



## SYSTEM PROCEDURE

# Control of Production

REVISION: 08

PROCEDURE NO.: 14

DATE EFFECTIVE: 04-01-21

### 1. PURPOSE

1.1 To define the Tempco Electric Heater Corporation process for planning production activities that directly affect product quality and to ensure that these activities are carried out under controlled conditions.

### 2. SCOPE

2.1 This procedure applies to all manufacturing operations within Tempco Electric Heater Corporation.

### 3. PROCEDURAL REQUIREMENTS and RESPONSIBILITIES

3.1 The Director of Manufacturing Operations, Production Managers, Production Supervisors, Group Leaders, Engineering and Quality Assurance have the primary responsibility for the development, availability for use and effective implementation of the following:

- 3.1.1 Information that describes the characteristics of the product through the utilization of Tube Tickets, Lead Wire Tickets, Specification Sheets, Manufacturing Orders, Drawings and Work Instructions
- 3.1.2 Monitoring and measuring devices
- 3.1.3 Monitoring and measuring activities
- 3.1.4 Release and delivery activities

3.2 Control of production is provided through a combination of the documentation of manufacturing processes and the training and competence of personnel (e.g. operators).

3.3 Processes are documented through approved Tube Tickets, Lead Wire Tickets, Specification Sheet, Manufacturing Order, Drawings and Manufacturing or Work Instructions. Any combination of this documentation may be available throughout the various manufacturing processes and in conjunction with the Monitoring and Measuring of Product Procedure 19 will provide the following production controls:

- 3.3.1 Communicates the production process requirements and product verification plan by identifying all production operations, inspection and verification criteria;
- 3.3.2 Includes the applicable drawings, specification sheets, work instructions, acceptance and/or workmanship criteria and other documents required for production or inspection. Drawings and/or specification sheets provide accountability for all products during manufacturing, including the identification of the drawing number, Bill of Material, quantity, customer, manufacturing order number and due date.
- 3.3.3 Provides means for recording completion of production and verification operations and their results, as well as for recording material and process traceability data, when applicable;
- 3.3.4 Ensures product identification and inspection status identification during production including providing evidence that all manufacturing and inspection operations have been completed as planned, or as otherwise documented and authorized;
- 3.3.5 After completion of production, the QC Log Evaluation Record is used for recording the final inspection and release of product.



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- 3.4 This process documentation, in conjunction with the overall Training & Qualification process, provides a comprehensive approach for establishing the necessary controls and ensuring personnel are competent to perform their assigned tasks and to meet any specified customer quality requirements. The Director of Manufacturing Operations, Department Managers, Engineering and/or Authorized Personnel are responsible for the approval of any changes, by initialing and dating the changes or re-releasing the affected documentation. When required, approval will also be obtained from the customer in accordance with contract or regulatory requirements. Changes affecting processes, production equipment, tools and programs will be documented as appropriate. The results of changes to production processes will be assessed to confirm that the desired effect has been achieved without adverse effects to product quality.
- 3.5 Where the results of processes cannot be fully verified by subsequent measurement or monitoring of the product and where, for example, processing deficiencies may become apparent only after the product is in use, these processes are called "Special Processes." Tempco Electric Heater Corporation Special Processes include welding, brazing, passivation, pressure testing and painting. These processes are validated and demonstrate the ability to achieve planned results through the combination of the following controls:
- 3.5.1 Human Resource Qualification Record's (HRQR's) provide a record that the proficiency of each individual qualified to perform "Special Processes" has been validated by their supervisor. The HRQR's demonstrate that competency requirements have been met based on the appropriate education, training, skills and experience. In addition, when the status of an individual is approved on the HRQR as fully qualified and/or as a qualified trainer, this also serves as a record of the approval of the "Special Processes" system, which includes the combination of the operator's competency and the equipment's capabilities to meet the defined product requirements and customer expectations.
- 3.5.2 Individuals in-training and not fully qualified must have their manufacturing orders reviewed and initialed by a qualified operator.
- 3.5.3 Process Work Instructions, as determined appropriate, will define the process methods and provide criteria for review and approval of the processes and equipment.
- 3.5.4 The integrity of the Welding and Brazing operations are verified by visual inspection, and when required Die Penetration Test and X-ray inspection. In addition, the subsequent applicable operations such as swaging, pressure test, IR test, pull test etc. will also cull out weld and brazing defects.
- 3.6 Special processes performed by suppliers are controlled in accordance with the Purchasing Process Procedure 12.

## 4. RECORDS

- 4.1. Tube Tickets
- 4.2. Lead Wire Tickets
- 4.3. Order Tracker
- 4.4. Specification Sheet
- 4.5. Drawings
- 4.6. Work Instructions
- 4.7. Manufacturing Order



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**5. REVISION HISTORY**

REVISION LEVEL	DATE OF REVISION	SECTIONS	DESCRIPTION OF CHANGE
00	2-04-09	All	Initial release
01	6/14/11	4.6 & 4.5	Removed 4.6 and renamed 4.5
02	5/20/16	3.5.4	Added pressure and pull tests to second line
03	5/24/17	3.5, 3.5.1	3.5-Added Passivation, pressure test and painting to special process, 3.5.1 changed wording to special processes from welding and brazing
04	01/29/18	3.3, 3.6	Was Procedure 7.5.1. Updated procedure number in sections 3.3 and 3.6
05	05/14/18	3.4, 4	3.4 Added Production Engineers 4 Added Drawing and Work Instructions
06	05/14/19	3.1, 3.4	Change in responsible parties
07	01/27/20	3.1	Added more responsible parties (Production Managers, Group Leaders)
08	04/01/21	4	Added 4.7 Manufacturing Order

**6. AUTHORIZATION**

POSITION	HELD BY	AUTHORIZATION SIGNATURE OR INITIALS
Prepared By: Director of Manufacturing Operations	Ananda Palanichamy	
Senior Management Representative: Chief Financial Officer	Paul Wickland	
Management Representative:	Samir Patel	