture but not more than thirty (30) days after receipt of order. The submittal shall clearly describe the full extent of all changes.
3. Procedures previously approved for non-critical applications (as defined by section 4.2 of MIL-STD-1689 and/or paragraph 4.2.1.1 of MIL-STD-278), minor structure (as defined in paragraph 3.33.3.1 of NAVSEA T9074-AD-GIB-010/1688), commercial specifications, or other specifications, approval is limited. Limited approval may be obtained for a single purchase order or single application. Single application approval shall be based on drawing number/piece numbers and revision or part number.
4. Except for procedures described in E.3 above, procedures which have previously received the buyer's written approval, need not be resubmitted for approval or information on this purchase order provided that the procedure, including revision, is the same as that previously approved.
5. When previously approved procedures as described in E.4 above are to be used, the supplier shall attach a photocopy of the buyer's SPAR that approved the procedure to both the packing slip and the weld records (when weld records are required to be submitted).
6. The above requirements do not relieve the supplier of his responsibility to comply with the specification requirements of the purchase order. Any deviations from or waivers to the purchase order requirements must be clearly identified as such by the supplier and must be approved in writing by the buyer.

### F. Supplier's and Subcontractors' Procedures Previously Approved By Other Organizations

1. Welding/brazing procedures to be used on this contract that have been previously

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approved by other organizations still must be submitted to the buyer for approval on a SPAR.

2. To expedite approval, procedures must be submitted with the supporting qualification data and copies of all approval documentation from other organizations (for example, a NAVSEA letter of approval, an authorized representative letter of approval, Newport News Form 9014, etc.).

### G. Repair of Base Materials

No base metal repair welding may be performed without prior review and approval from CEPEDA and/or their customer.

### H. Welder Workmanship Training

When qualification is required by NAVSEA S9074-AQ-GIB-010/248 or NAVSEA T9074-AD-GIB-010/1688, welder workmanship training shall comply with EB4186 Appendix A or Appendix B, as applicable. If requested, the buyer can provide additional documentation to the supplier to support this training. Compliance with EB4186 Appendix A or Appendix B is not applicable to fabricators that have welder workmanship procedures that are previously approved by NAVSEA or a NAVSEA authorized representative. Evidence of previous approvals shall be submitted to the buyer for review.

### I. Submittals

Submittals shall be provided to CEPEDA via email, mail, or fax to the attention of the buyer or Quality Assurance ([quality@cepedaassociates.com](mailto:quality@cepedaassociates.com)):

CEPEDA Associates, Inc.  
11100 Decimal Dr.  
Louisville, KY 40299  
Phone: 502-267-4945  
Fax: 502-266-5918

All submittals must reference the CEPEDA purchase order number.

For more information refer to [QCP300.2, Supplier Quality Assurance Requirements](#).