Title:

HELLER INDUSTRIES Reflow Oven Operation Procedure

Revision	Description of Change	Date Effective	Author
A	Initial Release	06/23/99	S. Gomez
B	Change machine from VITRONICS SOLTEC	10/15/14	D. Wu
C	Change machine from HELLER INDUSTRIES	06/07/18	Z.Yang

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Title:

HELLER INDUSTRIES Reflow Oven Operation Procedure

1.0 Purpose

1.1 The purpose of this procedure is to define how to operate the Conceptronics Reflow Oven.

2.0 Scope

2.2 This procedure applies to Conceptronics oven.

3.0 References

3.2 SOP11 First Article

4.0 Definitions

4.1 N/A

5.0 Responsibilities

5.1 A trained operator must ensure that the oven is functioning correctly.

5.2 The area Supervisor must ensure compliance to this procedure.

5.3 Engineering will monitor the reflow process and provide assistance when necessary.

6.0 Equipment

6.1 HELLER INDUSTRIES

7.0 Materials

7.1 N/A

8.0 Records

8.1 Conceptronics Profile Setup Sheet PMFG003

9.0 Procedure

9.1 Start up procedure:

9.1.1 Make sure there is no forign elements on the conveyor and in the oven before turnning on oven.

9.1.2 Switch the main power to the ON position located in the front of machine.

9.1.3 Select desired profile

9.1.4 Turn on “blower for oven located on the power panel.

9.1.5 If there is an alarm, close the exhaust door located on the back of the oven remain there until the alarm stops. Open the exhaust door to the end of the line (marked on the oven).

9.1.6 Set oven settings for the profile to be run. Refer to the Conceptronics Profile Log Sheet form # PFMG003 which is located in the Surface Mount Profile Log Book for the correct profile. If the profile to be run is not on the active profiles menu, contact Engineering for a new profile. Do not run production without an approved profile or without the assistance of Engineering.

9.1.7 Turn on the Rapidox 1100 Oxygen Analyser (Located in the back of Heller Industries oven).

Note: Press FUNC and ↓ or ↑ on the control panel to increase or decrease tempeture settings. Turn speed control knob to set conveyer speed.

9.2 Shut down procedure:

9.2.1 Wait until the last board comes out then, turn off the heater switch only. Do not turn blower off or any other switches on the panel.

9.2.2 Wait until all oven zones dropped below 200 °F. Turn off all remainder switches and "blower for oven from the power panel.

9.2.3 Press the power switch to OFF then turn all switches to power OFF position.

9.2.4 Switch the oven main power to the OFF position (located beside the machine).

9.2.5 Switch the transformer power to the OFF position (located in the stockroom cage).

9.2.6 Switch the main power to the OFF position (located next to the air compressor).

9.2.7 Switch the Rapidox 1100 Oxygen Analyser to OFF position (Located in the back of Heller Industries oven).

9.3 Profiling guidelines

9.3.1 Target Profiles: Target profiles will be part of customers' requirements or recommendation. If not provided by customer, Meritronics will use the recommendated profile from solder paste manufacturer.

9.3.2 Profiling boards: If solder sample is provided by customer, use solder sample with damaged parts to simulate actual boards. If solder sample is not available, use first article board with the best guess starting profile.

9.3.3 Thermocouple Locations: Use minimum of 2 thermal couples includes one on most critical solder joints or dense area, second one on bottom of PCB or keep safe area. Critical solder joints will be BGA joints, QFP joints, etc.

9.3.4 Specify boards will be loaded on china or mesh belt, whether foil is required on the bottom of PCB.

9.3.5 The maximum temperature can not exceed 5 degree C from target profile

9.3.6 If reflowing second side of the double sided boards, bottom side/keep safe area can not be higher than 170 degrees celcius.

9.3.7 The time above melting point (183°C for Sn63Pb37) must fall within target profile requirement.

9.3.8 The ramp speed and soaking temperature range should be as close to target profile as possible.

9.3.9 The minimun nitrogen PPM is 3000PPM for use to reflow with nitrogen. Turn on the Rapidaox software to monitor the PPM value, make sure the nitrogen value is 3000ppm before reflow.